

HOW TO READ THE STANDARD OF TURNING INSERTS

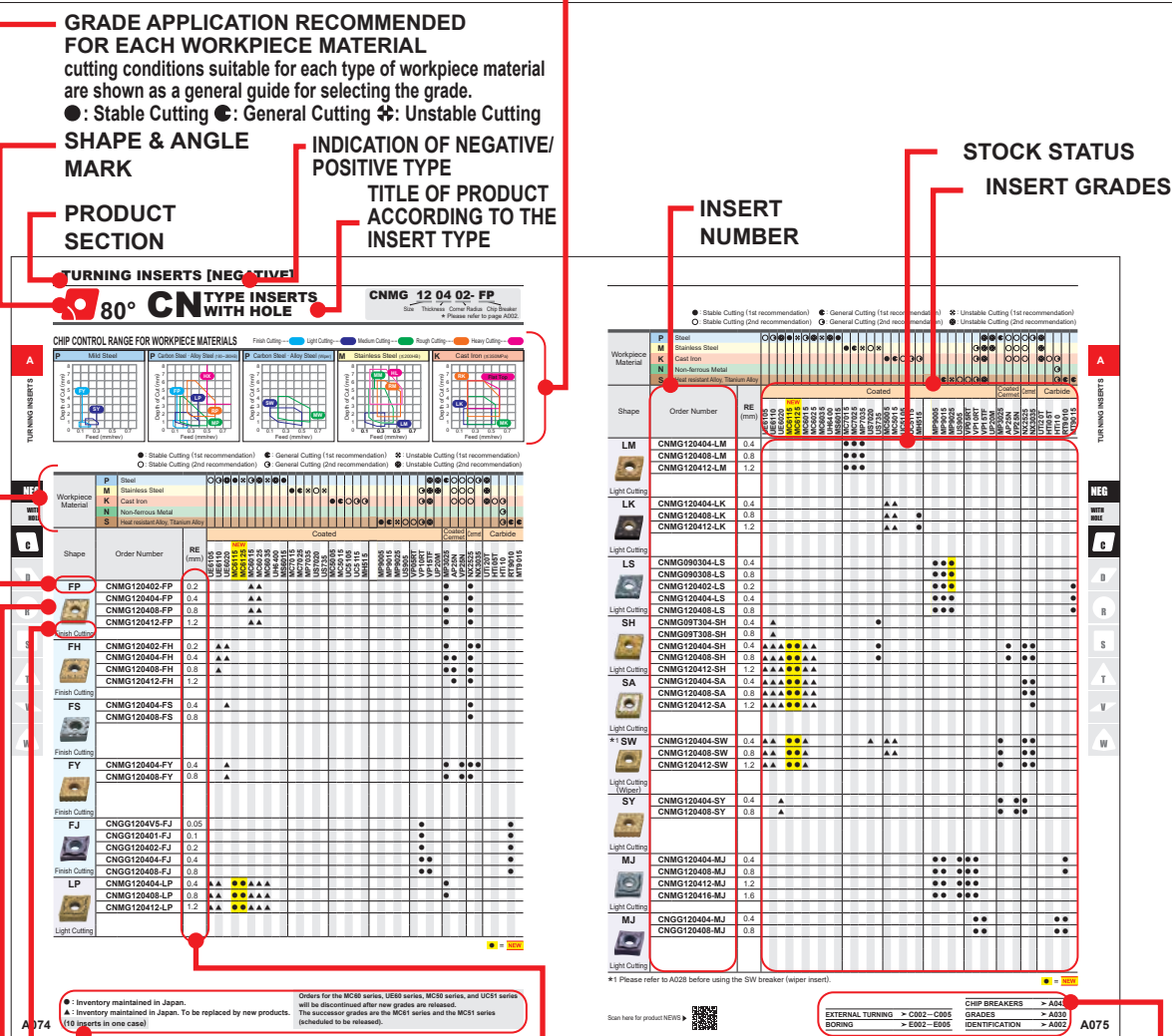
●How this section page is organised

- ①Organised according to turning insert shape.
(Refer to the index on the next page.)
- ②Inserts are arranged in order of :
 - Negative inserts (with hole→without hole)
 - Positive inserts (with hole→without hole)
- ③Breakers are arranged in order of :
Finish Cutting→Light Cutting→Medium Cutting
→Rough Cutting→Heavy Cutting

●Graph of chip control by workpiece material

Shows recommended chip breakers and chip control range according to workpiece material and cutting application. Graphs are coloured according to cutting applications (Finish→Light→Medium→Rough→Heavy) and contain recommended breakers for each application.

Finish Cutting : — Light Cutting : — Medium Cutting : —
Rough Cutting : — Heavy Cutting : —



LEGEND FOR STOCK STATUS MARK
is shown on the left hand page of each double-page spread.

CUTTING APPLICATION
is shown in order of: Finish→Light→Medium→Rough→Heavy.

PHOTO OF INSERT

INDICATION OF CHIP BREAKER
indicates the designation for a chip breaker.

PAGE REFERENCE

·CHIP BREAKERS
·GRADES
·TECHNICAL DATA
indicates reference pages, on the right hand page of each double-page spread.

INSERT CORNER RADIUS (RE)

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

TURNING TOOLS

INSERT STANDARDS

INSERT GRADES

IDENTIFICATION	A002
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PRECISION BREAKER SYSTEM	A006
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COATED CARBIDE (CVD)	A034
COATED CARBIDE (PVD)	A036
CERMET	A037
COATED CERMET	A038
CEMENTED CARBIDE	A039
MICRO-GRAIN CEMENTED CARBIDE	A040
CLASSIFICATION OF INSERTS	A042

STANDARD OF INSERTS

NEGATIVE INSERTS WITH HOLE

CN○○TYPE...RHOMBIC 80°	A074
DN○○TYPE...RHOMBIC 55°	A081
RN○○TYPE...ROUND	A088
SN○○TYPE...SQUARE 90°	A089
TN○○TYPE...TRIANGULAR 60°	A095
VN○○TYPE...RHOMBIC 35°	A102
WN○○TYPE...TRIGON 80°	A106

NEGATIVE INSERTS WITHOUT HOLE

CN○○TYPE...RHOMBIC 80°	A111
SN○○TYPE...SQUARE 90°	A112
TN○○TYPE...TRIANGULAR 60°	A113

POSITIVE INSERTS WITH HOLE

CC○○TYPE...RHOMBIC 80°	A114
CP○○TYPE...RHOMBIC 80°	A122
DC○○TYPE...RHOMBIC 55°	A124
DE○○TYPE...RHOMBIC 55°	A130
RC○○TYPE...ROUND	A131
SC○○TYPE...SQUARE 90°	A132

SP○○TYPE...SQUARE 90°	A134
TC○○TYPE...TRIANGULAR 60°	A135
TE○○TYPE...TRIANGULAR 60°	A138
TP○○TYPE...TRIANGULAR 60°	A139
VB○○TYPE...RHOMBIC 35°	A142
VC○○TYPE...RHOMBIC 35°	A145
VD○○TYPE...RHOMBIC 35°	A148
VP○○TYPE...RHOMBIC 35°	A149
WB○○TYPE...TRIGON 80°	A150
WC○○TYPE...TRIGON 80°	A151
WP○○TYPE...TRIGON 80°	A152
XC○○TYPE...RHOMBIC 25°	A153

POSITIVE INSERTS WITHOUT HOLE

RTG TYPE.....	A154
SP○○TYPE...SQUARE 90°	A155
TC○○TYPE...TRIANGULAR 60°	A156
TP○○TYPE...TRIANGULAR 60°	A157

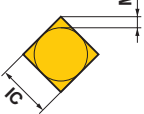
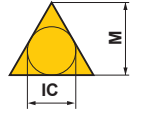
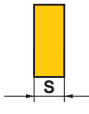
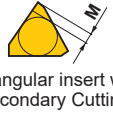


IDENTIFICATION

A

TURNING INSERTS

Symbol	Insert Shape	
H	Hexagonal	
O	Octagonal	
P	Pentagonal	
S	Square	
T	Triangular	
C	Rhombic 80°	
D	Rhombic 55°	
E	Rhombic 75°	
F	Rhombic 50°	
M	Rhombic 86°	
V	Rhombic 35°	
W	Trigon	
L	Rectangular	
A	Parallelogram 85°	
B	Parallelogram 82°	
K	Parallelogram 55°	
R	Round	
X	Special Design	
① Insert Shape		

   			
③ Tolerance Class			
Symbol	Tolerance of Nose Height M (mm)	Tolerance of Inscribed Circle IC (mm)	Tolerance of Thickness S (mm)
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—±0.15	±0.025
K*	±0.013	±0.05—±0.15	±0.025
L*	±0.025	±0.05—±0.15	±0.025
M*	±0.08—±0.18	±0.05—±0.15	±0.13
N*	±0.08—±0.18	±0.05—±0.15	±0.025
U*	±0.13—±0.38	±0.08—±0.25	±0.13
The surface of insert with * mark is sintered.			
③ Tolerance Class			

Detail of M Class Insert Tolerance						
● Tolerance of Nose Height M (mm)						
D.I.C.	Triangular	Square	Rhombic 80°	Rhombic 55°	Rhombic 35°	Round
6.35	±0.08	±0.08	±0.08	±0.11	±0.16	—
9.525	±0.08	±0.08	±0.08	±0.11	±0.16	—
12.70	±0.13	±0.13	±0.13	±0.15	—	—
15.875	±0.15	±0.15	±0.15	±0.18	—	—
19.05	±0.15	±0.15	±0.15	±0.18	—	—
25.40	—	±0.18	—	—	—	—
31.75	—	±0.20	—	—	—	—
● Tolerance of Inscribed Circle IC (mm)						
D.I.C.	Triangular	Square	Rhombic 80°	Rhombic 55°	Rhombic 35°	Round
6.35	±0.05	±0.05	±0.05	±0.05	±0.05	—
9.525	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05
12.70	±0.08	±0.08	±0.08	±0.08	—	±0.08
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
31.75	—	±0.15	—	—	—	±0.15

①	②	③	④
C	N	M	G

② Normal Clearance	
Symbol	Normal Clearance
A	3° 
B	5° 
C	7° 
D	15° 
E	20° 
F	25° 
G	30° 
N	0° 
P	11° 
O	Other Normal Clearance
Major Normal Clearance	

④ Fixing and/or for Chip Breaker									
Metric									
Symbol	Hole	Hole Configuration	Chip Breaker	Figure	Symbol	Hole	Hole Configuration	Chip Breaker	Figure
W	With Hole	Cylindrical Hole	No		A	With Hole	Cylindrical Hole	No	
T	With Hole	One Countersink (40—60°)	One Sided		M	With Hole	Cylindrical Hole	Single Sided	
Q	With Hole	Cylindrical Hole	No		G	With Hole	Cylindrical Hole	Double-Sided	
U	With Hole	Double Countersink (40—60°)	Double-Sided		N	Without Hole	—	No	
B	With Hole	Cylindrical Hole	No		R	Without Hole	—	Single Sided	
H	With Hole	One Countersink (70—90°)	One Sided		F	Without Hole	—	Double-Sided	
C	With Hole	Cylindrical Hole	No		X	—	—	—	Special Design
J	With Hole	Double Countersink (70—90°)	Double-Sided						

Symbol							Diameter of Inscribed Circle (mm)
	02		04	03	03	06	3.97
	L3	08	05	04	04	08	4.76
	03	09	06	05	05	09	5.56
06							6.00
	04	11	07	06	06	11	6.35
	05	13	09	08	07	13	7.94
08							8.00
09	06	16	11	09	09	16	9.525
10							10.00
12							12.00
	08	22	15	12	12	22	12.70
15	10		19	16	15	27	15.875
16							16.00
19	13		23	19	19	33	19.05
20							20.00
			27	22	22	38	22.225
25							25.00
25			31	25	25	44	25.40
31			38	32	31	54	31.75
32							32.00
⑤ Insert Size							

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

Symbol	Thickness (mm)
S1	1.39
01	1.59
T0	1.79
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
06	6.35
07	7.94
09	9.52

⑥ Insert Thickness

⑤ 12 ⑥ 04 ⑦ 08 ⑧ (E) ⑨ (N)-MP ⑩

⑦ Insert Corner Configuration	
Symbol	Corner Radius (mm)
00	Sharp Nose
V3	0.03
V5	0.05
01	0.1
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0
24	2.4
28	2.8
32	3.2
00 : Inch M0 : Metric	Round Insert

⑧ Cutting Edge Symbol		
Figure	Feature	Symbol
	Sharp Cutting Edges	F
	Round Cutting Edges	E
	Chamfered Cutting Edges	T
	Chamfered and Rounded Cutting Edges	S
—	(-) Corner R tolerance	M
Mitsubishi Materials omits the honing symbol.		

⑨ Cutting Direction		
Figure	Hand	Symbol
	Right	R
	Left	L
	Neutral	N

⑩ Chip Breaker		
LP	MP	RP
LM	MM	RM
LK	MK	RK
LS	MS	RS
MA	SW	MW

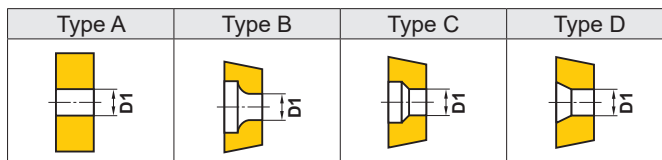
The table above is shown as a sample reference.

* The insert RE value with a negative corner radius indicates the maximum corner radius. Numerical values will have changed from the previous catalogue (C009).

HOLE GEOMETRY

A

TURNING INSERTS

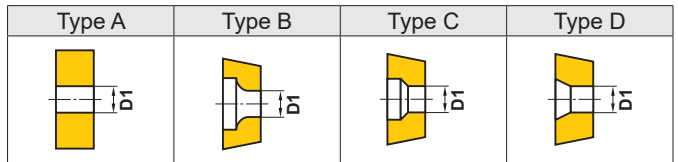


NEGATIVE

Insert Number		Dimensions (mm)	Hole Type
		D1	
CNGA CNGG CNGM CNMA CNMG CNMM	0903 $\varnothing$	3.81	A
	09T3 $\varnothing$	3.81	A
	0904 $\varnothing$	3.81	A
	1204 $\varnothing$	5.16	A
	1606 $\varnothing$	6.35	A
	1906 $\varnothing$	7.93	A
	2509 $\varnothing$	9.12	A
DNGA DNMG DNMM DNMA DNMG DNMX	1104 $\varnothing$	3.81	A
	1504 $\varnothing$	5.16	A
	1506 $\varnothing$	5.16	A
SNGA SNGG SNMA SNMG SNMM	0903 $\varnothing$	3.81	A
	1204 $\varnothing$	5.16	A
	1506 $\varnothing$	6.35	A
	1906 $\varnothing$	7.93	A
	2507 $\varnothing$	9.12	A
	2509 $\varnothing$	9.12	A
TNGA TNGG TNGM TNMA TNMG TNMM TNMX	1103 $\varnothing$	2.26	A
	1603 $\varnothing$	3.81	A
	1604 $\varnothing$	3.81	A
	2204 $\varnothing$	5.16	A
	2706 $\varnothing$	6.35	A
	3309 $\varnothing$	7.93	A
VNGA VNGM VNGG VNMA VNMG VNMM	1604 $\varnothing$	3.81	A
WNGA WNMA WNMG	0603 $\varnothing$	3.81	A
	06T3 $\varnothing$	3.81	A
	0604 $\varnothing$	3.81	A
	0804 $\varnothing$	5.16	A
	1006 $\varnothing$	6.35	A
RNMG	090300	3.81	A
	120400	5.16	A
	150600	6.35	A
	190600	7.93	A
	250900	9.12	A
	310900	12.7	A

POSITIVE

Insert Number		Dimensions (mm)	Hole Type
		D1	
CCET	0602 $\varnothing$	2.8	B
	09T3 $\varnothing$	4.4	B
CCGB CCMB CCGH CCMH	0602 $\varnothing$	2.8	B
CCGT	03S1 $\varnothing$	2.0	B
	04T0 $\varnothing$	2.4	B
	0602 $\varnothing$	2.8	B
	09T3 $\varnothing$	4.4	B
	1204 $\varnothing$	5.5	B
CCMT	0602 $\varnothing$	2.8	B
	0803 $\varnothing$	3.4	B
	09T3 $\varnothing$	4.4	B
	1204 $\varnothing$	5.5	B
CCGW CCMW	03S1 $\varnothing$	2.0	B
	04T0 $\varnothing$	2.4	B
	0602 $\varnothing$	2.8	B
	09T3 $\varnothing$	4.4	B
	1204 $\varnothing$	5.5	B
CPGT	0802 $\varnothing$	3.4	B
	0903 $\varnothing$	4.4	B
CPGB CPMB CPMH	0802 $\varnothing$	3.5	D
	0903 $\varnothing$	4.5	D
CPMX CPMH (Standard)	0802 $\varnothing$	3.5	D
	0903 $\varnothing$	4.6	D
DCET DCGT	0702 $\varnothing$	2.8	B
	11T3 $\varnothing$	4.4	B
DCGW DCMW DCMT	0702 $\varnothing$	2.8	B
	11T3 $\varnothing$	4.4	B
	1504 $\varnothing$	5.5	B
DEGX	1504 $\varnothing$	5.1	C
RCMX	1003M0	3.6	D
	1204M0	4.2	D
	1606M0	5.2	D
	2006M0	6.5	D
	2507M0	7.2	D
	3209M0	9.5	D



POSITIVE

Insert Number		Dimensions (mm)	Hole Type
		D1	
RCGT RCMT	0602M0	2.8	B
	0803M0	3.4	B
	10T3M0	4.4	B
SCMT SCMW	09T3	4.4	B
	1204	5.5	B
SPMW	0903	4.6	B
	1203	5.7	B
SPMT	0903	4.4	B
	1203	5.5	B
SPGX	0903	4.8	D
	1203	5.9	D
TCGT TCMT TCGW TCMW	0601	2.3	B
	0802	2.3	B
	0902	2.5	B
	1102	2.8	B
	1303	3.4	B
	16T3	4.4	B
TEGX	1603	4.4	D
TPGX	0802	2.5	C
	0902	3.0	C
	1103	3.5	C
	1603	4.8	D
	1604	4.8	D
TPMX	0902	3.2 *	C
	1103	3.7	C
	1103	3.5	C
	1603	4.8	D
TPGB TPMB TPGH TPMH	0802	2.4	D
	0902	2.9	D
	1103	3.4	D
	1603	4.4	D
TPGT	1603	4.4	B
TPGV	0902	2.8	B
	1103	3.4	B

* D1 of MD220 is 3.0.

Insert Number		Dimensions (mm)	Hole Type
		D1	
VBET VBGT VBMT VBGW	1103	2.9	B
	1604	4.4	B
VCGT VCMT VCGW VCMW	0802	2.4	B
	1103	2.8	B
	1303	3.4	B
	1604	4.4	B
VDGX	1603	4.5	D
VPET VPGT	0802	2.42	B
	1103	2.85	B
WBGT WBMT	0201	2.3	B
	L302	2.3	B
WCGT WCMT WCGW WCMW	0201	2.3	B
	L302	2.3	B
	0402	2.8	B
	06T3	4.4	B
WPGT WPMT	0402	2.8	B
	0603	4.4	B
XCMT	1503	2.8	B

A

TURNING INSERTS

PRECISION BREAKER SYSTEM

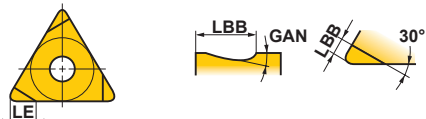
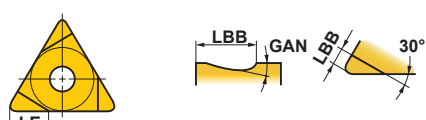
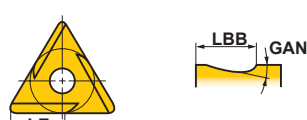
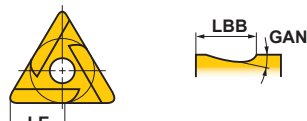
A

TURNING INSERTS

STANDARD OF INSERTS WITH PRECISION GRADES

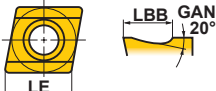
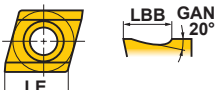
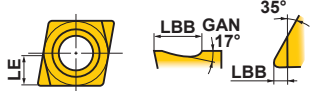
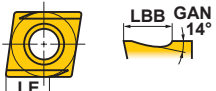
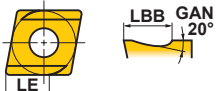
●NEGATIVE INSERTS

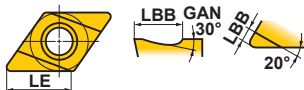
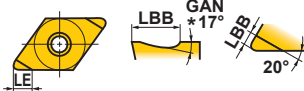
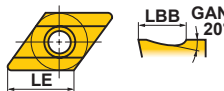
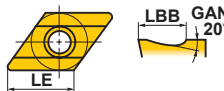
Unit : mm

Geometry	Insert Number	LBB	LE	GAN
 Right hand insert shown.	DNKG150404R/L	2.8	14.9	15°
	DNKG150408R/L	2.8	14.3	15°
	DNKG150604R/L	2.8	14.9	15°
	DNKG150608R/L	2.8	14.3	15°
 Right hand insert shown.	SNKG090304R/L	1.8	1.6	15°
	SNKG090308R/L	1.8	1.6	15°
	SNKG120404R/L	2.3	3.7	15°
	SNKG120408R/L	2.3	3.7	15°
 Right hand insert shown.	TNKG160402R/L-FS	1.3	2.7	15°
	TNKG160404R/L-FS	1.3	2.8	15°
	TNKG160408R/L-FS	1.3	3.1	15°
 Right hand insert shown.	TNKG160402R/L-F	2.5	5.1	15°
	TNKG160404R/L-F	2.5	5.2	15°
	TNKG160408R/L-F	2.5	5.5	15°
 Right hand insert shown.	TNKG160402R/L-K	1.5	7.1	15°
	TNKG160404R/L-K	1.5	5.4	15°
	TNKG160408R/L-K	1.5	5.1	15°
 Right hand insert shown.	TNKG110302R/L	1.3	3.2	15°
	TNKG110304R/L	1.3	3.0	15°
	TNKG110308R/L	1.3	2.7	15°
	TNKG160304R/L	2.3	5.4	15°
	TNKG160402R/L	1.3	8.7	15°
	TNKG160404R/L	2.3	5.4	15°
	TNKG160408R/L	2.3	5.1	15°
	TNKG220404R/L	2.8	9.4	15°
 Right hand insert shown.	TNKG220408R/L	2.8	9.1	15°
	VNKG160404R/L	1.8	15.6	15°
 Right hand insert shown.	VNKG160402R/L-F	2.5	7.4	15°
	VNKG160404R/L-F	2.5	7.6	15°

● POSITIVE INSERTS

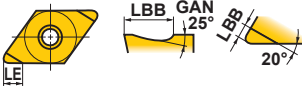
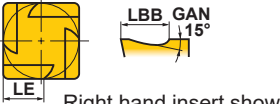
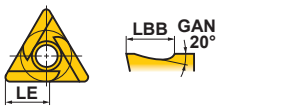
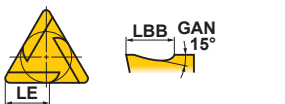
Unit : mm

Geometry	Insert Number	LBB	LE
 Right hand insert shown.	CCET0602V3R/L-SR	2.2	6.4
	CCET060201R/L-SR	2.2	6.3
	CCET060202R/L-SR	2.2	6.2
	CCET060204R/L-SR	2.2	6.0
	CCET09T3V3R/L-SR	3.2	9.6
	CCET09T301R/L-SR	3.2	9.5
	CCET09T302R/L-SR	3.2	9.4
	CCET09T304R/L-SR	3.2	9.2
	CCET060200R/L-SN	1.0	6.4
 Right hand insert shown.	CCET0602V3R/L-SN	1.0	6.4
	CCET060201R/L-SN	1.0	6.3
	CCET060202R/L-SN	1.0	6.2
	CCET060204R/L-SN	1.0	6.0
	CCET09T300R/L-SN	1.5	9.6
	CCET09T3V3R/L-SN	1.5	9.6
	CCET09T301R/L-SN	1.5	9.5
	CCET09T302R/L-SN	1.5	9.4
	CCET09T304R/L-SN	1.5	9.2
 Right hand insert shown.	CCET0602V3R/LW-SN	1.0	6.4
	CCET09T3V3R/LW-SN	1.5	9.6
 Right hand insert shown.	CCGH060202(M)R/L-F	1.2	3.6
	CCGH060204(M)R/L-F	1.4	4.4
 Left hand insert shown.	CCGT03S1V3L-F	0.8	1.4
	CCGT03S101(M)R/L-F	0.8	1.4
	CCGT03S102(M)R/L-F	0.8	1.5
	CCGT03S104(M)R/L-F	0.8	1.6
	CCGT04T0V3L-F	1.0	1.7
	CCGT04T001(M)R/L-F	1.0	1.8
	CCGT04T002(M)R/L-F	1.0	1.8
	CCGT04T004(M)R/L-F	1.0	2.0
	CCGT0602V3R/L-SS	1.0	3.0
 Right hand insert shown.	CCGT060201(M)R/L-SS	1.0	3.0
	CCGT060202(M)R/L-SS	1.0	3.0
	CCGT09T3V3R/L-SS	1.0	5.0
	CCGT09T301(M)R/L-SS	1.0	5.0
	CCGT09T302(M)R/L-SS	1.0	5.0
	CCGT09T304MR/L-SS	1.0	5.0
	CCGT0602V3R-SN	1.0	3.0
	CCGT060201(M)R/L-SN	1.0	3.0
	CCGT060202(M)R/L-SN	1.0	3.0
 Right hand insert shown.	CCGT09T3V3R/L-SN	1.5	5.0
	CCGT09T301(M)R/L-SN	1.5	5.0
	CCGT09T302(M)R/L-SN	1.5	5.0
	CCGT09T304(M)R/L-SN	1.5	5.0
	CPGT080204R/L-F	1.8	5.5
	CPGT090302R/L-F	1.8	5.4
	CPGT090304R/L-F	1.8	5.5

Geometry	Insert Number	LBB	LE
 Right hand insert shown.	DCGT11T301MR-SRF	1.0	3.1
	DCGT11T302MR-SRF	1.0	3.2
	DCGT11T304MR-SRF	1.0	3.4
 Right hand insert shown.	DCET0702V3R/L-SR	2.5	7.7
	DCET070201R/L-SR	2.5	7.6
	DCET070202R/L-SR	2.5	7.4
	DCET070204R/L-SR	2.5	7.1
	DCET11T3V3R/L-SR	3.7	11.6
	DCET11T301R/L-SR	3.7	11.4
	DCET11T302R/L-SR	3.7	11.3
	DCET11T304R/L-SR	3.7	11.0
 Right hand insert shown.	DCET070200R/L-SN	1.0	7.7
	DCET0702V3R/L-SN	1.0	7.7
	DCET070201R/L-SN	1.0	7.6
	DCET070202R/L-SN	1.0	7.4
	DCET070204R/L-SN	1.0	7.1
	DCET11T300R/L-SN	1.5	11.6
	DCET11T3V3R/L-SN	1.5	11.6
	DCET11T301R/L-SN	1.5	11.4
	DCET11T302R/L-SN	1.5	11.3
 Right hand insert shown.	DCET0702V3R/LW-SN	1.0	7.7
	DCET11T3V3R/LW-SN	1.5	11.6
 Right hand insert shown.	DCGT070202R/L-F	1.0	3.0
	DCGT070204R/L-F	1.0	3.2
	DCGT11T302R/L-F	1.0	3.0
	DCGT11T304R/L-F	1.0	3.2
 Right hand insert shown.	DCGT0702V3R/L-SS	1.0	3.5
	DCGT070201R/L-SS	1.0	3.5
	DCGT070202(M)R/L-SS	1.0	3.5
	DCGT11T3V3R-SS	1.0	6.5
	DCGT11T301(M)R/L-SS	1.0	6.5
	DCGT11T302(M)R/L-SS	1.0	6.5
 Right hand insert shown.	DCGT11T304MR/L-SS	1.0	6.5
	DCGT0702V3R-SN	1.0	3.5
	DCGT070201(M)R/L-SN	1.0	3.5
	DCGT070202(M)R/L-SN	1.0	3.5
	DCGT11T3V3R/L-SN	1.5	6.5
	DCGT11T301(M)R/L-SN	1.5	6.5
 Right hand insert shown.	DCGT11T302(M)R/L-SN	1.5	6.5
	DCGT11T304(M)R/L-SN	1.5	6.5
 Right hand insert shown.	DEGX150402R/L	2.8	15.2
	DEGX150404R/L	2.8	14.9

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● POSITIVE INSERTS

Geometry	Insert Number	LBB	LE
 Right hand insert shown.	DEGX150402R/L-F DEGX150404R/L-F	2.5 2.5	7.4 7.6
 Right hand insert shown.	SPGR090304R	1.8	1.6
 Left hand insert shown.	TCGT0601V3L-F TCGT060101L-F TCGT060102R/L-F TCGT060104R/L-F	1.0 1.0 1.0 1.0	2.9 3.0 3.0 3.2
 Right hand insert shown.	TEGX 160302R/L TEGX 160304R/L	2.0 2.0	6.0 6.0
 *TPGH1603 type : 14° Right hand insert shown.	TPGH080202R/L-FS TPGH080204R/L-FS TPGH090202R/L-FS TPGH090204R/L-FS TPGH110302R/L-FS TPGH110304R/L-FS TPGH160304R/L-FS TPGH160308R/L-FS	0.9 0.9 1.0 1.0 1.4 1.4 2.0 2.0	2.7 2.9 3.0 3.2 4.2 4.4 6.1 6.5
 Right hand insert shown.	TPGR110304R/L TPGR160304R/L TPGR160308R/L	1.3 2.3 2.3	3.0 5.4 5.1
 Right hand insert shown.	TPGX080202R/L TPGX080204R/L TPGX090202R/L TPGX090204R/L TPGX090208R/L TPGX110302L TPGX110304R/L TPGX110308R/L	1.3 1.3 1.6 1.6 1.4 1.8 1.8 1.8	3.9 4.1 4.8 5.0 4.7 5.4 5.5 5.9

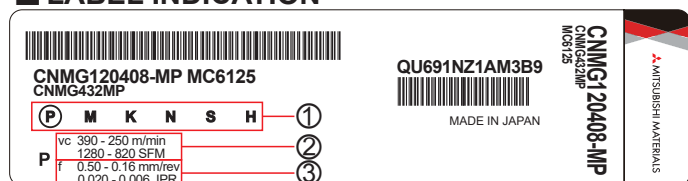
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TOOL NAVI

■ OUTLINE

TOOL NAVI supports customers with information and suitable cutting conditions for each workpiece material by selecting an optimal indexable insert together with optional tools.

■ LABEL INDICATION



*1 The above is an example. There may be inserts recommended for multiple workpiece materials.

*2 Please contact us for recommended cutting conditions using coefficient values other than the above.

② Cutting speed standards

Workpiece Material	Tool Life		Workpiece Material	Hardness
	Performance	Life		
P	15min	90min	Carbon steel, alloy steel	180HB
M	15min	90min	Stainless steel	180HB
K	15min	90min	Cast iron	180HB
S	5min	25min	Titanium alloy	320HB
			Ni, Co-Based alloy	400HB
H	10min	80min	Hardened steel	60HRC

*3. N :Life based on each grade. For stable choose the performance cutting speed and for unstable choose the tool life feed rate.

*4. Tool life is based on the following (VB wear). Some materials include elements other than this.

PMKS ... VB=0.3mm

H ... VB=0.1mm

■ TOOL LIFE

Cutting speed has a large effect on tool life. TOOL NAVI is based on Taylor's equation (relationship $vc T^n = C$ between tool grade, cutting conditions, and tool life). Therefore, performance speed and tool life are found for each workpiece material. When requiring a different tool life, obtain coefficient values of the grade used from the charts below. Multiply the coefficient values by the cutting speed to calculate a new cutting speed.

● P Grade (Steel) cutting speed coefficient values.

Grade \ Tool Life	15min	30min	45min	60min	90min
MC6115	1.00	0.82	0.72	0.67	0.59
MC6125	1.00	0.83	0.75	0.69	0.62
MC6035	1.00	0.88	0.82	0.78	0.73
MP3025	1.00	0.85	0.77	0.72	0.65
NX2525	1.00	0.87	0.80	0.76	0.70

● M Grade (Stainless Steel) cutting speed coefficient values.

Grade \ Tool Life	15min	30min	45min	60min	90min
MC7015	1.00	0.83	0.75	0.70	0.63
MC7025	1.00	0.90	0.84	0.80	0.75
MP7035	1.00	0.84	0.76	0.71	0.62
US735	1.00	0.78	0.68	0.61	0.53

① Workpiece materials

P : Steel (Reference Material : Carbon steel, alloy steel 180HB)

M : Stainless steel (Reference Material : Austenitic stainless steel 180HB)

K : Cast iron (Reference Material : Gray cast iron, ductile cast iron 180HB)

N : Aluminium alloy, non-ferrous metal

S : Reference Material : Titanium alloy 320HB, Ni, Co-Based Alloy 400HB

H : Hardened steel 60HRC

③ Feed rate

Minimum and maximum feed rate settings are based on the chip control range of the chip breaker.

● K Grade (Cast Iron) cutting speed coefficient values.

Grade \ Tool Life	15min	30min	45min	60min	90min
MC5005	1.00	0.83	0.75	0.70	0.63
MC5015	1.00	0.83	0.75	0.69	0.62

(ex.) Medium cutting of steel

First recommendation : MC6125

Indexable inserts : CNMG120408-MP

Recommended cutting speed : $vc=390\text{m/min}$

(Tool life : 15min.)



Tool life required by the customer : 30min.

$390 \times 0.83 \approx 323\text{m/min}$

■ HARDNESS OF THE WORKPIECE MATERIAL

Hardness of the workpiece material also affects tool life. MITSUBISHI's TOOL NAVI suggests cutting speed variations when hardness differs. Obtain the suitable coefficient value for each type of workpiece material from the chart below. Multiply the coefficient value by the recommended cutting speed of the grade used to calculate a new cutting speed.

Workpiece Material	(Hardness of Workpiece)											
	120HB	140HB	160HB	180HB	200HB	220HB	240HB	260HB	280HB	300HB	320HB	340HB
P	1.34	1.19	1.08	1.00	0.92	0.85	0.80	0.75	0.71	0.68	0.64	0.61
M	1.41	1.23	1.10	1.00	0.91	0.85	0.78	0.72	0.68	0.64	0.61	0.58
K	1.27	1.19	1.09	1.00	0.97	0.91	0.88	0.85	0.81	0.78	0.75	0.72

OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING

● Selection of optimum inserts for turning

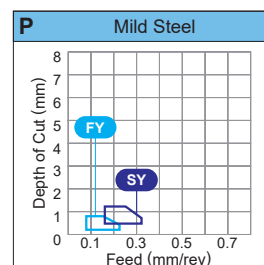
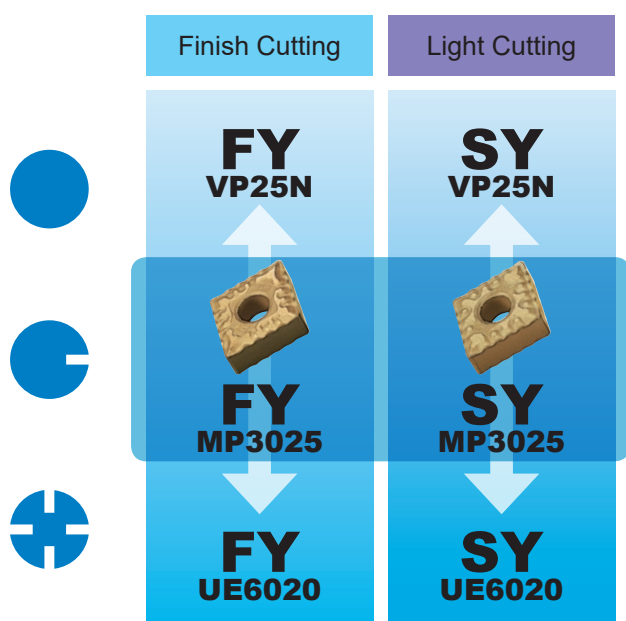
The following diagrams show the optimal combination of suitable grades and chip breakers for each application area in turning for each type of workpiece material.

■ CUTTING CONDITIONS

●	Stable Cutting	Continuous Cutting Constant Depth of Cut Pre-Machined Securely Clamped Component Cutting
⊖	General Cutting	
⊕	Unstable Cutting	Heavy Interrupted Cutting Irregular Depth of Cut Low Clamping Rigidity Cutting

■ CUTTING AREA

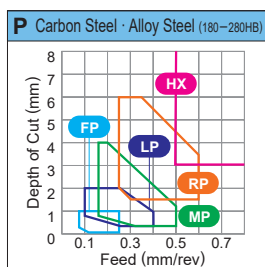
F	Finish Cutting
L	Light Cutting
M	Medium Cutting
R	Rough Cutting
H	Heavy Cutting



P Mild Steel (Ex : SS400, S10C) NEGATIVE INSERTS

vc : Cutting Speed
f : Feed
ap : Depth of Cut

	Cutting Area	Chip Breaker	Grade	1st Recommendation		
				vc (m/min)	f (mm/rev)	ap (mm)
● Stable Cutting	F	FY	VP25N	285—450	0.09—0.23	0.20—0.80
	L	SY	VP25N	260—410	0.16—0.33	0.50—1.20
⊖ General Cutting	F	FY	MP3025	275—425	0.09—0.23	0.20—0.80
	L	SY	MP3025	255—385	0.16—0.33	0.50—1.20
⊕ Unstable Cutting	F	FY	UE6020	285—465	0.09—0.23	0.20—0.80
	L	SY	UE6020	260—425	0.16—0.33	0.50—1.20



- Stable Cutting
- ◐ General Cutting
- ⊕ Unstable Cutting

- F** Finish Cutting
- L** Light Cutting
- M** Medium Cutting
- R** Rough Cutting
- H** Heavy Cutting

TURNING INSERTS

	Finish Cutting	Light Cutting	Medium Cutting	Rough Cutting	Heavy Cutting
●	FP NX2525	LP MC6115	MP MC6115	RP MC6115	HX MC6025
◐	FP MP3025	LP MC6115	MP MC6125	RP MC6125	HX MC6025
⊕	FP MC6025	LP MC6125	MP MC6125	RP MC6035	HX MC6035

P Carbon Steel • Alloy Steel (Ex : S45C, SCM440)
NEGATIVE INSERTS

vc : Cutting Speed
f : Feed
ap : Depth of Cut

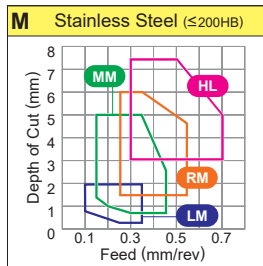
	Cutting Area	Chip Breaker	Grade	1st Recommendation		
				vc (m/min)	f (mm/rev)	ap (mm)
● Stable Cutting	F	FP	NX2525	210–300	0.08–0.25	0.10–1.00
	L	LP	MC6115	250–480	0.10–0.40	0.30–2.00
	M	MP	MC6115	230–440	0.16–0.50	0.30–4.00
	R	RP	MC6115	215–415	0.25–0.60	1.50–6.00
	H	HX	MC6025	165–265	0.50–1.26	3.00–11.00
◐ General Cutting	F	FP	MP3025	215–330	0.08–0.25	0.10–1.00
	L	LP	MC6115	250–480	0.10–0.40	0.30–2.00
	M	MP	MC6125	250–390	0.16–0.50	0.30–4.00
	R	RP	MC6125	235–370	0.25–0.60	1.50–6.00
	H	HX	MC6025	165–265	0.50–1.26	3.00–11.00
⊕ Unstable Cutting	F	FP	MC6025	230–375	0.08–0.25	0.10–1.00
	L	LP	MC6125	275–425	0.10–0.40	0.30–2.00
	M	MP	MC6125	250–390	0.16–0.50	0.30–4.00
	R	RP	MC6035	160–225	0.25–0.60	1.50–6.00
	H	HX	MC6035	140–200	0.50–1.26	3.00–11.00



OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING

A

TURNING INSERTS



- Stable Cutting
- ◐ General Cutting
- ⊕ Unstable Cutting

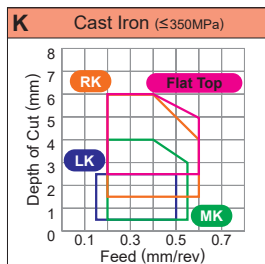
- L** Light Cutting
- M** Medium Cutting
- R** Rough Cutting
- H** Heavy Cutting

	Light Cutting	Medium Cutting	Rough Cutting	Heavy Cutting
● Stable Cutting	LM MC7015	MM MC7015	RM MC7015	HL US735
◐ General Cutting	LM MC7025	MM MC7025	RM MC7025	HL US735
⊕ Unstable Cutting	LM MP7035	MM MP7035	RM MP7035	HL US735

M Stainless Steel (Ex : SUS304, SUS316)
NEGATIVE INSERTS

vc : Cutting Speed
f : Feed
ap : Depth of Cut

	Cutting Area	Chip Breaker	Grade	1st Recommendation		
				vc (m/min)	f (mm/rev)	ap (mm)
● Stable Cutting	L	LM	MC7015	180—285	0.10—0.35	0.30—2.00
	M	MM	MC7015	165—260	0.15—0.45	0.70—5.00
	R	RM	MC7015	155—245	0.25—0.55	1.50—6.00
	H	HL	US735	75—140	0.30—0.70	3.00—7.50
◐ General Cutting	L	LM	MC7025	165—220	0.10—0.35	0.30—2.00
	M	MM	MC7025	150—200	0.15—0.45	0.70—5.00
	R	RM	MC7025	140—190	0.25—0.55	1.50—6.00
	H	HL	US735	75—140	0.30—0.70	3.00—7.50
⊕ Unstable Cutting	L	LM	MP7035	95—155	0.10—0.35	0.30—2.00
	M	MM	MP7035	90—145	0.15—0.45	0.70—5.00
	R	RM	MP7035	85—135	0.25—0.55	1.50—6.00
	H	HL	US735	75—140	0.30—0.70	3.00—7.50



- Stable Cutting
- General Cutting
- Unstable Cutting

- L** Light Cutting
- M** Medium Cutting
- R** Rough Cutting
- H** Heavy Cutting

TURNING INSERTS



K Cast Iron • Ductile Cast Iron (Ex : FC300)

NEGATIVE INSERTS

vc : Cutting Speed
f : Feed
ap : Depth of Cut

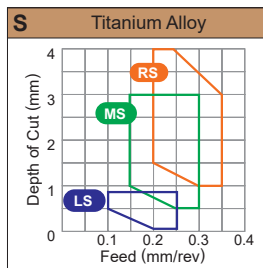
		1st Recommendation				
	Cutting Area	Chip Breaker	Grade	vc (m/min)	f (mm/rev)	ap (mm)
	L	LK	MC5005	230—365	0.10—0.50	0.50—2.50
	M	MK	MC5005	210—335	0.20—0.55	0.50—4.00
	R	RK	MC5005	195—315	0.20—0.60	1.50—6.00
	H	Flat Top	MC5005	195—315	0.20—0.60	2.50—6.00
	L	LK	MC5015	205—335	0.10—0.50	0.50—2.50
	M	MK	MC5015	190—305	0.20—0.55	0.50—4.00
	R	RK	MC5015	180—285	0.20—0.60	1.50—6.00
	H	Flat Top	MC5015	180—285	0.20—0.60	2.50—6.00
	L	LK	MC5015	205—335	0.10—0.50	0.50—2.50
	M	MK	MC5015	190—305	0.20—0.55	0.50—4.00
	R	RK	MC5015	180—285	0.20—0.60	1.50—6.00
	H	Flat Top	MC5015	180—285	0.20—0.60	2.50—6.00



OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING

A

TURNING INSERTS



Stable Cutting



General Cutting



Unstable Cutting

F

Finish Cutting

L

Light Cutting

M

Medium Cutting

R

Rough Cutting

Finish Cutting

Light Cutting

Medium Cutting

Rough Cutting

LS**MT9015****LS****MT9015****MS****MT9015****RS****MT9015****LS****MT9015****LS****MT9015****MS****MT9015****RS****MT9015****LS****MT9015****LS****MT9015****MS****MT9015****RS****MT9015****S**

Titanium Alloy (Ex : Ti-6Al-4V)

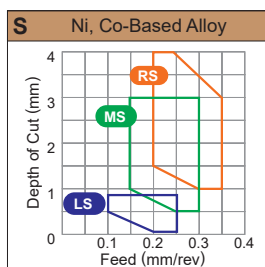
NEGATIVE INSERTS

vc : Cutting Speed

f : Feed

ap : Depth of Cut

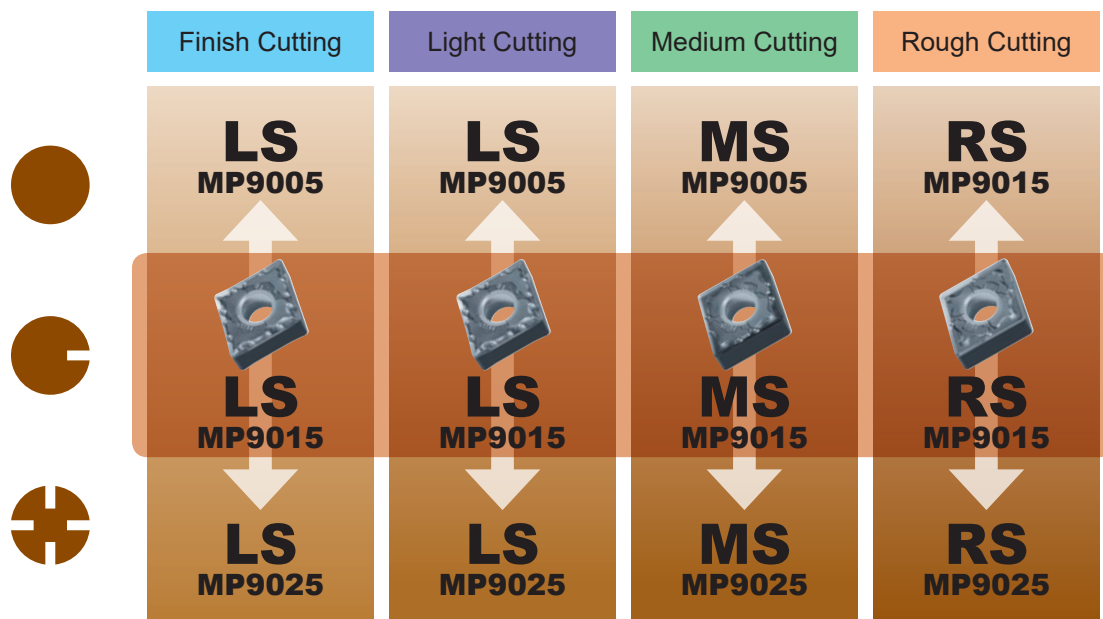
	Cutting Area	Chip Breaker	Grade	1st Recommendation		
				vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	LS	MT9015	40—85	0.10—0.25	0.20—0.80
	L	LS	MT9015	40—85	0.10—0.25	0.20—0.80
	M	MS	MT9015	40—80	0.15—0.30	0.50—3.00
	R	RS	MT9015	35—75	0.20—0.35	1.00—4.00
General Cutting	F	LS	MT9015	40—85	0.10—0.25	0.20—0.80
	L	LS	MT9015	40—85	0.10—0.25	0.20—0.80
	M	MS	MT9015	40—80	0.15—0.30	0.50—3.00
	R	RS	MT9015	35—75	0.20—0.35	1.00—4.00
Unstable Cutting	F	LS	MT9015	40—85	0.10—0.25	0.20—0.80
	L	LS	MT9015	40—85	0.10—0.25	0.20—0.80
	M	MS	MT9015	40—80	0.15—0.30	0.50—3.00
	R	RS	MT9015	35—75	0.20—0.35	1.00—4.00



- Stable Cutting
- ◐ General Cutting
- ⊕ Unstable Cutting

- F** Finish Cutting
- L** Light Cutting
- M** Medium Cutting
- R** Rough Cutting

TURNING INSERTS



S Ni, Co-Based Alloy (Ex : Inconel718)
NEGATIVE INSERTS

vc : Cutting Speed
f : Feed
ap : Depth of Cut

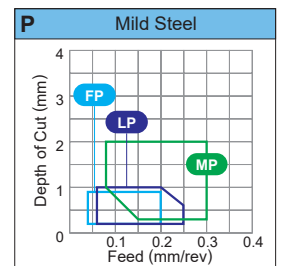
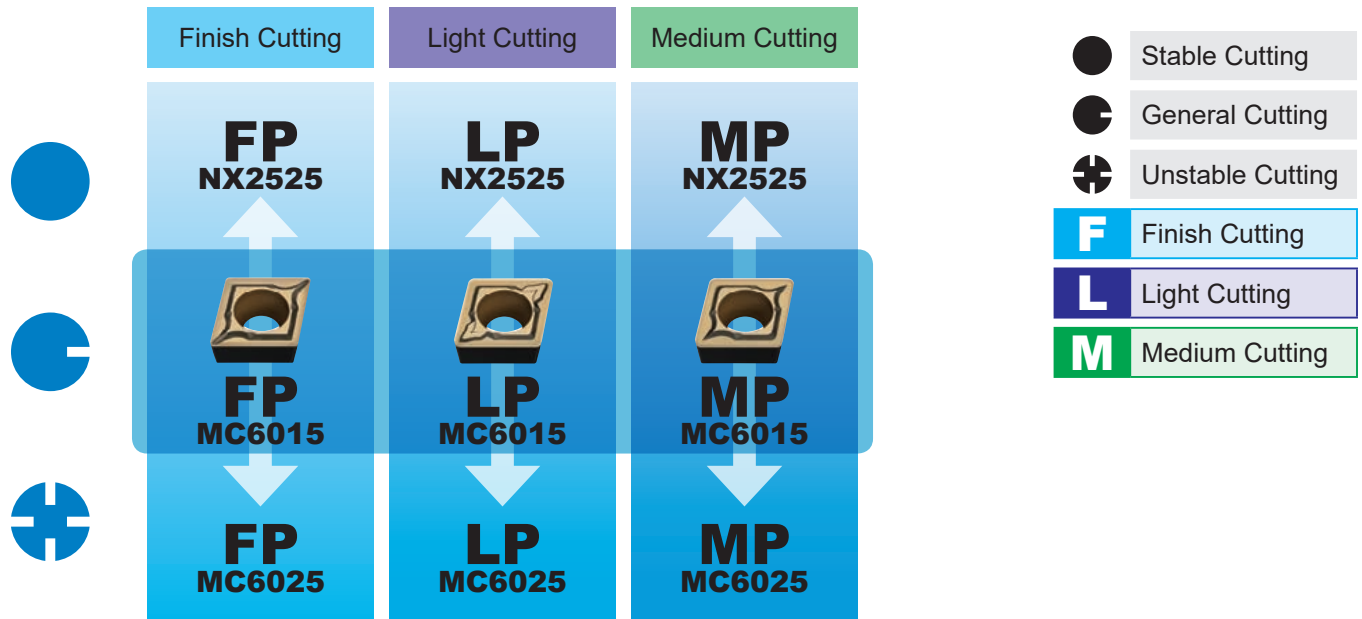
	Cutting Area	Chip Breaker	Grade	1st Recommendation		
				vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	LS	MP9005	55—110	0.10—0.25	0.20—0.80
	L	LS	MP9005	30—110	0.10—0.25	0.20—0.80
	M	MS	MP9005	50—100	0.10—0.25	0.50—4.00
	R	RS	MP9015	35—75	0.20—0.35	1.00—4.00
General Cutting	F	LS	MP9015	40—85	0.10—0.25	0.20—0.80
	L	LS	MP9015	40—85	0.10—0.25	0.20—0.80
	M	MS	MP9015	40—80	0.15—0.30	0.50—3.00
	R	RS	MP9015	35—75	0.20—0.35	1.00—4.00
Unstable Cutting	F	LS	MP9025	30—45	0.10—0.25	0.20—0.80
	L	LS	MP9025	30—45	0.10—0.25	0.20—0.80
	M	MS	MP9025	30—45	0.15—0.30	0.50—3.00
	R	RS	MP9025	25—40	0.20—0.35	1.00—4.00



OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING

TURNING INSERTS

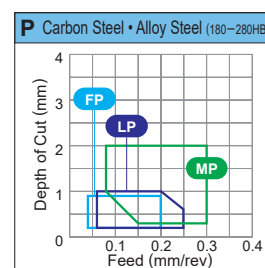
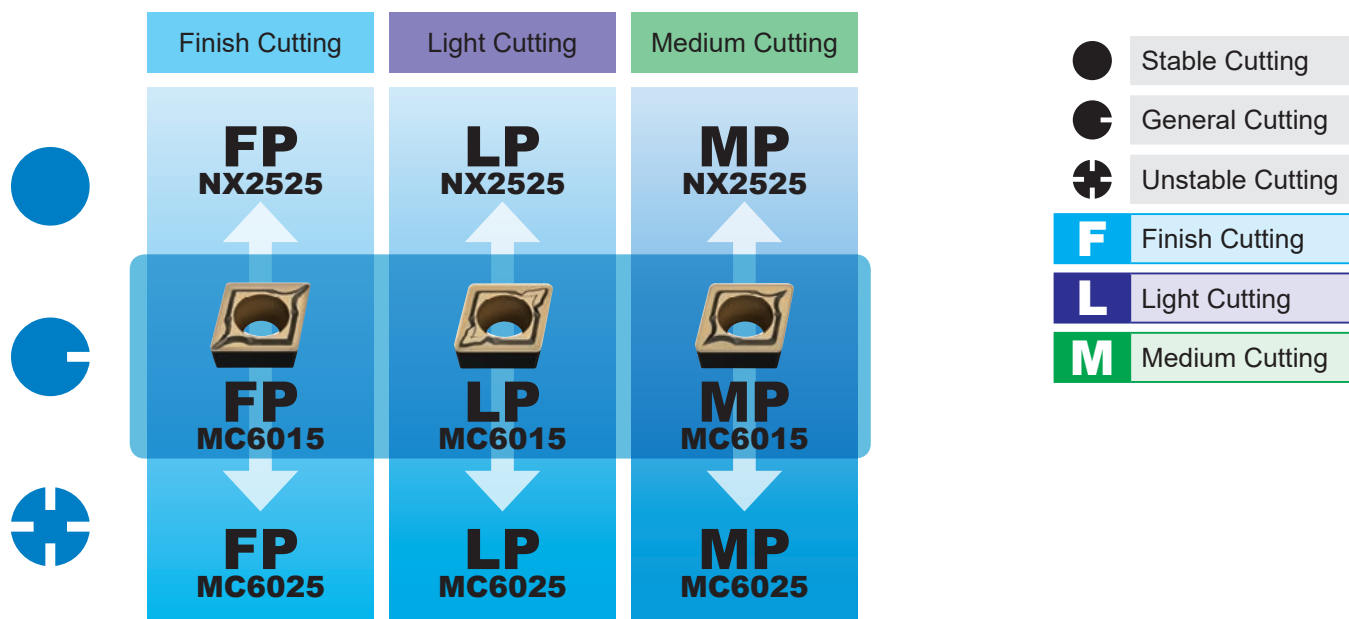
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P Mild Steel (Ex : SS400, S10C)
7° POSITIVE INSERTS WITH HOLE

vc : Cutting Speed
f : Feed
ap : Depth of Cut

		1st Recommendation				
	Cutting Area	Chip Breaker	Grade	vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	FP	NX2525	225—320	0.04—0.20	0.20—0.90
	L	LP	NX2525	225—320	0.06—0.25	0.20—1.00
	M	MP	NX2525	185—270	0.08—0.30	0.30—2.00
General Cutting	F	FP	MC6015	250—425	0.04—0.20	0.20—0.90
	L	LP	MC6015	250—425	0.06—0.25	0.20—1.00
	M	MP	MC6015	210—355	0.08—0.30	0.30—2.00
Unstable Cutting	F	FP	MC6025	250—405	0.04—0.20	0.20—0.90
	L	LP	MC6025	250—405	0.06—0.25	0.20—1.00
	M	MP	MC6025	210—340	0.08—0.30	0.30—2.00



P Carbon Steel • Alloy Steel (Ex : S45C, SCM440)
7° POSITIVE INSERTS WITH HOLE

vc : Cutting Speed
f : Feed
ap : Depth of Cut

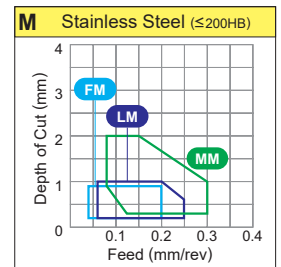
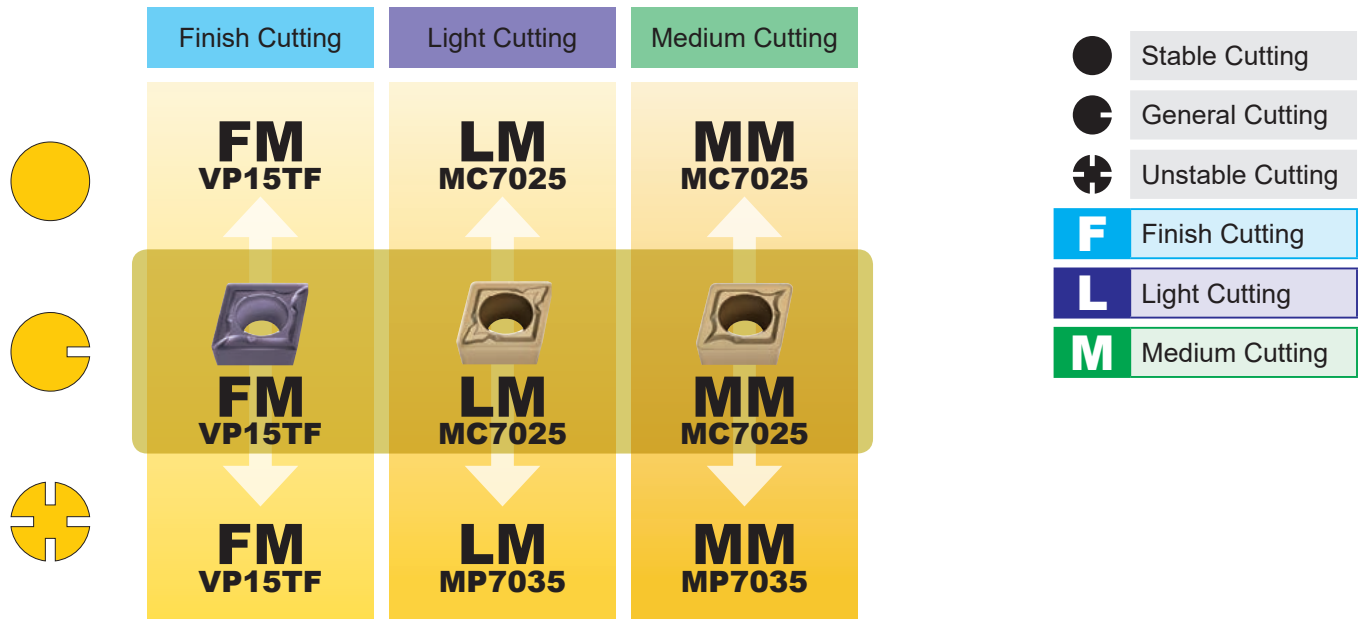
		1st Recommendation				
	Cutting Area	Chip Breaker	Grade	vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	FP	NX2525	165–240	0.04–0.20	0.20–0.90
	L	LP	NX2525	165–240	0.06–0.25	0.20–1.00
	M	MP	NX2525	140–200	0.08–0.30	0.30–2.00
General Cutting	F	FP	MC6015	185–315	0.04–0.20	0.20–0.90
	L	LP	MC6015	185–315	0.06–0.25	0.20–1.00
	M	MP	MC6015	155–260	0.08–0.30	0.30–2.00
Unstable Cutting	F	FP	MC6025	185–300	0.04–0.20	0.20–0.90
	L	LP	MC6025	185–300	0.06–0.25	0.20–1.00
	M	MP	MC6025	155–250	0.08–0.30	0.30–2.00



OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING

TURNING INSERTS

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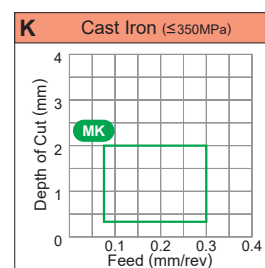
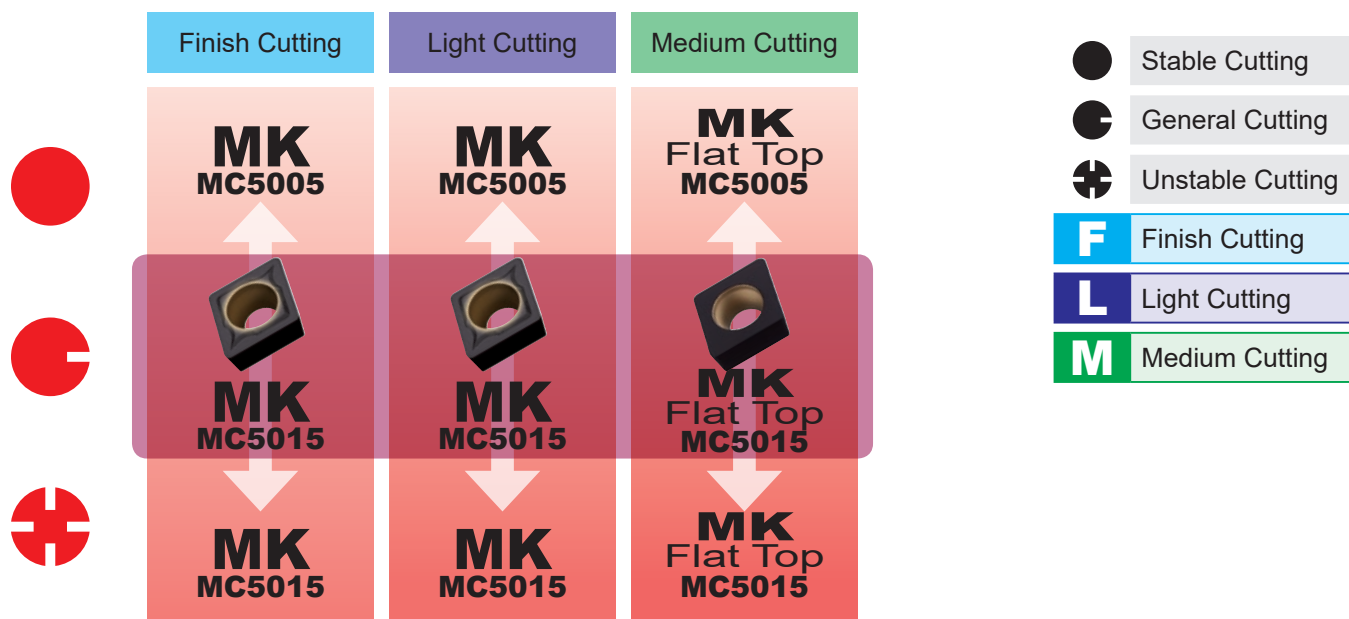


M Stainless Steel (Ex : SUS304, SUS316)

7° POSITIVE INSERTS WITH HOLE

vc : Cutting Speed
f : Feed
ap : Depth of Cut

	Cutting Area	Chip Breaker	Grade	1st Recommendation		
				vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	FM	VP15TF	75—125	0.04—0.20	0.20—0.90
	L	LM	MC7025	140—190	0.06—0.25	0.20—1.00
	M	MM	MC7025	120—160	0.08—0.30	0.30—2.00
General Cutting	F	FM	VP15TF	75—125	0.04—0.20	0.20—0.90
	L	LM	MC7025	140—190	0.06—0.25	0.20—1.00
	M	MM	MC7025	120—160	0.08—0.30	0.30—2.00
Unstable Cutting	F	FM	VP15TF	75—125	0.04—0.20	0.20—0.90
	L	LM	MP7035	85—135	0.06—0.25	0.20—1.00
	M	MM	MP7035	70—115	0.08—0.30	0.30—2.00



K Cast Iron • Ductile Cast Iron (Ex : FC300)

7° POSITIVE INSERTS WITH HOLE

vc : Cutting Speed
f : Feed
ap : Depth of Cut

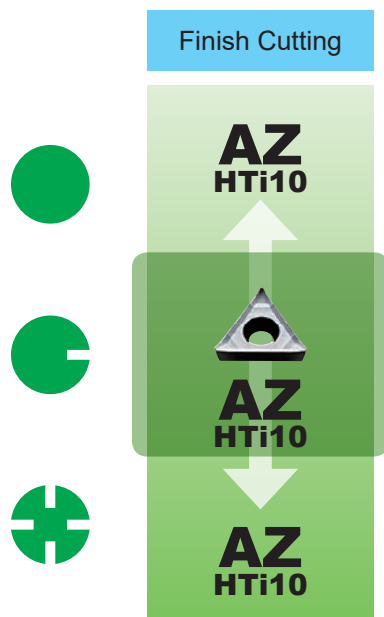
		1st Recommendation				
	Cutting Area	Chip Breaker	Grade	vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	MK	MC5005	165—265	0.08—0.30	0.30—2.00
	L	MK	MC5005	165—265	0.08—0.30	0.30—2.00
	M	MK, Flat Top	MC5005	165—265	0.08—0.30	0.30—2.00
General Cutting	F	MK	MC5015	150—240	0.08—0.30	0.30—2.00
	L	MK	MC5015	150—240	0.08—0.30	0.30—2.00
	M	MK, Flat Top	MC5015	150—240	0.08—0.30	0.30—2.00
Unstable Cutting	F	MK	MC5015	150—240	0.08—0.30	0.30—2.00
	L	MK	MC5015	150—240	0.08—0.30	0.30—2.00
	M	MK, Flat Top	MC5015	150—240	0.08—0.30	0.30—2.00



OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING

TURNING INSERTS

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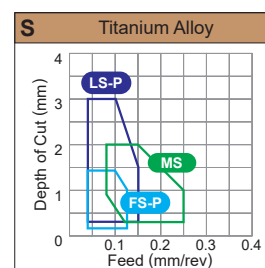
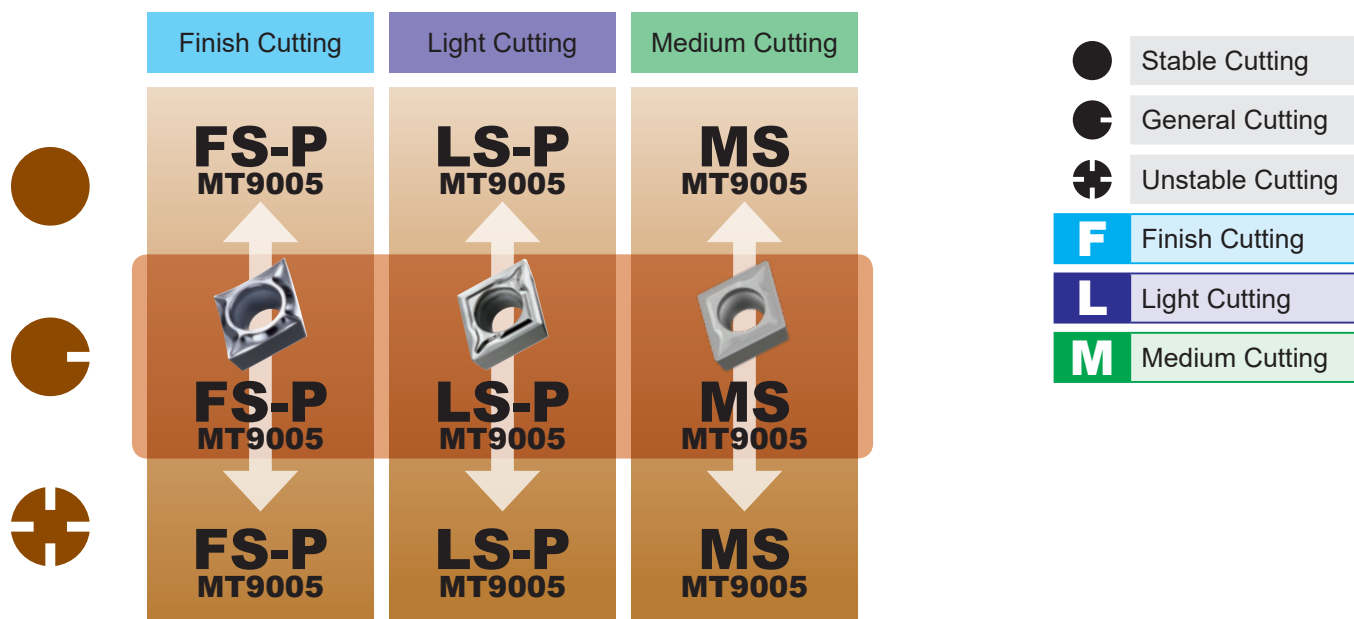


●	Stable Cutting
●C	General Cutting
⊕	Unstable Cutting
F	Finish Cutting

N Aluminium Alloy (Ex : A6061, A7075)
7° POSITIVE INSERTS WITH HOLE

vc : Cutting Speed
f : Feed
ap : Depth of Cut

	Cutting Area	Chip Breaker	Grade	1st Recommendation		
				vc (m/min)	f (mm/rev)	ap (mm)
● Stable Cutting	F	AZ	HTi10	300—700	0.10—0.40	0.20—3.00
●C General Cutting	F	AZ	HTi10	300—700	0.10—0.40	0.20—3.00
⊕ Unstable Cutting	F	AZ	HTi10	300—700	0.10—0.40	0.20—3.00



S Titanium Alloy (Ex : Ti-6Al-4V)

7° POSITIVE INSERTS WITH HOLE

vc : Cutting Speed
f : Feed
ap : Depth of Cut

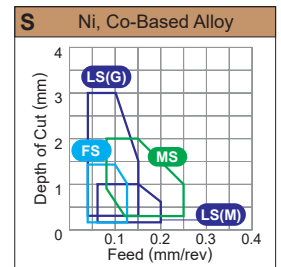
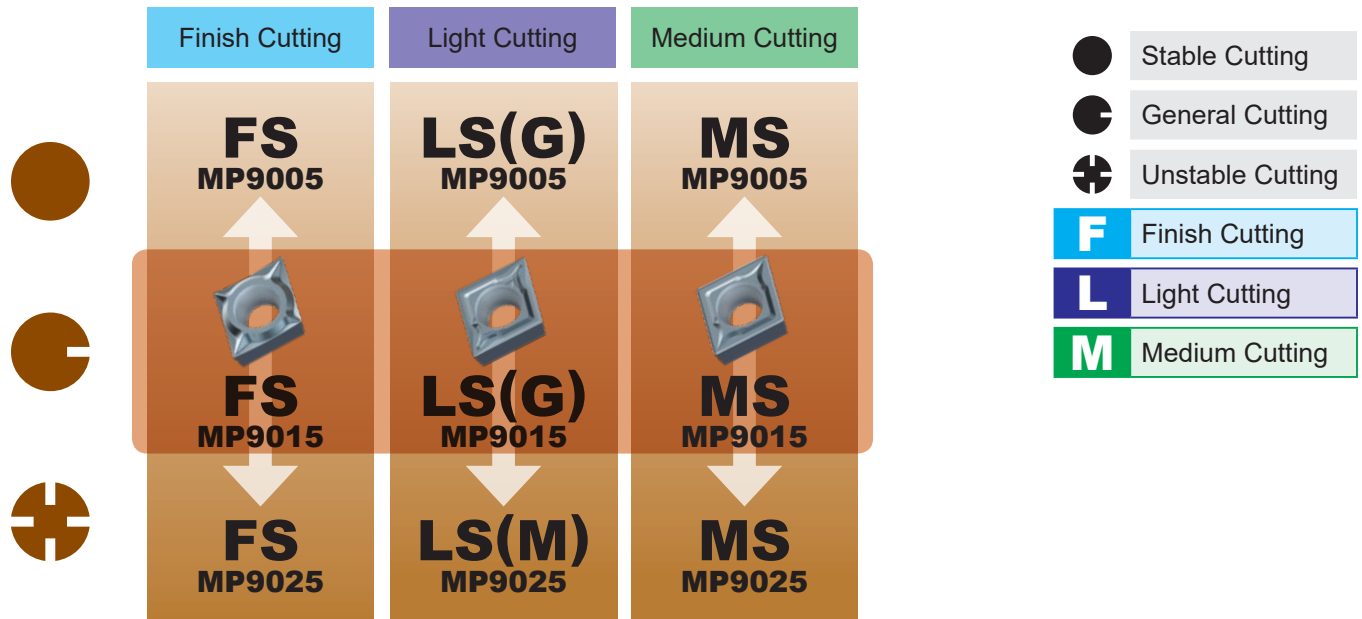
	Cutting Area	Chip Breaker	Grade	1st Recommendation		
				vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	FS-P	MT9005	40—80	0.04—0.12	0.20—1.40
	L	LS-P	MT9005	40—80	0.04—0.15	0.30—3.00
	M	MS	MT9005	35—65	0.08—0.25	0.30—2.00
General Cutting	F	FS-P	MT9005	40—80	0.04—0.12	0.20—1.40
	L	LS-P	MT9005	40—80	0.04—0.15	0.30—3.00
	M	MS	MT9005	35—65	0.08—0.25	0.30—2.00
Unstable Cutting	F	FS-P	MT9005	40—80	0.04—0.12	0.20—1.40
	L	LS-P	MT9005	40—80	0.04—0.15	0.30—3.00
	M	MS	MT9005	35—65	0.08—0.25	0.30—2.00



OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING

TURNING INSERTS

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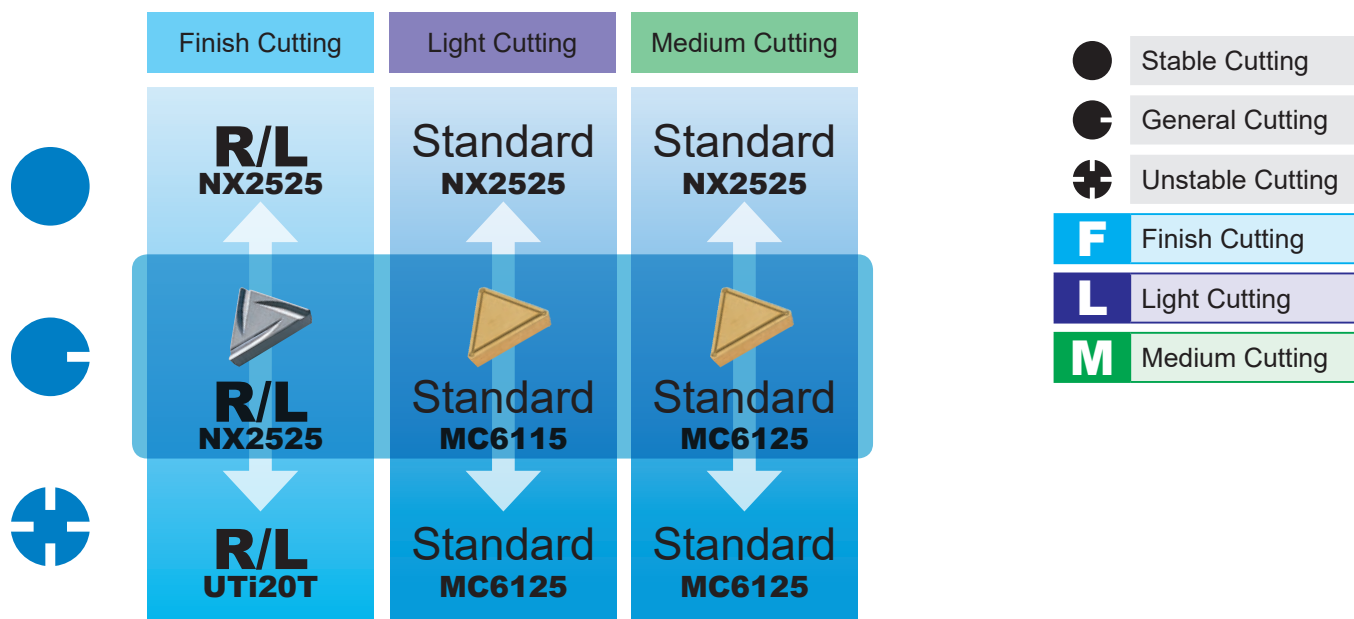


S Ni, Co-Based Alloy (Ex : Inconel718)

7° POSITIVE INSERTS WITH HOLE

vc : Cutting Speed
f : Feed
ap : Depth of Cut

	Cutting Area	Chip Breaker	Grade	1st Recommendation		
				vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	FS	MP9005	45—95	0.04—0.12	0.20—1.40
	L	LS(G)	MP9005	45—95	0.04—0.15	0.30—3.00
	M	MS	MP9005	40—80	0.08—0.25	0.30—2.00
General Cutting	F	FS	MP9015	35—75	0.04—0.12	0.20—1.40
	L	LS(G)	MP9015	35—75	0.04—0.15	0.30—3.00
	M	MS	MP9015	30—60	0.08—0.25	0.30—2.00
Unstable Cutting	F	FS	MP9025	25—40	0.04—0.12	0.20—1.40
	L	LS(M)	MP9025	25—40	0.06—0.20	0.20—1.00
	M	MS	MP9025	20—35	0.08—0.25	0.30—2.00



P Mild Steel (Ex : SS400, S10C)
11° POSITIVE INSERTS WITHOUT HOLE

vc : Cutting Speed
f : Feed
ap : Depth of Cut

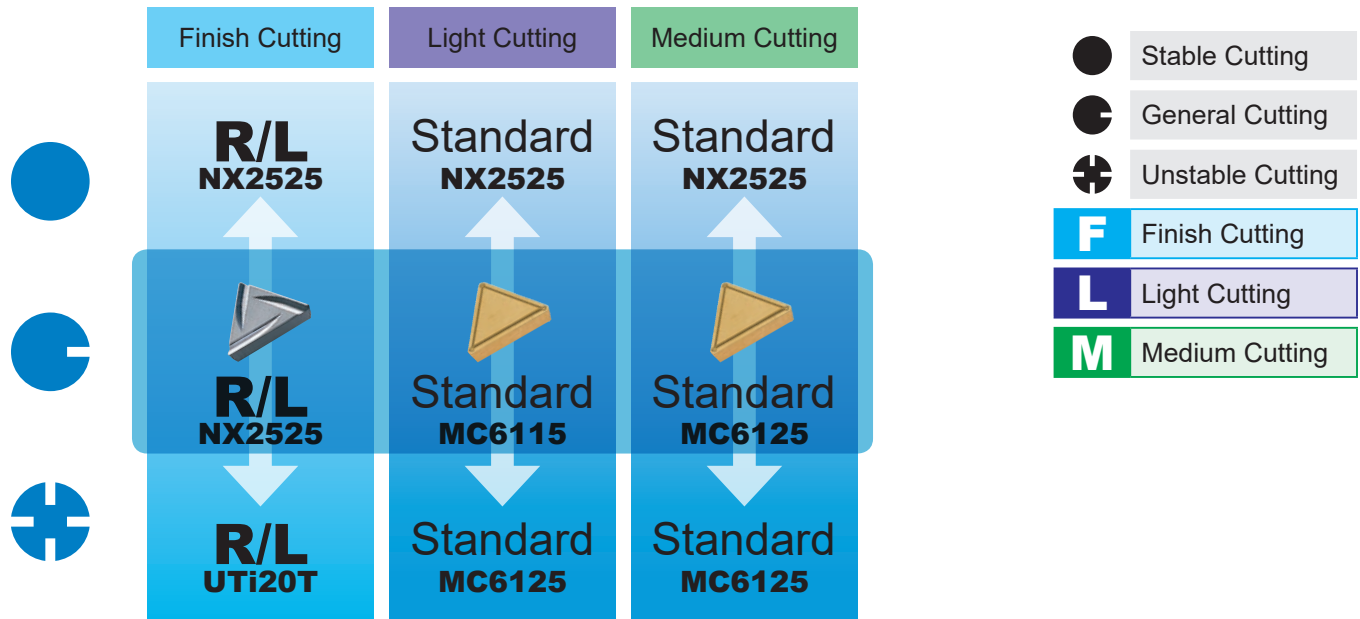
		1st Recommendation				
	Cutting Area	Chip Breaker	Grade	vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	R/L	NX2525	225—320	0.06—0.25	0.30—1.50
	L	Standard	NX2525	185—270	0.08—0.30	0.30—2.00
	M	Standard	NX2525	185—270	0.08—0.30	0.30—2.00
General Cutting	F	R/L	NX2525	225—320	0.06—0.25	0.30—1.50
	L	Standard	MC6115	245—475	0.08—0.30	0.30—2.00
	M	Standard	MC6125	270—420	0.08—0.30	0.30—2.00
Unstable Cutting	F	R/L	UTi20T	115—165	0.06—0.25	0.30—1.50
	L	Standard	MC6125	270—420	0.08—0.30	0.30—2.00
	M	Standard	MC6125	270—420	0.08—0.30	0.30—2.00



OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING

TURNING INSERTS

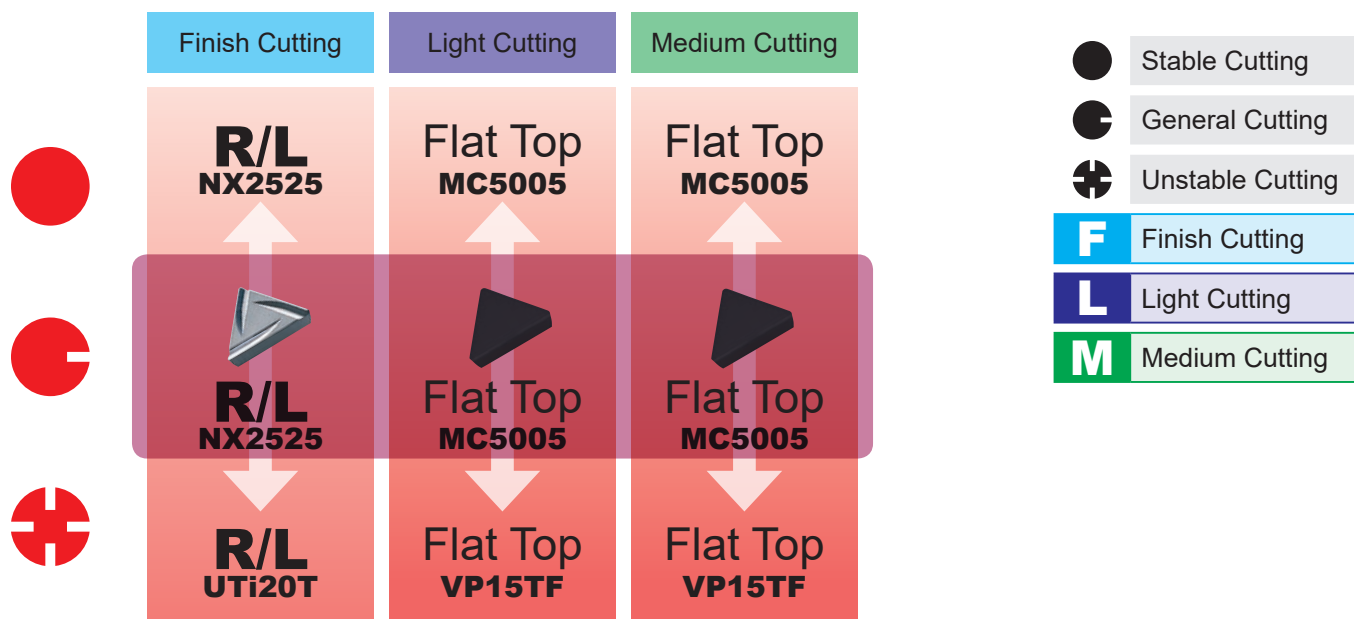
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P Carbon Steel • Alloy Steel (Ex : S45C, SCM440)
11° POSITIVE INSERTS WITHOUT HOLE

vc : Cutting Speed
f : Feed
ap : Depth of Cut

			1st Recommendation			
	Cutting Area	Chip Breaker	Grade	vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	R/L	NX2525	165—240	0.06—0.25	0.30—1.50
	L	Standard	NX2525	140—200	0.08—0.30	0.30—2.00
	M	Standard	NX2525	140—200	0.08—0.30	0.30—2.00
General Cutting	F	R/L	NX2525	165—240	0.06—0.25	0.30—1.50
	L	Standard	MC6115	180—350	0.08—0.30	0.30—2.00
	M	Standard	MC6125	200—310	0.08—0.30	0.30—2.00
Unstable Cutting	F	R/L	UTi20T	85—120	0.06—0.25	0.30—1.50
	L	Standard	MC6125	200—310	0.08—0.30	0.30—2.00
	M	Standard	MC6125	200—310	0.08—0.30	0.30—2.00



K Cast Iron • Ductile Cast Iron (Ex : FC300)

11° POSITIVE INSERTS WITHOUT HOLE

vc : Cutting Speed
f : Feed
ap : Depth of Cut

		1st Recommendation				
	Cutting Area	Chip Breaker	Grade	vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	R/L	NX2525	145—200	0.06—0.25	0.30—1.50
	L	Flat Top	MC5005	165—265	0.08—0.30	0.30—2.00
	M	Flat Top	MC5005	165—265	0.08—0.30	0.30—2.00
General Cutting	F	R/L	NX2525	145—200	0.06—0.25	0.30—1.50
	L	Flat Top	MC5015	150—240	0.08—0.30	0.30—2.00
	M	Flat Top	MC5015	150—240	0.08—0.30	0.30—2.00
Unstable Cutting	F	R/L	UTi20T	70—105	0.06—0.25	0.30—1.50
	L	Flat Top	VP15TF	115—160	0.08—0.30	0.30—2.00
	M	Flat Top	VP15TF	115—160	0.08—0.30	0.30—2.00



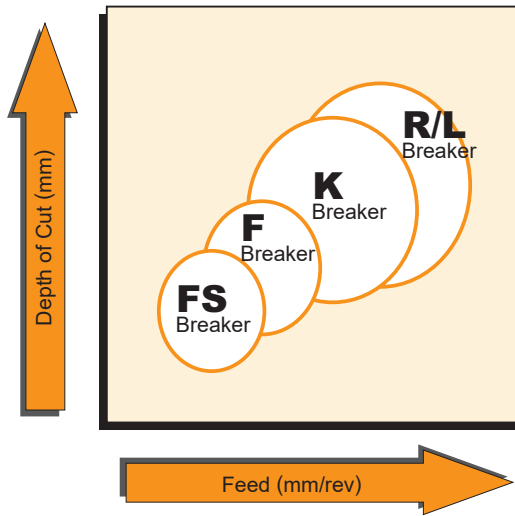
PRECISION BREAKER SYSTEM

ANGULAR AND PARALLEL CHIP BREAKERS (NEGATIVE INSERTS)

TURNING INSERTS

A

CHIP CONTROL RANGE

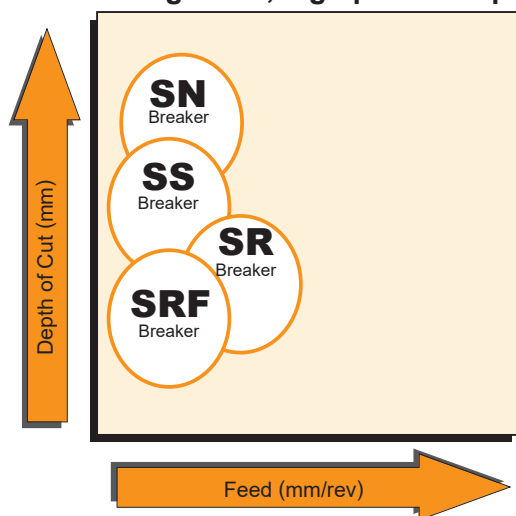


FEATURES OF CHIP BREAKER

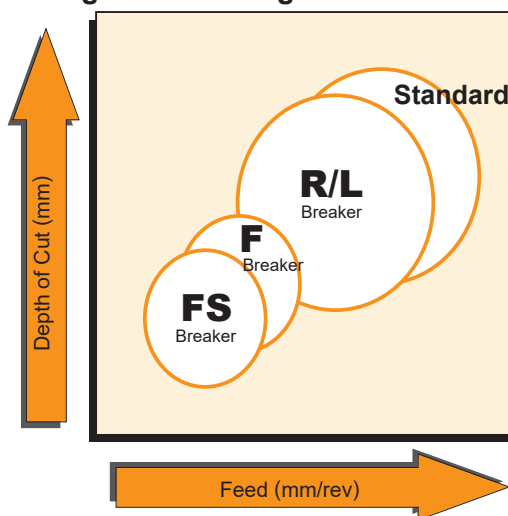
Breaker	Features	DNGG Type	SNGG Type	TNGG Type	VNGG Type
FS	- For precision finishing. - Small width lead breaker for good chip control. - Sharp cutting edge gives a good surface finish.	—	—		—
F	- For finish cutting. - Lead breaker controls chip flow. - Sharp cutting edge gives a good surface finish.	—	—		—
K	- Parallel breaker for light cutting. - Excellent chip control for low to medium feed rates.	—	—		—
R/L	- Parallel breaker for medium cutting. - Good chip control for medium feed rates.				

ANGULAR AND PARALLEL CHIP BREAKERS (POSITIVE INSERTS)

■ For turning small, high precision parts



■ For general turning



FEATURES OF CHIP BREAKER

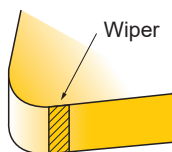
Breaker	Features	CCET Type	CCGT Type	DCET Type	DCGT Type	VBET Type
SRF	- The wide lead breaker for medium cutting is suitable for automatic lathe machining. - The insert design for low resistance controls chip flow.	—	—	—		
SR	- The wide lead breaker for medium cutting is suitable for automatic lathe machining. - The insert design for low resistance controls chip flow.		—		—	
SS	- The parallel breaker for light cutting is suitable for automatic lathe machining. - Excellent chip control at low feed rates.	—		—		—
SN	- The parallel breaker for general purpose is suitable for automatic lathe machining. - Excellent chip control for low to medium feed rates.					

Breaker	Features	CCGH/CCGT Type	CPGT Type	DCGT Type	TPGH Type	TCGT Type	VBGT/VCGT Type	WBGT Type	WCCT Type	WPGT Type
FS	- For precision finishing. - Small width lead breaker for excellent chip control. - Sharp cutting edge gives a good surface finish.	—	—	—		—	—	—	—	
F	- For finish cutting. - Lead breaker controls chip flow. - Sharp cutting edge gives a good surface finish.				—				—	—
R/L	- Lead breaker for light cutting. - Good chip control for low to medium feed rates.	—	—	—	—	—	—	—		—
Standard	- For light cutting. - Good chip control for low to medium feed rates.	—		—	—	—	—	—	—	—

WIPER INSERT

What is a Wiper Insert?

- A wiper insert is designed with a wiper edge that is situated where the straight edge meets the corner radius.
- In comparison to conventional breakers, the surface finish does not deteriorate even if the feed rate is doubled.
- Machining at high feed rates improves cutting efficiency.



Improving Surface Finish

Under the same machining conditions as conventional breakers, but with the feed rate increased, the surface finish of the workpiece can be improved.

Improving Efficiency

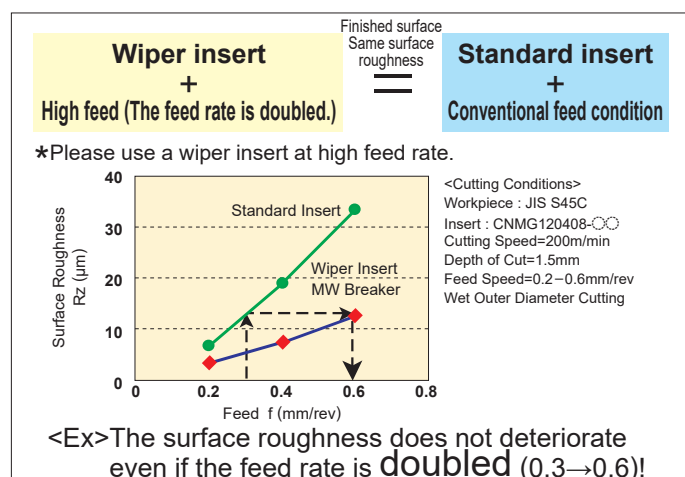
High feed rates not only shorten machining times but also make it possible to combine roughing and finishing operations.

Increased Tool Life

When changed to high feed conditions, the time required to cut one component is decreased, thus more parts can be machined with each insert. In addition, the high feed rate prevents rubbing, therefore delaying the progression of wear and increasing the tool life of the insert.

Improving Chip Control

Under high feed conditions, the chips generated become thicker and are more easily broken, thus, chip control is improved.



A wiper insert + machining at high feed rate

- Reduced machining time (per workpieces)
- Increased number of workpieces (per definitive time period)
- Improving chip control

A wiper insert + machining at conventional feed rate

- Eliminating the finishing step by roughing and finishing together (Separate roughing and finishing steps → Single-step machining)

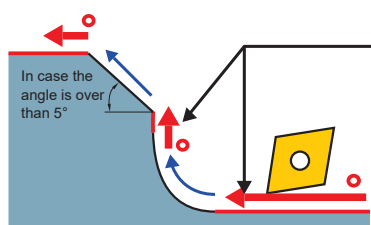
- Reducing cycle times
- Increased productivity
- Avoiding Line-Stoppage

<The Realization of Reduced Costs!!>

Estimate of finished surface roughness when using a wiper insert

The effects of wiper inserts on external machining, boring and facing.

- *The surface roughness when machining at corner R or taper angle over 5° is the same as machining with standard inserts.



$$Rz(W) = Rz \times 0.5$$

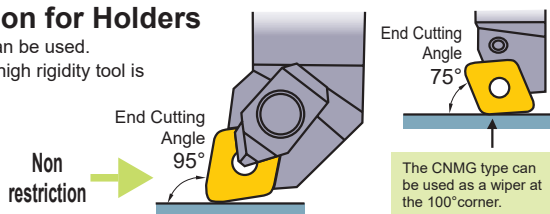
$Rz(W)$ = Finished surface roughness when using a wiper insert.
 Rz : Finished surface roughness from conventional conditions.
 (When using a standard insert)

- Effective uses of a wiper insert
- Non effective uses of a wiper insert

Special attention is not necessary when using CNMG • WNMG • CCMT types.

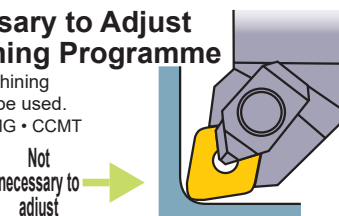
No Restriction for Holders

Standard holders can be used.
 (*A double clamp, high rigidity tool is recommended.)



Not Necessary to Adjust the Machining Programme

Conventional machining programmes can be used.
 (The CNMG • WNMG • CCMT types are based on the ISO/ANSI.)

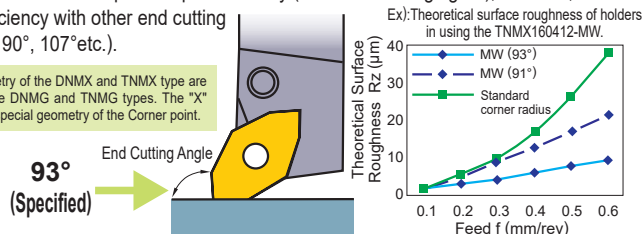


Special attention is necessary when using the DNMX • TNMX types due to the special top face geometry.

Restriction for Holders

Use a holder with an end cutting angle of 93° improving wiper efficiency. A holder with an end cutting angle of 91° can improve wiper efficiency (see the following figure), however, there is no wiper efficiency with other end cutting angles (60°, 90°, 107° etc.).

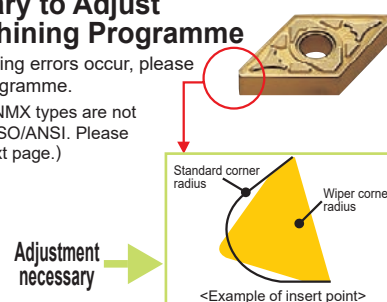
The hole geometry of the DNMX and TNMX type are the same as the DNMG and TNMG types. The "X" represents the special geometry of the Corner point.



Necessary to Adjust the Machining Programme

When machining errors occur, please adjust the programme.

(The DNMX-TNMX types are not based on the ISO/ANSI. Please refer to the next page.)

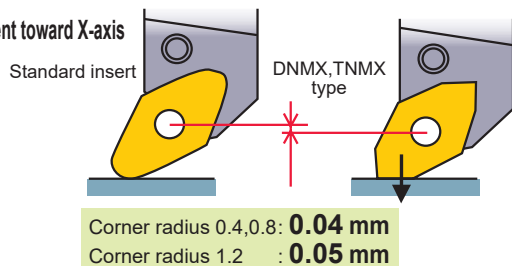


■ Adjustment of machining programmes for DNMX • TNMX types

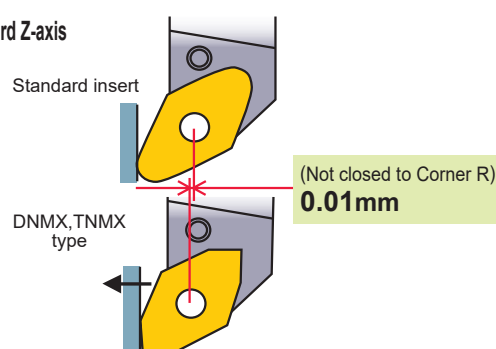
Basic Process) Adjusting Toward X-axis and Z-axis

Adjusting the differential between a standard insert and Z-axis / X-axis.

Adjustment toward X-axis



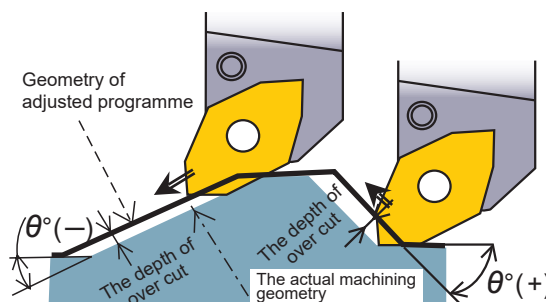
Adjustment toward Z-axis



A) Adjusting a Taper *Necessary to maintain a correct taper.

Adjust the relief angle toward the normal line.

Note1) Adjust the angle toward the normal line in the case where the adjustment number is negative ($\theta = 60^\circ - 70^\circ$) and is not machined completely.



Classification

Corner Radius	Taper Angle θ°															
	-25—-15	-10	-5	0	5	10	15	20—35	40	45	50	55	60—65	70	75—85	90
1.2	0.04	0.03	0.01	0	0.02	0.03	0.04	0.05	0.04	0.04	0.02	0.01	-0.01	0	0.01	0
0.8	0.03	0.02	0.01	0	0.01	0.02	0.03	0.04	0.03	0.03	0.02	0	-0.01	0	0.01	0
0.4	0.02	0.01	0.01	0	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0	-0.01	-0.01	0	0

Numerical Values) +numbers:adjustment of relief angle, -numbers:adjustment of drive-in angle (mm)

B) Adjusting a Corner R *Necessary to maintain a correct corner radius.

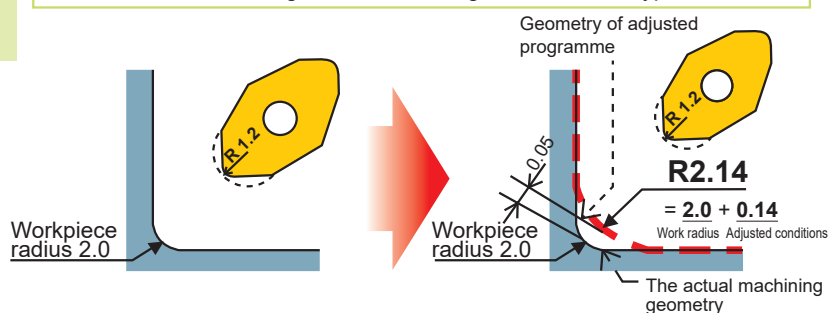
Adjust the work diameter same as the taper to prevent over-cut.

The value of adjustment to work R = Work R + the adjustment value

*No adjusting the corner radius in this case.

The corner radius of the insert	The adjustment amount on the workpiece radius.
Corner Radius 0.4 →	Work Radius+ 0.05(mm)
Corner Radius 0.8 →	Work Radius+ 0.11(mm)
Corner Radius 1.2 →	Work Radius+ 0.14(mm)

Ex) In case of machining R 2.0 when using a corner R 1.2 type insert.



In correcting corner radius:

It is not necessary to adjust the machining programme, however, machining errors can occur within max. $\pm 0.03\text{mm}$ due to correcting by an approximate number.

The Easy-to-correct Method

Corner Radius Correction

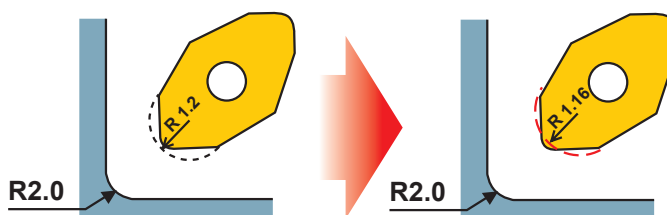
Input the correction number of each corner radius.

The value of corrected corner radius = approximation

*No adjusting the machining the programme in this case.

The corner radius of a insert	The value of corrected corner radius = approximation
Corner Radius 0.4 →	R0.36(mm)
Corner Radius 0.8 →	R0.76(mm)
Corner Radius 1.2 →	R1.16(mm)

Ex) In the case of machining a corner with a radius R 2.0 when using an insert with a corner radius R 1.2.



Note 1) The value of correction is same for both DNMX and TNMX. Discriminate them by the size of corner radius.

GRADES FOR TURNING

● INDEXABLE INSERT GRADES FOR TURNING

TURNING INSERTS

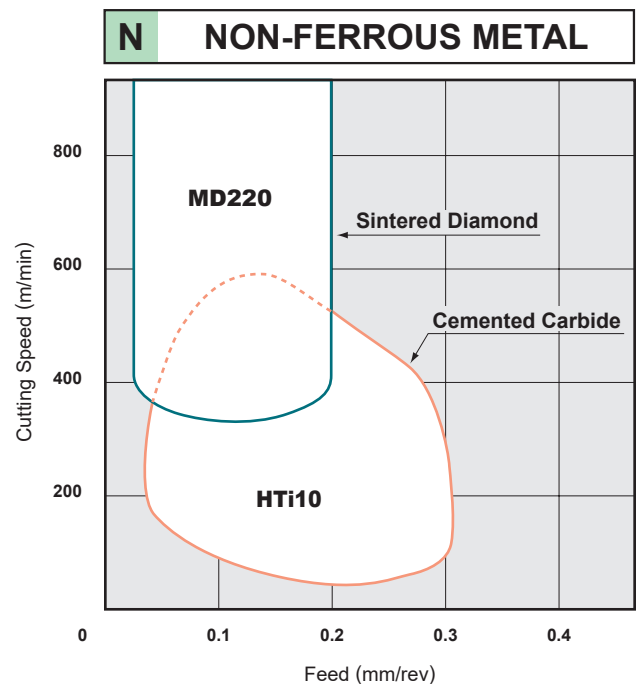
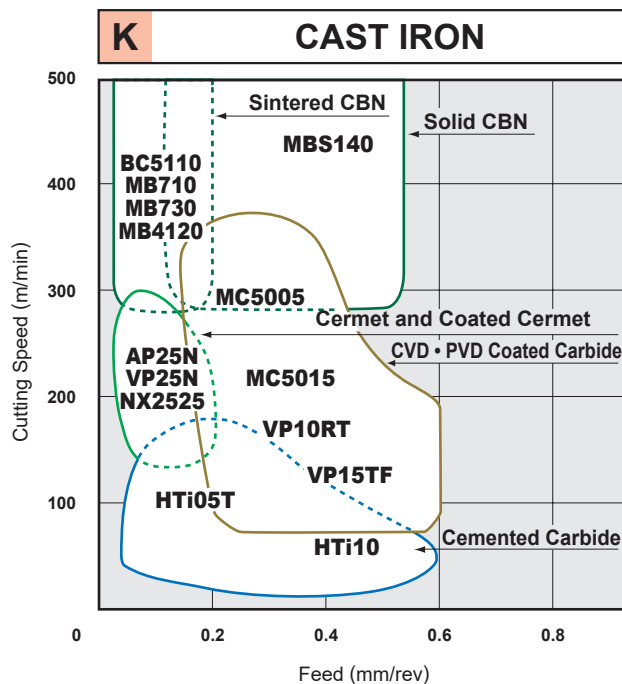
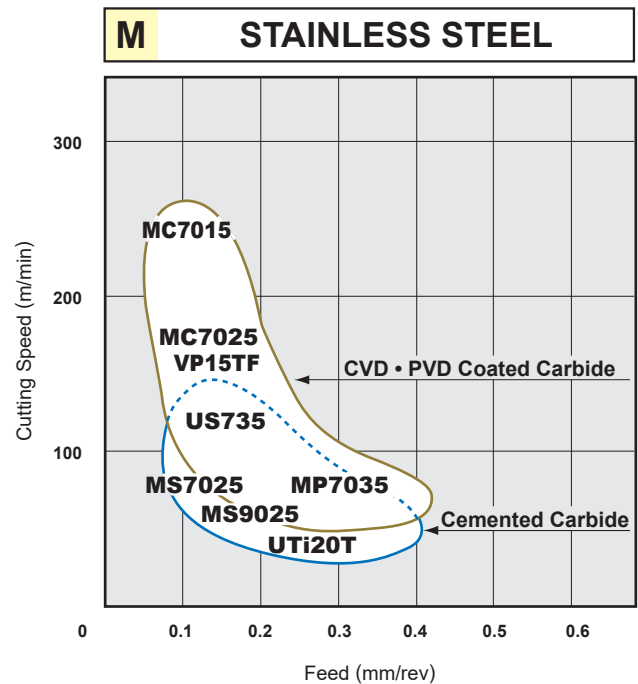
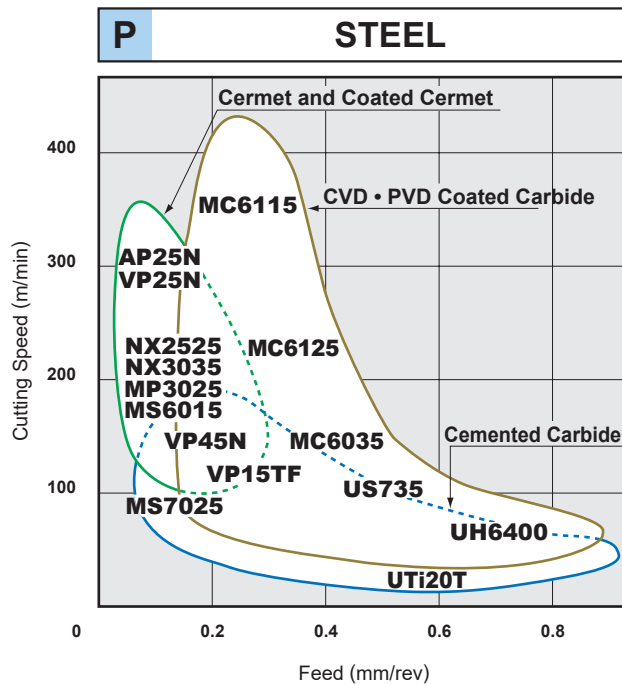
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ISO	Coated Carbide		Cermets	Coated Cermets	Cemented Carbide	Coated CBN	CBN	PCD (Sintered Diamond)
	CVD	PVD						
Steel P	Continuous							
	10	MC6115 ^{NEW}						
20		MY5015 ^{NEW}						
		MC6125 ^{NEW}						
30		UE6020						
		MC6035						
40		UH6400						
	Interrupted							
Stainless Steel M	Continuous							
	10	MC7015						
20		US7020						
		MC7025						
30		US735						
		VP10RT						
40		VP10MF						
	Interrupted							
Cast Iron K	Continuous							
	10	MC5005						
20		MC5015						
		MY5015						
30		MH515						
	Interrupted							
Non-Ferrous Metal N	Continuous							
	10							
20								
30								
	Interrupted							
Heat Resistant Alloy • Ti Alloy S	Continuous							
	10	US905						
20								
30								
	Interrupted							
Hardened Steel H	Continuous							
	10							
20								
30								
	Interrupted							

TURNING APPLICATION RANGE

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TURNING INSERTS

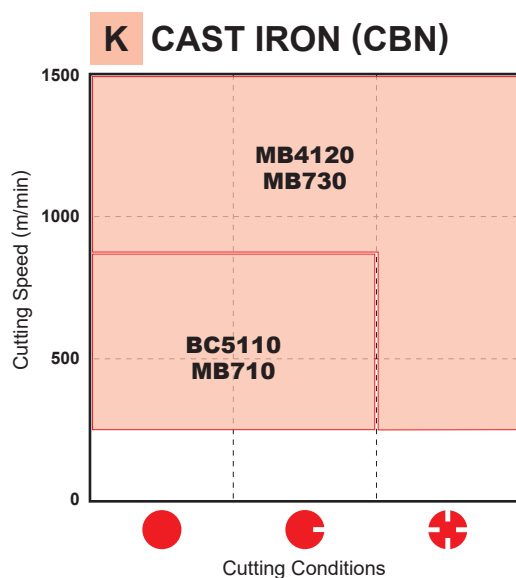
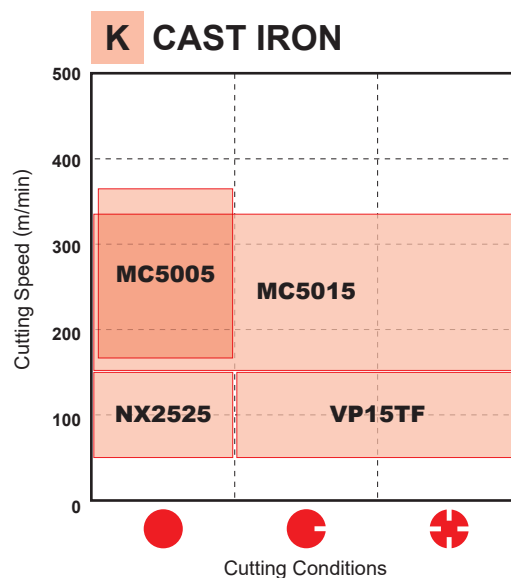
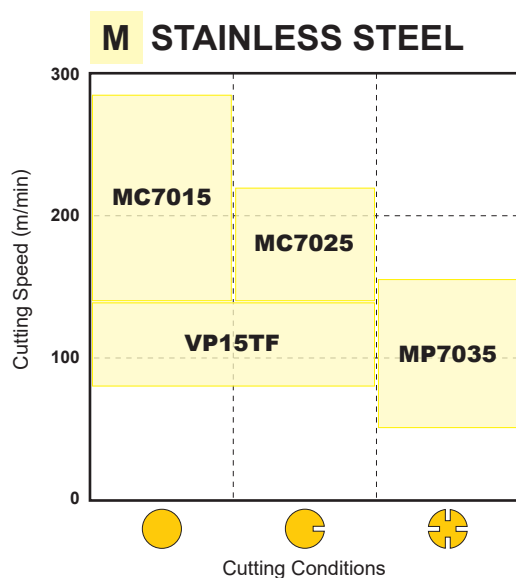
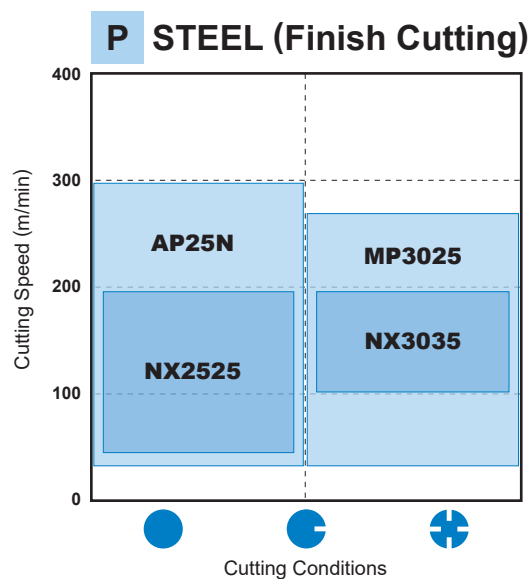
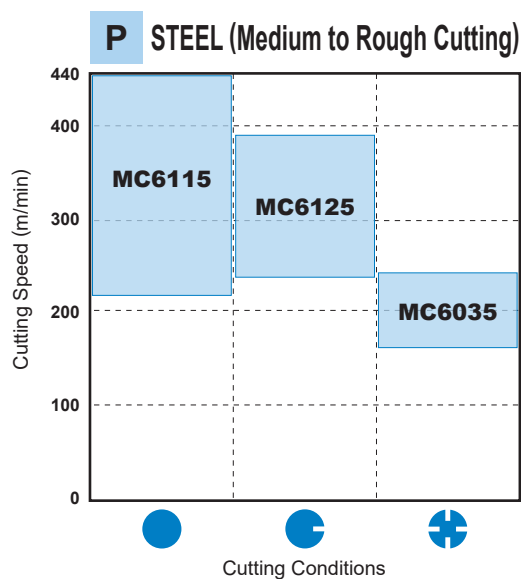


TURNING APPLICATION RANGE

● Recommendation of insert grade based on cutting speed and conditions for each workpiece.

TURNING INSERTS

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CUTTING CONDITIONS



Stable Cutting

Continuous Cutting
Constant Depth of Cut
Pre-Machined
Securely Clamped Component Cutting

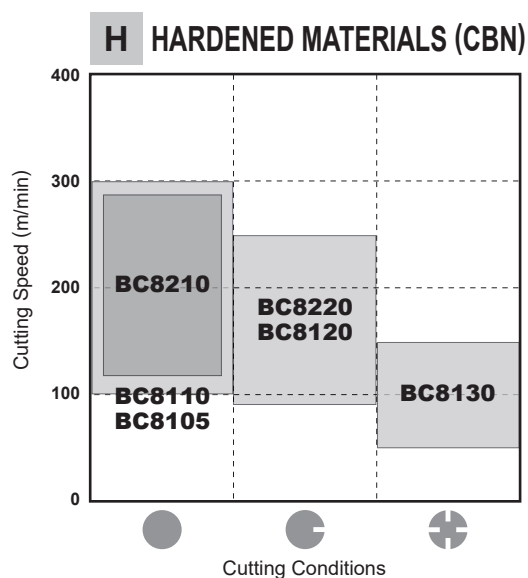
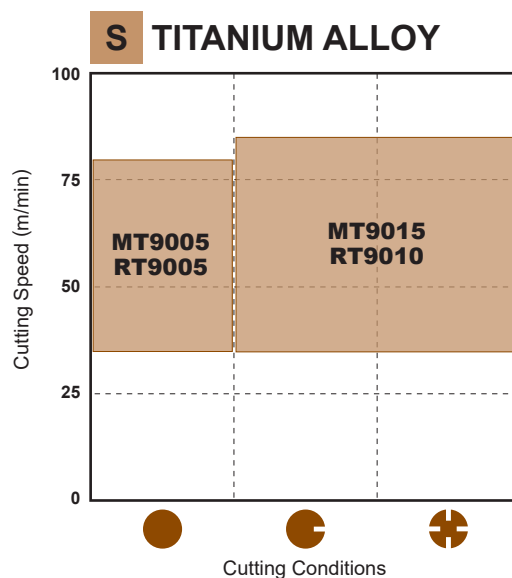
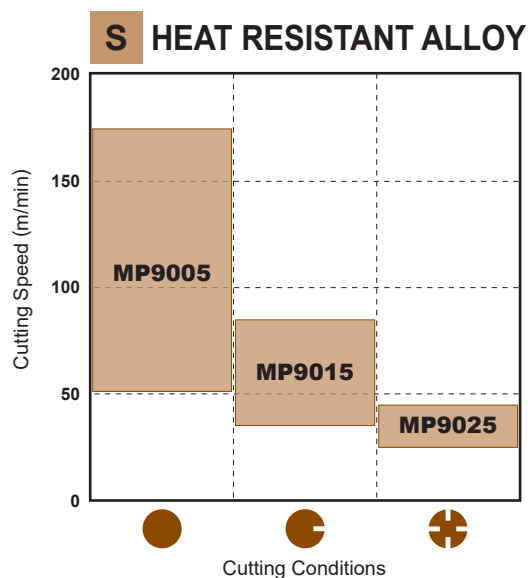
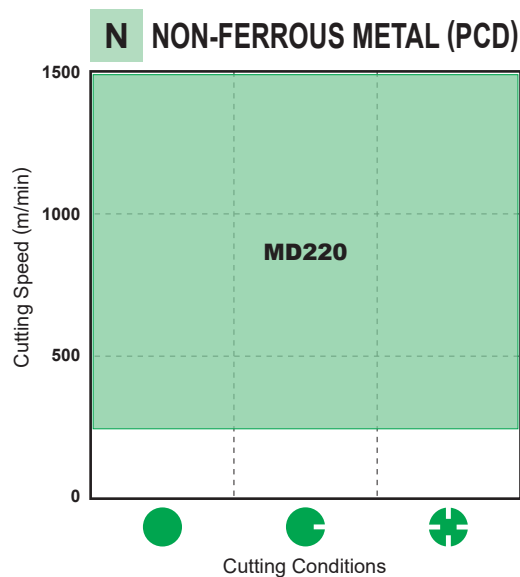
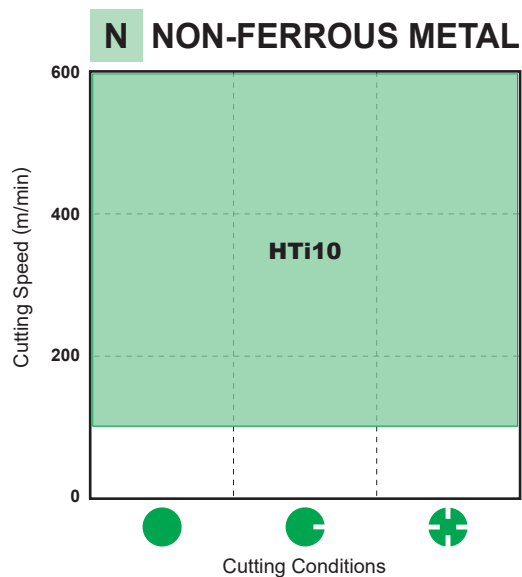


General Cutting



Unstable Cutting

Heavy Interrupted Cutting
Irregular Depth of Cut
Low Clamping Rigidity Cutting



Detailed information regarding each grade is available on the website. ►



COATED CARBIDE (CVD)

- Special tough fibrous structure improves wear and fracture resistance.
- It covers a wide range of applications and thus reduces the number of tools required.

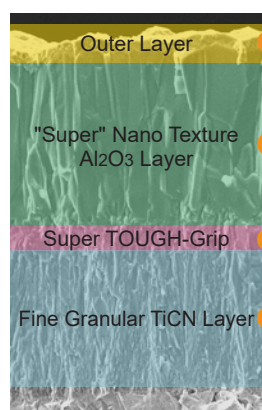
SELECTION STANDARD

TURNING

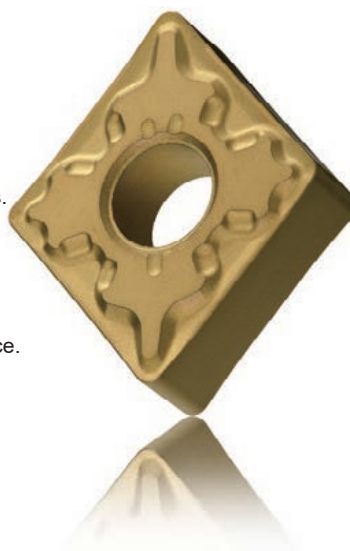
Workpiece Material	Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
Steel	Continuous Cutting	NEW MC6115	340 (215 – 480)	P Continuous ↑ 10 20 30 40 ↓ Interrupted	
		NEW MC6125	330 (210 – 465)		
	Interrupted Cutting	MC6035	180 (115 – 260)		
M Stainless Steel	Continuous Cutting	MC7015	220 (155 – 285)	M Continuous ↑ 10 20 30 40 ↓ Interrupted	
		MC7025	180 (140 – 220)		
	Continuous and Interrupted Cutting	US735	130 (75 – 185)		
K Cast Iron Ductile Cast Iron	Continuous Cutting	MC5005	260 (165 – 365)	K Continuous ↑ 10 20 30 ↓ Interrupted	
	Interrupted Cutting	MC5015	240 (150 – 335)		
S Heat Resistant Alloy	Continuous and Interrupted Cutting	US905	70 (45 – 95)	S Continuous ↑ 5 ↓ Interrupted	

Dramatic increase in stability and wear resistance, enabled by utilising the improved coating adhesion and crystal orientation technology.

MC6115



- Outer Layer: Gold colour assists easy identification of edge use.
- "Super" Nano Texture Al₂O₃ Layer: Outstanding wear resistance especially at high temperatures.
- Super TOUGH-Grip: Strong adhesion between the tough coating layers.
- Fine Granular TiCN Layer: Coating for high wear resistance.



Super Nano Texture Technology

The standard Nano Texture Technology has been improved and developed to be an industry leading standard for crystal growth of Al₂O₃ coatings. This Super Nano Texture Technology increases tool life and wear resistance due to the fine, dense crystal growth process.

Super TOUGH-Grip

The Super TOUGH-Grip layer has finer crystal grains that enhance the strength of the adhesion between the coating layers.

■ GRADE CHARACTERISTICS

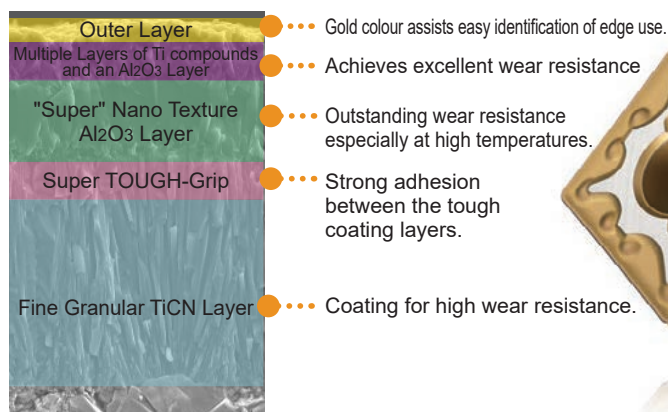
Workpiece Material		Grade	Substrate	Coating Layer	
			Hardness (HRA)	Composition	Thickness
P	Steel	 MC6115	90.8	Accumulated TiCN-Al2O3-Ti Compound	Thick
		 MC6125	90.0	Accumulated TiCN-Al2O3-Ti Compound	Thick
		UE6020	90.0	Accumulated TiCN-Al2O3-Ti Compound	Thick
		MC6035	89.5	TiCN-Al2O3	Thick
		UH6400	89.5	Accumulated TiCN-Al2O3-Ti Compound	Thick
M	Stainless Steel	MC7015	90.7	TiCN-Al2O3-TiN	Thin
		US7020	90.5	TiCN-Al2O3-TiN	Thin
		MC7025	89.4	TiCN-Al2O3-TiN	Thin
		US735	89.0	Ti Compound	Thin
K	Cast Iron Ductile Cast Iron	MC5005	91.0	TiCN-Al2O3	Thick
		MC5015	91.0	TiCN-Al2O3	Thick
	Heat Resistant Cast Steel	MH515	91.0	TiCN-Al2O3	Thick
S	Heat Resistant Alloy	US905	92.2	TiCN-Al2O3-TiN	Thin

Note 1) Hardness shows representative value of the substrate.

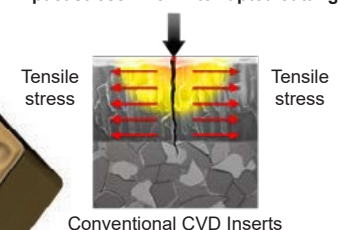
Reducing the effect of severe fracturing

Cracks that occur during unstable machining are prevented due to the relaxing of the tensile stress in the coating. MC6100 series has an 80% reduction in coating tensile stress compared to conventional CVD inserts.

MC6125

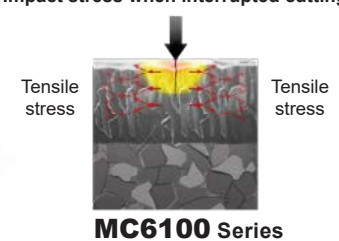


Impact stress when interrupted cutting



Cracks are generated in the surface of coatings during machining. They propagate through the coating into the substrate due to the large tensile stress in the coating structure. This creates one of the main causes of sudden insert breakage.

Impact stress when interrupted cutting



Relaxing of the Tensile Stress

MC6100 series has a much lower level of stress than conventional CVD coatings due to the surface treatment. This divides the force of impacts during machining and protects from sudden fracturing.

Detailed information regarding each grade is available on the website. ►



COATED CARBIDE (PVD)

- PVD coating prolongs tool life under the same cutting conditions compared to uncoated carbide.
- Coating of tools with sharp edges is possible without softening or changing the edge quality of the substrate.

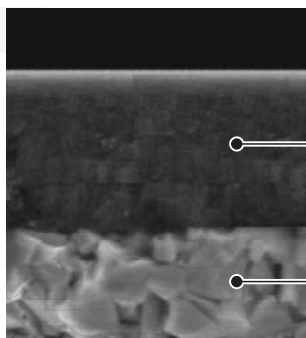
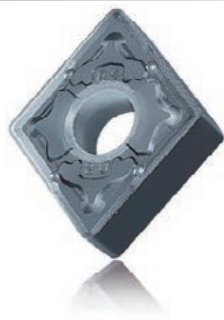
SELECTION STANDARD

TURNING

Workpiece Material	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P Steel	VP10RT	120 (100 – 150)	P Continuous ↑ 10 20 30 40 ↓ Interrupted	VP10RT, MS6015, NEW MS7025, VP15TF
	VP15TF	100 (50 – 150)		
M Stainless Steel	VP10RT	120 (100 – 150)	M Continuous ↑ 10 20 30 40 ↓ Interrupted	VP10RT, NEW MS7025, NEW MS9025, VP15TF, MP7035
	VP15TF	100 (80 – 135)		
	MP7035	120 (85 – 155)		
K Cast Iron	VP10RT	120 (100 – 150)	K Continuous ↑ 10 20 30 ↓ Interrupted	VP10RT, VP15TF
	VP15TF	120 (100 – 150)		
S Heat Resistant Alloy	MP9005	80 (50 – 110)	S Continuous ↑ 10 20 30 ↓ Interrupted	MP9005, VP05RT, MP9015, VP10RT, MP9025, NEW MS9025, VP15TF
	MP9015	60 (35 – 85)		
	MP9025	30 (25 – 45)		

ISO Turning Inserts for Difficult-to-Cut Materials

MP9005/MP9015/MP9025



High Al-(Al,Ti)N single layer coating

Special carbide substrate

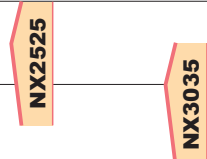
ISO Grade	Grade	Concept	Application
S01	MP9005	Top-quality grade focusing on wear resistance	Heat Resistant Alloy Finish-Medium Cutting
S10	MP9015	First recommendation for general applications	Heat Resistant Alloy Medium-Rough Cutting
S30	MP9025	Prevents severe damage for increased stability	Heat Resistant Alloy Interrupted • Light-Rough Cutting

CERMET

- The optimised alloy structure and special alloy binder improves both wear and fracture resistance.
- It covers a wide range of applications and reduces the number of tools required.
- NX3035 for wet cutting.
- NX2525 for dry cutting.

SELECTION STANDARD

TURNING

Workpiece Material	Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P	Continuous Cutting	NX2525	230 (175 – 300)	P Continuous ↑ 10 20 ↓ Interrupted	
	Interrupted Cutting	NX3035	220 (170 – 285)		
M	Continuous Cutting	NX2525	100 (65 – 135)	M Continuous ↑ 10 20 ↓ Interrupted	
K	Finishing	NX2525	170 (130 – 210)	K Continuous ↑ 10 20 ↓ Interrupted	

GRADE CHARACTERISTICS

Grade	Hardness (HRA)
NX2525	92.2
NX3035	91.5

Note 1) Hardness shows representative value of the substrate.

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TURNING INSERTS



COATED CERMET

- Coated cermet (PVD coating) has superior wear and fracture resistance, and therefore provides a stable cutting performance.

SELECTION STANDARD

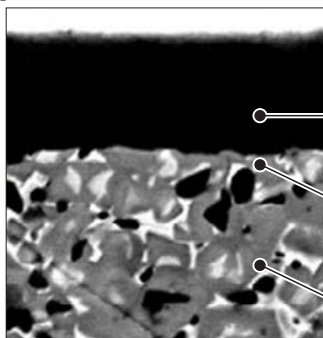
TURNING

Workpiece Material	Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P Steel	Continuous Cutting	VP25N AP25N	270 (200 — 345)	P Continuous ↑ 10 20 30 ↓ Interrupted	VP25N AP25N MP3025 VP45N
	Interrupted Cutting	MP3025	250 (180 — 330)		
K Cast Iron Ductile Cast Iron	Finishing	VP25N AP25N	190 (155 — 225)	K Continuous ↑ 10 20 ↓ Interrupted	VP25N AP25N

Effective for production of small parts.

MP3025

MP3025 provides improved adhesion for coating layer due to the newly-developed special substrate. Uniform flank wear allows prolonged machining that maintains excellent surface finish.



Ti-compound PVD coating provides excellent wear and welding resistance.

Substrate surface provides excellent adhesion strength for coating layer.

Substrate with superior fracture resistance and thermal shock resistance.

CEMENTED CARBIDE

- UTi grades are available for steel and cast iron. HTi grades are available for non-ferrous and non-metal materials and are also suitable for cast iron.

SELECTION STANDARD

TURNING

Workpiece Material	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P Steel	UTi20T	110 (90 – 130)	Continuous ↑ 10 20 30 ↓ Interrupted	UTi20T
M Stainless Steel	UTi20T	100 (80 – 115)	Continuous ↑ 10 20 30 ↓ Interrupted	UTi20T
K Cast Iron	HTi05T	120 (80 – 165)	Continuous ↑ 10 20 30 ↓ Interrupted	HTi05T
	HTi10	100 (75 – 135)		HTi10
	UTi20T	80 (60 – 110)		UTi20T
N Non-Ferrous Metal	HTi10	500 (300 – 700)	Continuous ↑ 10 20 ↓ Interrupted	HTi10
S Heat Resistant Alloy Ti Alloy	MT9005 RT9005	50 (35 – 80)	Continuous ↑ 10 20 ↓ Interrupted	MT9005 RT9005
	MT9015 RT9010	60 (35 – 85)		MT9015 RT9010

MAIN COMPONENT AND APPLICATION

ISO	Main Component	Characteristics	Workpiece Material
P M	WC-TiC-TaC-Co	Heat / deformation resistance.	Carbon steel, alloy steel, stainless steel and cast iron
K N	WC-Co	High rigidity and wear resistance.	Cast iron, non-ferrous metals, and non-metal
S	WC-Co	High heat resistance and wear resistance.	Heat resistant alloy, Ti alloy

GRADE CHARACTERISTICS

ISO	Grade	Hardness (HRA)
P M	UTi20T	90.5
K N	HTi05T	92.5
	HTi10	92.0
S	MT9005/RT9005	92.2
	MT9015/RT9010	91.8

Note 1) Hardness shows representative value of the substrate.

Detailed information regarding each grade is available on the website. ►



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TURNING INSERTS

MICRO-GRAIN CEMENTED CARBIDE (SOLID TOOLS)

A

● Compared to normal cemented carbide, micro-grain types have higher wear resistance and toughness.

TURNING INSERTS

SELECTION STANDARD

Cutting Tool	Recommended Grade	Workpiece Material
PCB Miniature Drill	SF10 MF10 MF20	Non-Metal
Solid Carbide Drill Turning Inserts Milling Inserts	TF15	Steel • Cast Iron
Solid End Mill	HTi10 TF15 MF10	Steel • Cast Iron
Gear Hob Reamer Tap etc.	TF15 MF20 MF30	Steel • Cast Iron, etc.

GRADE CHARACTERISTICS

Grade	Grade Characteristics ★		ISO	Wear Resistance	Fracture Resistance	Corrosion Resistance
	Hardness(HRA)	T.R.S (GPa)				
HTi10	92.0	3.2	K10	◎	○	○
TF15	91.0	4.0	K20	◎	○	◎
SF10	92.7	3.8	K01	◎	○	◎
MF10	93.0	4.0	K01	◎	○	◎
MF20	92.0	4.4	K10	○	◎	◎
MF30	90.7	4.3	K20	○	◎	◎

★ After HIP
Note 1) Hardness shows representative value of the substrate.

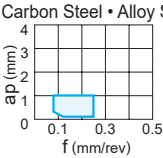
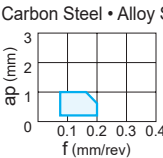
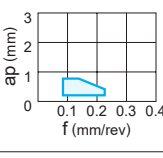
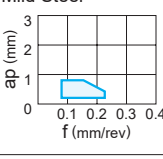
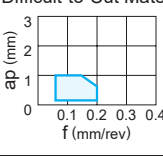
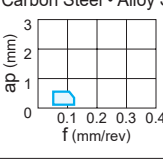
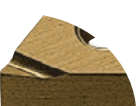
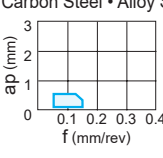
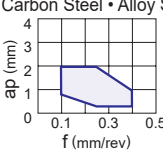
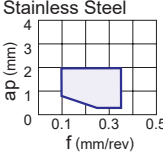
This image shows a blank sheet of white paper designed as a memo template. At the top left, the word "Memo" is written in a large, bold, black sans-serif font. A thick horizontal black line runs across the entire width of the page directly beneath the header. The main body of the page is filled with horizontal dashed gray lines, providing space for writing. The lines are evenly spaced and extend from the left margin to the right edge of the page.

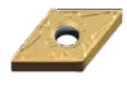
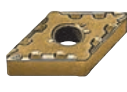
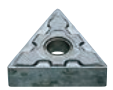
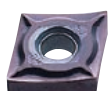
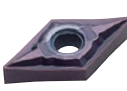
CLASSIFICATION

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TURNING INSERTS

NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M	FP 	First recommendation for finishing carbon steel and alloy steel Controls chip clogging during high-feed cutting and prevents chips of soft workpiece materials from running onto their surfaces. Large rake angle suppress chatter vibration and deformation in machining of low rigidity workpiece material.	Carbon Steel • Alloy Steel  20° Corner 20° Flank CNMG120408-FP
		FH 	First recommendation for finishing carbon steel and alloy steel Stable chip control even at small depths of cut.	Carbon Steel • Alloy Steel  12° Corner 12° Flank CNMG120408-FH
		FS 	Alternative chip breaker for finishing mild steel Stable chip control even at small depths of cut. Sharp edge gives best performance.	Mild Steel  16° Corner 8° Flank CNMG120408-FS
		FY 	First recommendation for finishing mild steel Effectively controls adhesive chips. Suitable for mild steel finishing.	Mild Steel  15° Corner 15° Flank 0.2 mm CNMG120408-FY
		FJ 	Alternative chip breaker for finishing difficult-to-cut materials Ideal for heat resistant alloys and titanium alloys. The sharp edge produces good cutting surface. The curved edge allows smooth chip discharge.	Difficult-to-Cut Materials  14° Corner 9° Flank CNGG120404-FJ
	G	R/L-FS 	Chip breaker for precise finishing A narrow lead chip breaker for good chip control. The sharp edge produces a good surface finish.	Carbon Steel • Alloy Steel  14° Flank TNGG160404R-FS
		R/L-F 	Chip breaker for finishing Lead chip breaker controls chip flow. The sharp edge produces a good surface finish.	Carbon Steel • Alloy Steel  14° Flank TNGG160404R-F
Light Cutting	M	LP 	First recommendation for light cutting of carbon steel and alloy steel Stable chip control at light cutting range. The curved edge allows smooth chip discharge.	Carbon Steel • Alloy Steel  15° 0.1 mm Corner 11° 0.2 mm Flank CNMG120408-LP
		LM 	First recommendation for light cutting of stainless steel Stable chip control at light cutting range. Breaker with high rake angle provides excellent burr control.	Stainless Steel  15° 0.50 mm Corner 20° Flank CNMG120408-LM

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 	Breaker Name and Cross Section
	CNMG_FP  ➡ A074	DNMG_FP  ➡ A081	SNMG_FP  ➡ A089	TNMG_FP  ➡ A095	VNMG_FP  ➡ A102	WNMG_FP  ➡ A106		FP 
	CNMG_FH  ➡ A074	DNMG_FH  ➡ A081	SNMG_FH  ➡ A089	TNMG_FH  ➡ A095	VNMG_FH  ➡ A102	WNMG_FH  ➡ A106		FH 
	CNMG_FS  ➡ A074	DNMG_FS  ➡ A081	SNMG_FS  ➡ A089	TNMG_FS  ➡ A095	VNMG_FS  ➡ A102	WNMG_FS  ➡ A106		FS 
	CNMG_FY  ➡ A074	DNMG_FY  ➡ A081		TNMG_FY  ➡ A095		WNMG_FY  ➡ A106		FY 
	CNMG_FJ  ➡ A074	DNMG_FJ  ➡ A081			VNMG_FJ  ➡ A102			FJ 
				TNMG_R/L-FS  ➡ A095				R/L-FS 
				TNMG_R/L-F  ➡ A095	VNMG_R/L-F  ➡ A102			R/L-F 
	CNMG_LP  ➡ A074	DNMG_LP  ➡ A082	SNMG_LP  ➡ A089	TNMG_LP  ➡ A096	VNMG_LP  ➡ A102	WNMG_LP  ➡ A106		LP 
	CNMG_LM  ➡ A075	DNMG_LM  ➡ A082	SNMG_LM  ➡ A089	TNMG_LM  ➡ A096	VNMG_LM  ➡ A103	WNMG_LM  ➡ A106		LM 

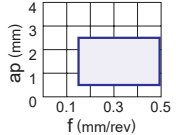
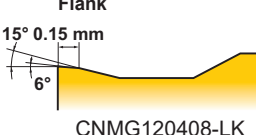
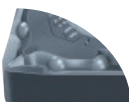
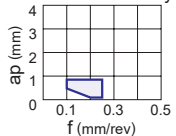
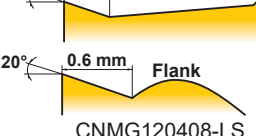
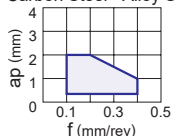
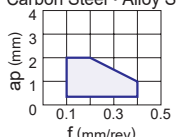
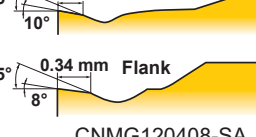
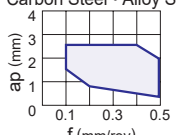
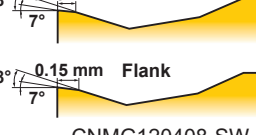
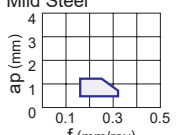
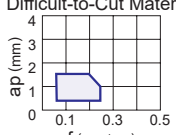
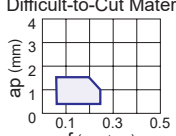
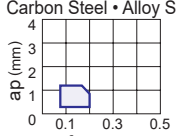
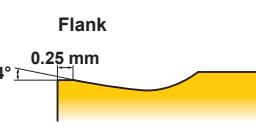


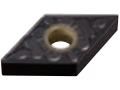
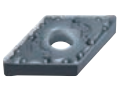
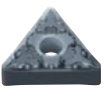
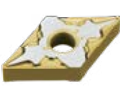
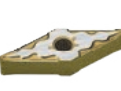
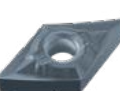
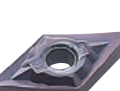
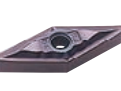
CLASSIFICATION

A

TURNING INSERTS

NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Light Cutting	M	LK 	First recommendation for light cutting of cast iron Narrow positive land provides low cutting resistance and excellent finish.	Cast Iron   CNMG120408-LK
		LS 	First recommendation for light cutting of difficult-to-cut materials Alternative chip breaker for light cutting of stainless steel Enhanced chip disposal for depths of cut smaller than the corner R.	Heat Resistant Alloy   CNMG120408-LS
		SH 	Alternative chip breaker for light cutting of carbon steel and alloy steel Can be used at low depths of cut and high feed rates. The curved edge allows smooth chip discharge. Recommended for workpieces in the 160—250HB range.	Carbon Steel • Alloy Steel   CNMG120408-SH
		SA 	Alternative chip breaker for light cutting of carbon steel and alloy steel Superior chip control at small depths of cut. Covers copying and back turning with wavy edge. Recommended for workpieces in the 200—300HB range.	Carbon Steel • Alloy Steel   CNMG120408-SA
		SW 	Wiper insert for light cutting of carbon steel, alloy steel, stainless steel and cast iron In comparison to conventional chip breakers, the surface finish is maintained even if the feed per revolution is doubled. Wiper design for increased productivity and improved surface finish.	Carbon Steel • Alloy Steel   CNMG120408-SW
		SY 	First recommendation for light cutting of mild steel Effectively controls adhesive chips. Suitable for mild steel light cutting.	Mild Steel   CNMG120408-SY
		MJ 	Alternative chip breaker for light cutting of difficult-to-cut materials Ideal for heat resistant alloys and titanium alloys. The sharp edge produces a good surface finish. The curved edge allows smooth chip discharge. Excellent notch wear resistance for light to medium cutting.	Difficult-to-Cut Materials   CNMG120408-MJ
G		MJ 	Alternative chip breaker for light cutting of difficult-to-cut materials Double-sided chip breaker, Single sided chip breaker (D type, V type). The sharp edge produces a good surface finish. Ideal for heat resistant alloys and titanium alloys. The curved edge allows smooth chip discharge.	Difficult-to-Cut Materials   CNGG120408-MJ
		R/L-K 	Chip breaker for Light cutting Parallel chip breaker. Excellent chip control at low to medium feed rates.	Carbon Steel • Alloy Steel   TNGG160404R-K

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 	Breaker Name and Cross Section
	CNMG_LK  ↻ A075	DNMG_LK  ↻ A082	SNMG_LK  ↻ A089	TNMG_LK  ↻ A096	VNMG_LK  ↻ A103	WNMG_LK  ↻ A107		LK 
	CNMG_LS  ↻ A075	DNMG_LS  ↻ A082		TNMG_LS  ↻ A096	VNMG_LS  ↻ A103	WNMG_LS  ↻ A107		LS 
	CNMG_SH  ↻ A075	DNMG_SH  ↻ A083	SNMG_SH  ↻ A090	TNMG_SH  ↻ A096	VNMG_SH  ↻ A103	WNMG_SH  ↻ A107		SH 
	CNMG_SA  ↻ A075	DNMG_SA  ↻ A083	SNMG_SA  ↻ A090	TNMG_SA  ↻ A096	VNMG_SA  ↻ A103	WNMG_SA  ↻ A107		SA 
	CNMG_SW  ↻ A075	DNMG_SW  ↻ A083		TNMG_SW  ↻ A097		WNMG_SW  ↻ A107		SW 
	CNMG_SY  ↻ A075	DNMG_SY  ↻ A083	SNMG_SY  ↻ A090	TNMG_SY  ↻ A097		WNMG_SY  ↻ A107		SY 
	CNMG_MJ  ↻ A075	DNMG_MJ  ↻ A083		TNMG_MJ  ↻ A097	VNMG_MJ  ↻ A103	WNMG_MJ  ↻ A107		MJ(M) 
	CNMG_MJ  ↻ A075	DNMG_MJ  ↻ A083			VNMG_MJ  ↻ A103			MJ(G) 
				TNMG_R/L-K  ↻ A097				R/L-K 

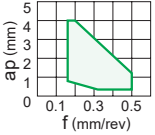
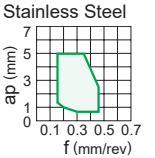
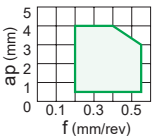
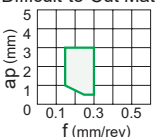
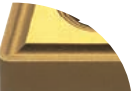
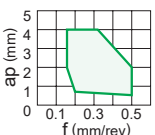
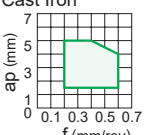
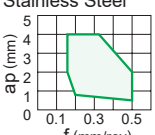
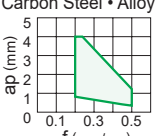
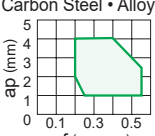


CLASSIFICATION

A

TURNING INSERTS

NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M	MP 	First recommendation for medium cutting of carbon steel and alloy steel Suitable for medium to light cutting. Breaker geometry appropriate for copying and back turning. Cutting edge geometry for an optimum balance of sharpness and fracture resistance.	Carbon Steel • Alloy Steel  15° 0.15 mm Corner 11° 0.2 mm Flank CNMG120408-MP
		MM 	First recommendation for medium cutting of stainless steel Optimised land geometry by simulation analysis technology controls the plastic deformation of the corner and achieves the long tool life.	Stainless Steel  6° 0.3 mm Corner 10° 0.3 mm Flank CNMG120408-MM
		MK 	First recommendation for medium cutting of cast iron Optimum balance between sharpness and high edge strength for general use.	Cast Iron  Flank 15° 0.25 mm 3° CNMG120408-MK
		MS 	First recommendation for medium cutting of difficult-to-cut materials, Alternative chip breaker for medium cutting of stainless steel. A large two-step rake corner creates chips without squeezing and entangled shapes. Applicable to MP9005, MP9015, MP9025, MT9015	Difficult-to-Cut Materials  25° 0.5 mm Corner 15° 0.5 mm Flank CNMG120408-MS
		MS 	Alternative chip breaker for medium cutting of stainless steel and difficult-to-cut materials The sharp edge gives best performance. Flat top breaker shape offers high edge strength. Applicable to grades other than MP9005, MP9015, MP9025, MT9015	Stainless Steel  25° 0.5 mm Corner 15° 0.5 mm Flank CNMG120408-MS
		GK 	Alternative chip breaker for medium cutting for cast iron Breakers are suitable for a wide range of applications. Maintenance of high stability by the flat-land.	Cast Iron  Flank 15° 0.25 mm CNMG120408-GK
		GM 	Alternative chip breaker for light to medium cutting of stainless steel Alternative chip breaker of main chip breaker LM and MM. Excellent notch wear resistance for light to medium cutting.	Stainless Steel  25° 0.5 mm Corner 15° 0.5 mm Flank CNMG120408-GM
		MA 	Multi-assist chip breaker Ideal for general cutting applications. Positive land provides sharp cutting action.	Carbon Steel • Alloy Steel  22° 0.2 mm Corner 6° 0.2 mm Flank CNMG120408-MA
		MH 	Alternative chip breaker for medium cutting of carbon steel and alloy steel Flat land offers high edge strength. Good chip control with suitable chip pocket.	Carbon Steel • Alloy Steel  16° 0.25 mm Corner 16° 0.35 mm Flank CNMG120408-MH

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 	Breaker Name and Cross Section
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	CNMG_MK  ↻ A076	DNMG_MK  ↻ A084	SNMG_MK  ↻ A091	TNMG_MK  ↻ A097	VNMG_MK  ↻ A104	WNMG_MK  ↻ A108		MK 
	CNMG_MS  ↻ A076	DNMG_MS  ↻ A084	SNMG_MS  ↻ A091	TNMG_MS  ↻ A097	VNMG_MS  ↻ A104	WNMG_MS  ↻ A108		MS 
	CNMG_MS  ↻ A077	DNMG_MS  ↻ A084	SNMG_MS  ↻ A091	TNMG_MS  ↻ A098	VNMG_MS  ↻ A104	WNMG_MS  ↻ A108		MS 
	CNMG_GK  ↻ A077	DNMG_GK  ↻ A085	SNMG_GK  ↻ A091	TNMG_GK  ↻ A098	VNMG_GK  ↻ A104	WNMG_GK  ↻ A109		GK 
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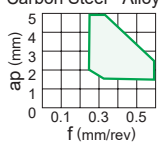
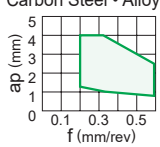
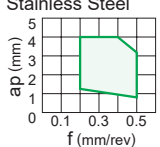
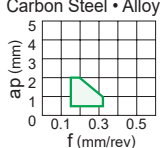
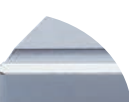
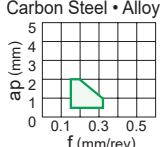
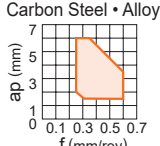
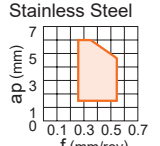
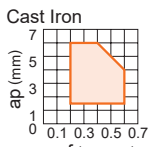
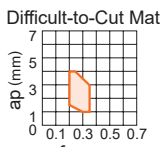


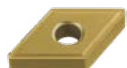
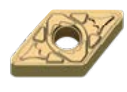
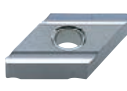
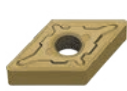
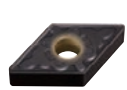
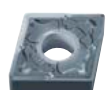
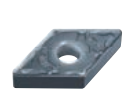
CLASSIFICATION

A

TURNING INSERTS

NEGATIVE INSERTS WITH HOLE

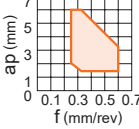
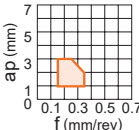
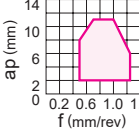
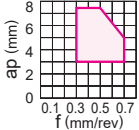
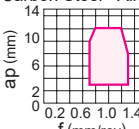
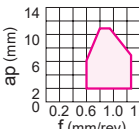
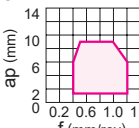
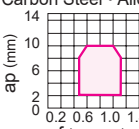
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M	Standard 	Alternative chip breaker for medium cutting of carbon steel and alloy steel Flat land offers high edge strength. Flat top breaker shape offers high edge strength.	Carbon Steel • Alloy Steel  15° 0.25 mm Corner 15° 0.25 mm Flank CNMG120408
		MW 	Wiper insert for medium cutting carbon steel, alloy steel, stainless steel and cast iron The wiper allows up to two times higher feed. A wide chip pocket prevents chip jamming.	Carbon Steel • Alloy Steel  19° 0.25 mm Corner 19° 0.3 mm Flank CNMG120408-MW
		R/L-ES 	Alternative chip breaker for medium cutting of stainless steel Good balance of edge strength and sharpness. Right- or left-hand breaker for unidirectional chip control.	Stainless Steel  15° 0.16 mm Flank TNMG160404R-ES
		R/L-2G 	Alternative chip breaker for medium cutting of carbon steel and alloy steel Good balance of edge strength and sharpness. Right- or left-hand breaker for unidirectional chip control. Precision chip breaker.	Carbon Steel • Alloy Steel  14° 0.2 mm Flank TNMG160404R-2G
	G	R/L 	Medium cutting Parallel chip breaker. Good chip control for medium feed rates.	Carbon Steel • Alloy Steel  14° 0.25 mm Flank TNMG160408R
Rough Cutting	M	RP 	First recommendation for rough cutting of carbon steel and alloy steel For interrupted cuts and removing scale. Good balance of cutting edge strength and low cutting resistance because of suitable rake angle.	Carbon Steel • Alloy Steel  3° 0.33 mm Corner 0.33 mm Flank CNMG120408-RP
		RM 	First recommendation for rough cutting of stainless steel Excellent fracture resistance at interrupted cutting due to the optimum land angle and honing geometry.	Stainless Steel  3° 0.32 mm Corner 6° 0.32 mm Flank CNMG120408-RM
		RK 	First recommendation for rough cutting of cast iron Seating surface and wide land 3 or more times that of conventional products and provides high cutting stability for interrupted machining and scale removal.	Cast Iron  15° 0.35 mm Flank CNMG120408-RK
		RS 	First recommendation for rough cutting of difficult-to-cut materials Alternative chip breaker for rough cutting of stainless steels Positive land increases welding resistance and suppresses chip welding and abrasion at low speed cutting.	Difficult-to-Cut Materials  20° 0.2 mm Corner 10° 0.2 mm Flank CNMG120408-RS

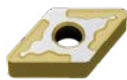
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	CNMG_MW  ➡ A078	DNMX_MW  ➡ A085		TNMX_MW  ➡ A099		WNMG_MW  ➡ A109		MW 
				TNMG_R/L-ES  ➡ A099				R/L-ES 
				TNMG_R/L-2G  ➡ A099				R/L-2G 
		DNGG_R/L  ➡ A086	SNGG_R/L  ➡ A092	TNGG_R/L  ➡ A099	VNGG_R/L  ➡ A105			R/L 
	CNMG_RP  ➡ A078	DNMG_RP  ➡ A086	SNMG_RP  ➡ A092	TNMG_RP  ➡ A100		WNMG_RP  ➡ A109		RP 
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	CNMG_RS  ➡ A079	DNMG_RS  ➡ A086	SNMG_RS  ➡ A093	TNMG_RS  ➡ A100		WNMG_RS  ➡ A110		RS 



CLASSIFICATION

NEGATIVE INSERTS WITH HOLE

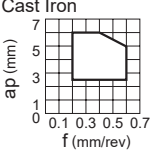
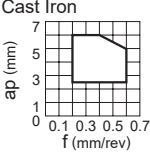
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Rough Cutting	M	GH 	Alternative chip breaker for rough cutting of carbon steel, alloy steel and cast iron For interrupted cuts and removing scale. A combination of wide land and a large chip pocket allows high feed rates.	Carbon Steel • Alloy Steel  18° 0.32 mm Corner 18° 0.32 mm Flank CNMG120408-GH
		GJ 	Alternative chip breaker for rough cutting of difficult-to-cut materials Excellent balance of edge sharpness and strength. Edge geometry with high face wear resistance.	Difficult-to-Cut Materials  18° 0.15 mm Corner 18° 0.15 mm Flank CNMG120408-GJ
Heavy Cutting	M	HX 	First recommendation for heavy cutting of carbon steel and alloy steel Covers the medium range of the heavy cutting region. Owing to the straight edge and chamfer, it gives a balance of sharpness and strength. Variable land and a wavy chip breaker for good chip control.	Carbon Steel • Alloy Steel  23° 0.43 mm Corner 21° 0.52 mm Flank CNMM190616-HX
		HL 	First recommendation for heavy cutting of stainless steel Alternative chip breaker for heavy cutting of carbon steel and alloy steel Low resistance due to narrow flat land. Achieves high chip breaking ability.	Stainless Steel  15° 0.34 mm CNMM190616-HL
		HR 	Alternative chip breaker for heavy cutting of carbon steel and alloy steel High cutting edge strength. Excellent chip discharge even with high feed and high depth of cut.	Carbon Steel • Alloy Steel  20° 0.58 mm CNMM250924-HR
		HV 	Alternative chip breaker for heavy cutting of carbon steel and alloy steel Covers the upper end of the heavy cutting region. Wide land and large chamfer offer high edge strength. A wide chip breaker prevents chip jamming.	Carbon Steel • Alloy Steel  20° 0.68 mm Corner 20° 0.68 mm Flank SNMM190616-HV
		HZ 	Alternative chip breaker for heavy cutting of carbon steel and alloy steel Covers the lower end of the heavy cutting region. Low cutting resistance due to positive land and curved edge. Teardrop dots improve chip control without increasing cutting resistance.	Carbon Steel • Alloy Steel  22° 0.42 mm Corner 22° 0.42 mm Flank CNMM190616-HZ
		HM 	Alternative chip breaker for heavy cutting of carbon steel and alloy steel and stainless steel Flat land provides outstanding balance between cutting edge strength and sharpness.	Carbon Steel • Alloy Steel  16° 0.32 mm CNMM190616-HM

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 	Breaker Name and Cross Section
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	CNMG_GJ  ➡ A079	DNMG_GJ  ➡ A087				WNMG_GJ  ➡ A110		GJ 
	CNMM_HX  ➡ A079		SNMM_HX  ➡ A093					HX 
	CNMM_HL  ➡ A079	DNMM_HL  ➡ A087	SNMM_HL  ➡ A093	TNMM_HL  ➡ A101				HL 
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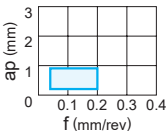
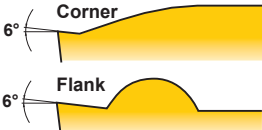
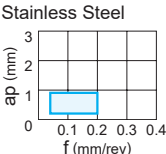
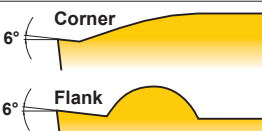
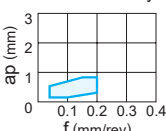
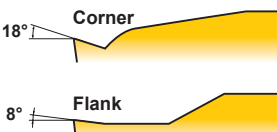
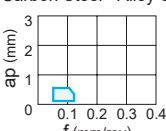


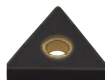
CLASSIFICATION

NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
For Cast Iron	M	Flat Top 	First recommendation for heavy cutting of cast iron Flat Top. Most effective for unstable machining due to its high edge strength.	Cast Iron 	 CNMA120408
	G	Flat Top 	For heavy cutting of cast iron Flat Top. Most effective for unstable machining due to its high edge strength. Can be used on workpieces requiring close tolerances due to G class insert tolerance.	Cast Iron 	 DNGA150408

5° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
Finish Cutting	M	FP 	First recommendation for finishing carbon steel, alloy steel and mild steel Breaker protrusion at the corner tip controls chips even at small depths of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Carbon Steel • Alloy Steel 	 VBMT110304-FP
		FM 	First recommendation for finishing stainless steel Breaker protrusion at the corner tip controls chips even at small depths of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Stainless Steel 	 VBMT110304-FM
		FV 	First recommendation for finishing carbon steel, alloy steel, mild steel and stainless steel Suitable for low depths of cut and low feed rates. Sharp cutting edge and low resistance design achieves excellent cutting performance.	Carbon Steel • Alloy Steel 	 VBMT110304-FV
	G	R/L-F 	Finishing Lead chip breaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel • Alloy Steel 	 VBGT110304R-F

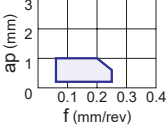
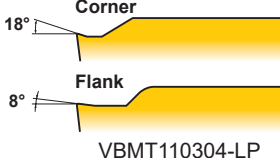
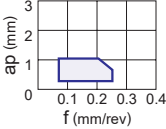
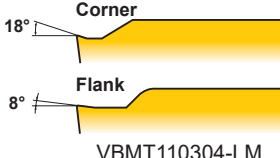
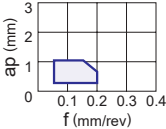
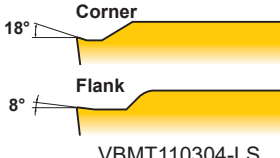
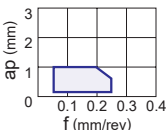
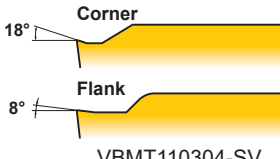
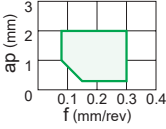
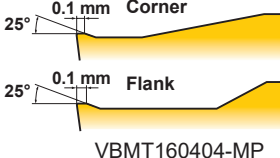
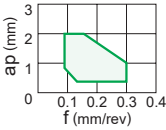
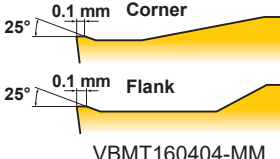
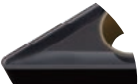
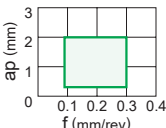
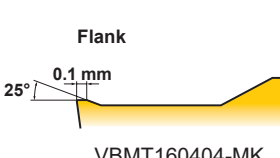
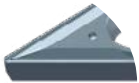
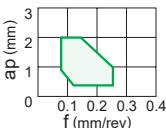
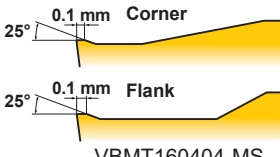
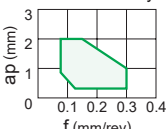
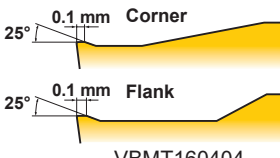
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		DNGA  ➡ A087	SNGA  ➡ A094	TNGA  ➡ A101	VNGA  ➡ A105			Flat Top(G) 

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 	Breaker Name and Cross Section
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					VBMT_FM  ➡ A142			FM 
					VBMT_FV  ➡ A142			FV 
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CLASSIFICATION

5° POSITIVE INSERTS WITH HOLE

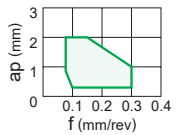
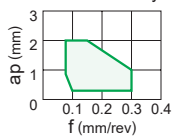
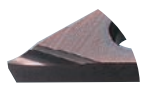
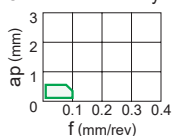
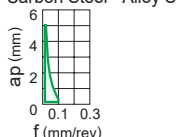
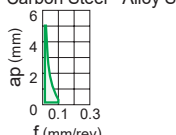
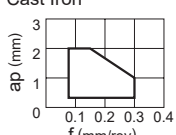
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
Light Cutting	M	LP 	First recommendation for light cutting of carbon steel, alloy steel and mild steel Sharp cutting edge due to a large rake angle. Prevents welding of the insert and controls white turbidity of the surface finish. Breaker protrusion suitable for depth of cut area achieves a wide range of chip control.	Carbon Steel • Alloy Steel   VBMT110304-LP	
		LM 	First recommendation for light cutting of stainless steel Sharp cutting edge due to a large rake angle. Prevents welding of the insert and controls white turbidity of the surface finish. Breaker protrusion suitable for depth of cut area achieves a wide range of chip control.	Stainless Steel   VBMT110304-LM	
		LS 	First recommendation for light cutting of difficult-to-cut materials Prevents welding of the insert and controls white turbidity of the surface finish.	Difficult-to-Cut Materials   VBMT110304-LS	
		SV 	Alternative chip breaker for carbon steel, alloy steel and stainless steel Large rake angle provides sharp cutting action. A peninsular dot ensures chip control at depths of cut under 1mm.	Carbon Steel • Alloy Steel   VBMT110304-SV	
Medium Cutting	M	MP 	First recommendation for medium cutting of carbon steel, alloy steel and mild steel Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Carbon Steel • Alloy Steel   VBMT160404-MP	
		MM 	First recommendation for medium cutting of stainless steel Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Stainless Steel   VBMT160404-MM	
		MK 	First recommendation for medium cutting of cast iron Optimum balance between sharpness and high edge strength for general use.	Cast Iron   VBMT160404-MK	
		MS 	First recommendation for medium cutting of difficult-to-cut materials A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Difficult-to-Cut Materials   VBMT160404-MS	
		Standard 	Alternative chip breaker for medium cutting of carbon steel, alloy steel and stainless steel Balance of edge strength and sharpness due to a combination of a flat land and large rake angle.	Carbon Steel • Alloy Steel   VBMT160404	

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 	Breaker Name and Cross Section
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					VBMT_LM  ⊕ A142			LM 
					VBMT_LS  ⊕ A143			LS 
					VBMT_SV  ⊕ A143			SV 
					VBMT_MP  ⊕ A143			MP 
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CLASSIFICATION

5° POSITIVE INSERTS WITH HOLE

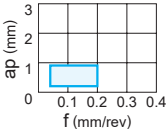
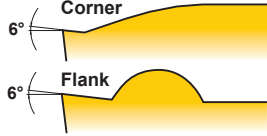
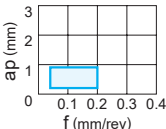
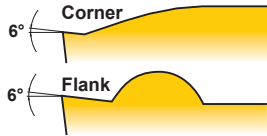
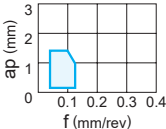
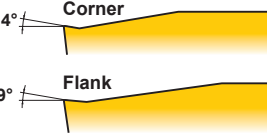
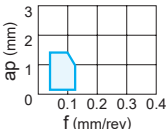
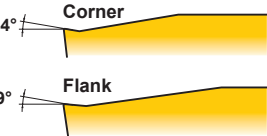
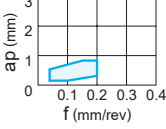
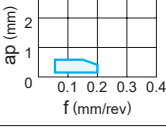
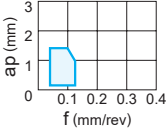
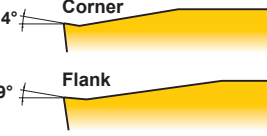
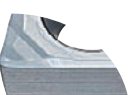
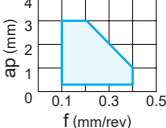
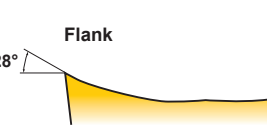
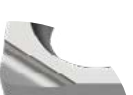
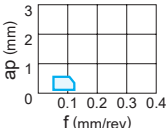
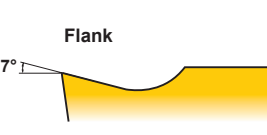
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
Medium Cutting	M	MV 	Alternative chip breaker for medium cutting of carbon steel, alloy steel, mild steel and stainless steel A positive insert with a large rake angle achieves sharp cutting edge performance. The double breakers and round-shaped dots in the rake face achieve a wide range of chip discharge.	Carbon Steel • Alloy Steel  18° 0.1 mm Corner 18° 0.1 mm Flank VBMT160404-MV	
		R/L-MV 	Alternative chip breaker for medium cutting of carbon steel, alloy steel, mild steel and stainless steel A positive insert with a large rake angle achieves sharp cutting edge performance. The double breakers and round-shaped dots in the rake face achieve a wide range of chip discharge.	Carbon Steel • Alloy Steel  20° 0.16 mm Corner 20° 0.16 mm Flank WBMTL30204R-MV	
	E	R/L-SR 	Chip breaker for medium cutting of automatic lathe machining A wide lead chip breaker. Insert designed for low resistance chip control.	Carbon Steel • Alloy Steel  30° Flank VBET1103V3R-SR	
		R/L-SN 	Chip breaker for medium cutting of automatic lathe machining A parallel chip breaker. Excellent chip control for low to medium feed rates.	Carbon Steel • Alloy Steel  20° Flank VBET1103V3R-SN	
		R/LW-SN 	Chip breaker for medium cutting of automatic lathe machining A parallel chip breaker. Excellent chip control for low to medium feed rates. The wiper produces good cutting surface.	Carbon Steel • Alloy Steel  20° Flank VBET1103V3RW-SN	
	For Cast Iron	Flat Top 	Chip breaker for Heavy cutting of cast iron Flat top. Most effective for unstable machining due to its high edge strength.	Cast Iron  0° VBMW160408	

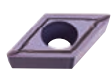
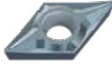
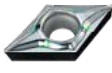
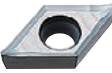
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						WBMT_R/L-MV  ➔ A150		R/L-MV 
					VBET_R/L-SR  ➔ A144			R/L-SR 
					VBET_R/L-SN  ➔ A144			R/L-SN 
					VBET_R/LW-SN  ➔ A144			R/LW-SN 
					VBMW  ➔ A144			Flat Top 



CLASSIFICATION

7° POSITIVE INSERTS WITH HOLE

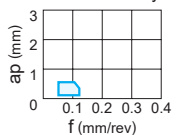
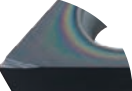
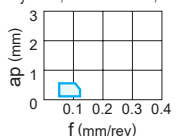
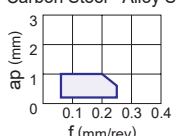
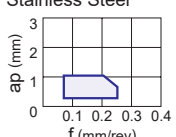
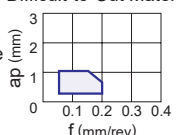
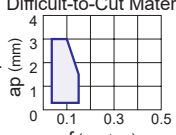
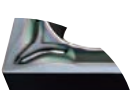
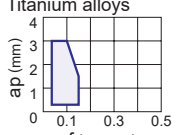
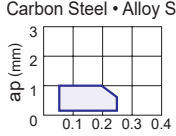
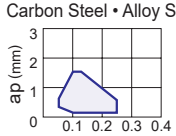
Application	Tolerance	Breaker Name and Picture	Features		Cross Section Geometry	
Finish Cutting	M	FP 	First recommendation for finishing carbon steel, alloy steel and mild steel Breaker protrusion at the corner tip controls chips even at small depth of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Carbon Steel • Alloy Steel 	 CCMT09T304-FP	
		FM 	First recommendation for finishing stainless steel Breaker protrusion at the corner tip controls chips even at small depth of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Stainless Steel 	 CCMT09T304-FM	
	G	FS 	First recommendation for finishing difficult-to-cut materials Ideal for heat resistant alloys, titanium alloy and Cobalt chromium alloys. The sharp edge produces a good surface finish. The curved edge allows smooth chip discharge.	Difficult-to-Cut Materials 	 CCGT09T302M-FS	
		FS-P 	First recommendation for finishing titanium alloys Ideal for titanium alloys and Copper alloys. The sharp edge produces a good surface finish. The curved edge allows smooth chip discharge. Lapping of the top surface gives a mirror finish for improved welding resistance.	Titanium alloys 	 CCGT09T302M-FS-P	
	M	FV 	Alternative chip breaker for finishing carbon steel, alloy steel, mild steel and stainless steel Suitable for low depths of cut and low feed rates. Sharp cutting edge and low resistance design achieves excellent cutting performance.	Carbon Steel • Alloy Steel 	 CCMT09T304-FV	
		SVX 	Alternative chip breaker for light cutting of carbon steel and alloy steel Chip control is improved by having a chip breaker geometry suitable for copying.	Carbon Steel • Alloy Steel 	 XCMT150304-SVX	
	G	FJ 	Alternative chip breaker for finishing difficult-to-cut materials Ideal for heat resistant alloys and titanium alloys. The sharp edge produces a good surface finish. The curved edge allows smooth chip discharge.	Difficult-to-Cut Materials 	 CCGT09T302-FJ	
		AZ 	Chip breaker for aluminium alloy The high rake angle and 3D curved cutting edge provides sharpness at the cutting point. Additionally the 3D shape of the rake face enables excellent chip control. Lapping of the top surface gives a mirror finish for improved welding resistance.	Aluminium Alloy 	 DCGT11T304-AZ	
		R/L-F 	Chip breaker for finishing Lead chip breaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel • Alloy Steel 	 CCGT03S102L-F	

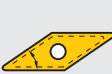
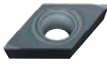
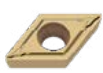
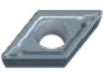
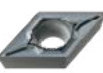
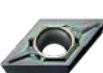
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	CCMT_FM  ➔ A114	DCMT_FM  ➔ A124	SCMT_FM  ➔ A132	TCMT_FM  ➔ A135	VCMT_FM  ➔ A145				FM 
	CCGT_FS  ➔ A114	DCGT_FS  ➔ A124							FS 
	CCGT_FS-P  ➔ A114	DCGT_FS-P  ➔ A124							FS-P 
	CCMT_FV  ➔ A114	DCMT_FV  ➔ A124	SCMT_FV  ➔ A132	TCMT_FV  ➔ A135	VCMT_FV  ➔ A145				FV 
							XCMT_SVX  ➔ A153		SVX 
	CCGT_FJ  ➔ A114								FJ 
	CCGT_AZ  ➔ A115	DCGT_AZ  ➔ A124		TCGT_AZ  ➔ A135	VCGT_AZ  ➔ A145			RCGT_AZ  ➔ A131	AZ 
	CCGT_R/L-F CCGH_R/L-F  ➔ A115	DCGT_R/L-F  ➔ A125		TCGT_R/L-F  ➔ A135	VCGT_R/L-F  ➔ A145				R/L-F 



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7° POSITIVE INSERTS WITH HOLE

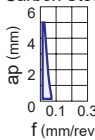
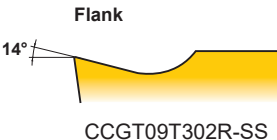
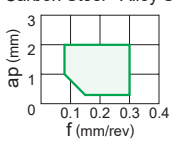
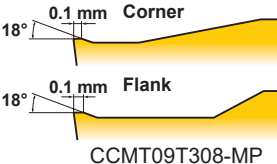
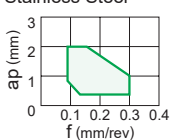
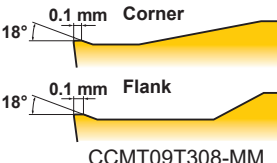
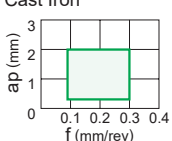
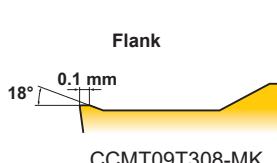
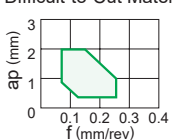
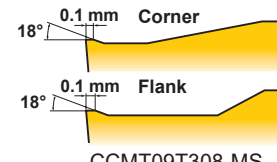
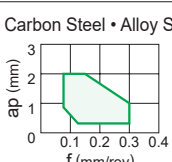
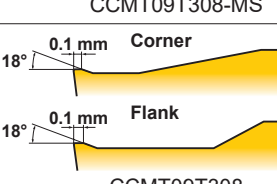
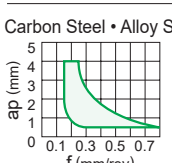
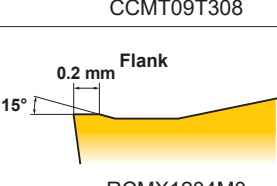
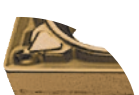
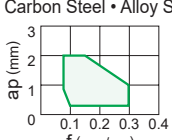
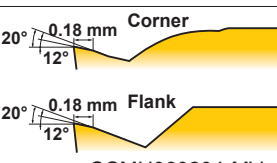
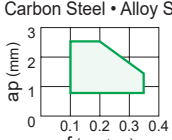
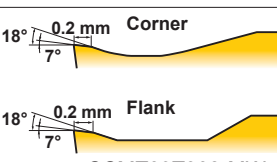
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
Finish Cutting	G	R/L 	Chip breaker for finishing Lead chip breaker. Excellent chip control at low feed rates.	Carbon Steel • Alloy Steel  15° Flank WCGT020104R	
		NEW R-SRF 	Chip breaker for finishing Lead chip breaker controls chip flow. The sharp edge produces a good surface finish.	Carbon Steel • Alloy Steel, Stainless Steel, Difficult-to-Cut Materials  15° Flank DCGT11T301MR-SRF	
Light Cutting	M	LP 	First recommendation for light cutting of carbon steel, alloy steel and mild steel Sharp cutting edge due to a large rake angle. Prevents welding of the insert and controls white turbidity of the surface finish. Breaker protrusion suitable for depth of cut area achieves a wide range of chip control.	Carbon Steel • Alloy Steel  18° Corner 8° Flank CCMT09T308-LP	
		LM 	First recommendation for light cutting of stainless steel Sharp cutting edge due to a large rake angle. Prevents welding of the insert and controls white turbidity of the surface finish. Breaker protrusion suitable for depth of cut area achieves a wide range of chip control.	Stainless Steel  18° Corner 8° Flank CCMT09T308-LM	
		LS 	First recommendation for light cutting of difficult-to-cut materials Prevents welding of the insert and controls cloudy surface of the surface finish.	Difficult-to-Cut Materials  18° Corner 8° Flank CCMT09T308-LS	
	G	LS 	First recommendation for light cutting of difficult-to-cut materials Ideal for heat resistant alloys, titanium alloys and Cobalt chromium alloys. Parallel cutting edge. Achieves stable chip control in a wide range of areas from low to medium depths of cut.	Difficult-to-Cut Materials  12° Corner 6° Flank CCGT09T304M-LS	
		LS-P 	First recommendation for light cutting of titanium alloys Ideal for titanium alloys and Copper alloys. Parallel cutting edge. Achieves stable chip control in a wide range of areas from low to medium depths of cut. Lapping of the top surface gives a mirror finish for improved welding resistance.	Titanium alloys  12° Corner 6° Flank CCGT09T304M-LS-P	
	M	SV 	Alternative chip breaker for light cutting of carbon steel, alloy steel, mild steel and stainless steel Large rake angle provides sharp cutting action. A peninsular dot ensures chip control at depths of cut under 1mm.	Carbon Steel • Alloy Steel  18° Corner 8° Flank CCMH060204-SV	
		SW 	Wiper insert for light cutting of carbon steel, alloy steel, mild steel and stainless steel In comparison to conventional chip breakers, the surface finish is maintained even if the feed per revolution is doubled. Positive land improves sharpness.	Carbon Steel • Alloy Steel  20° Corner 16° Flank 0.12 mm CCMT09T304-SW	

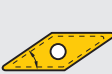
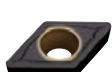
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		DCGT_R-SRF NEW  ➔ A125							NEW R-SRF 
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	CCMT_LM  ➔ A116	DCMT_LM  ➔ A125	SCMT_LM  ➔ A132	TCMT_LM  ➔ A136	VCMT_LM  ➔ A146				LM 
	CCMT_LS  ➔ A116	DCMT_LS  ➔ A125		TCMT_LS  ➔ A136	VCMT_LS  ➔ A146				LS(M) 
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	CCMH_SV  ➔ A116	DCMT_SV  ➔ A125			VCMT_SV  ➔ A146				SV 
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7° POSITIVE INSERTS WITH HOLE

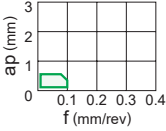
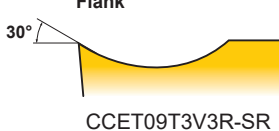
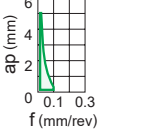
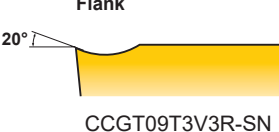
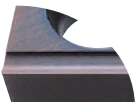
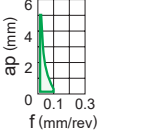
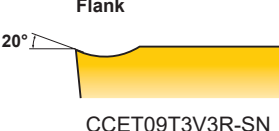
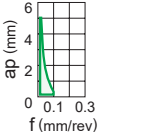
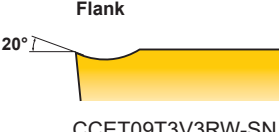
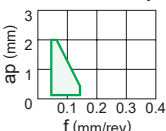
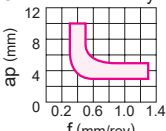
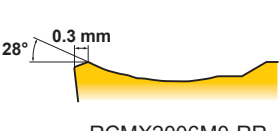
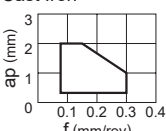
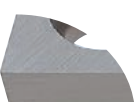
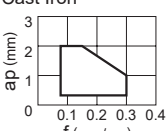
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
Light Cutting	G	R/L-SS 	Chip breaker for light cutting of automatic lathe machining A parallel chip breaker. Excellent chip control at low feed rates.	Carbon Steel • Alloy Steel 	 CCGT09T302R-SS
		MP 	First recommendation for medium cutting of carbon steel, alloy steel and mild steel Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Carbon Steel • Alloy Steel 	 CCMT09T308-MP
Medium Cutting	M	MM 	First recommendation for medium cutting of stainless steel Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Stainless Steel 	 CCMT09T308-MM
		MK 	First recommendation for medium cutting of cast iron Optimum balance between sharpness and high edge strength for general use.	Cast Iron 	 CCMT09T308-MK
		MS 	First recommendation for medium cutting of difficult-to-cut materials A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Difficult-to-Cut Materials 	 CCMT09T308-MS
		Standard 	Alternative chip breaker for medium cutting of carbon steel, alloy steel, mild steel, stainless steel and cast iron Balance of edge strength and sharpness due to a combination of a flat land and large rake angle.	Carbon Steel • Alloy Steel 	 CCMT09T308
				Carbon Steel • Alloy Steel 	 RCMX1204M0
		MV 	Alternative chip breaker for medium cutting of carbon steel, alloy steel, mild steel and stainless steel A positive insert and the large rake angle achieve sharp cutting edge performance. The double breakers and round shape in the rake face achieve a wide range of chip discharge.	Carbon Steel • Alloy Steel 	 CCMH060204-MV
		MW 	Wiper insert for medium cutting of carbon steel, alloy steel, mild steel and stainless steel The wiper allows up to two times higher feed. A wide chip pocket prevents chip jamming.	Carbon Steel • Alloy Steel 	 CCMT09T308-MW

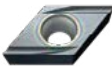
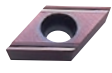
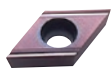
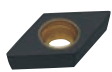
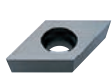
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								RCMX  ➡ A131	
	CCMH_MV  ➡ A118	DCMT_MV  ➡ A127			VCMT_MV  ➡ A147				MV 
	CCMT_MW  ➡ A118								MW 



CLASSIFICATION

7° POSITIVE INSERTS WITH HOLE

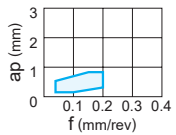
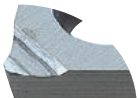
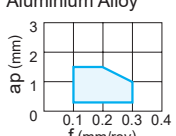
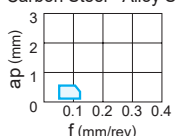
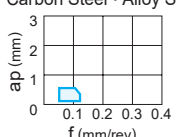
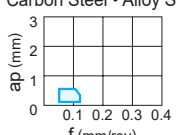
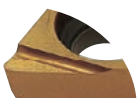
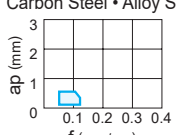
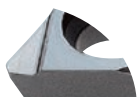
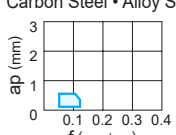
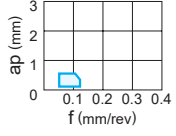
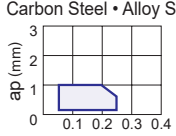
Application	Tolerance	Breaker Name and Picture	Features		Cross Section Geometry	
Medium Cutting	E	R/L-SR 	Chip breaker for medium cutting of automatic lathe machining A wide lead chip breaker. Insert designed for low resistance chip control.	Carbon Steel • Alloy Steel 	Flank 30° 	CCET09T3V3R-SR
	G	R/L-SN 	Chip breaker for medium cutting of automatic lathe machining A parallel chip breaker. Excellent chip control at low to medium feed rates.	Carbon Steel • Alloy Steel 	Flank 20° 	CCGT09T3V3R-SN
	E	R/L-SN 	Chip breaker for medium cutting of automatic lathe machining A parallel chip breaker. Excellent chip control at low to medium feed rates. Suitable for precise machining with E class tolerance.	Carbon Steel • Alloy Steel 	Flank 20° 	CCET09T3V3R-SN
		R/LW-SN 	Chip breaker for medium cutting of automatic lathe machining A parallel chip breaker. Excellent chip control at low to medium feed rates. The wiper produces a good surface finish.	Carbon Steel • Alloy Steel 	Flank 20° 	CCET09T3V3RW-SN
	G	SMG 	Chip breaker for medium cutting of automatic lathe machining 3D moulded chip breaker provides good chip control. G class insert gives sharp cutting action, allowing high precision machining. Breaker geometry appropriate for copying and back turning.	Carbon Steel • Alloy Steel 	Corner 14° Flank 9° 	CCGT09T304M-SMG
Heavy Cutting	M	RR 	Chip breaker for heavy cutting of carbon steel and alloy steel A wide groove chip breaker prevents chips from jamming at large depths of cut. Small dimples improve chip control at small depths of cut.	Carbon Steel • Alloy Steel 	28° 0.3 mm 	RCMX2006M0-RR
For Cast Iron	M	Flat Top 	Chip breaker for heavy cutting of cast iron Flat top. Most effective for unstable machining due to its high edge strength.	Cast Iron 	0° 	CCMW09T308
	G	Flat Top 	Chip breaker for heavy cutting of cast iron Flat top. Most effective for unstable machining due to its high edge strength. Can be used on workpieces requiring close tolerances due to G class insert tolerance.	Cast Iron 	0° 	CCGW09T300

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Rhombic 25° 	Round 	Breaker Name and Cross Section
	CCET_R/L-SR  ➡ A119	DCET_R/L-SR  ➡ A127							R/L-SR 
	CCGT_R/L-SN  ➡ A119	DCGT_R/L-SN  ➡ A128							R/L-SN(G) 
	CCET_R/L-SN  ➡ A120	DCET_R/L-SN  ➡ A129							R/L-SN(E) 
	CCET_R/LW-SN  ➡ A120	DCET_R/LW-SN  ➡ A129							R/LW-SN 
	CCGT_SMG  ➡ A120	DCGT_SMG  ➡ A129							SMG 
								RCMX_RR  ➡ A131	RR 
	CCMW  ➡ A121	DCMW  ➡ A129	SCMW  ➡ A133	TCMW  ➡ A137	VCMW  ➡ A147				Flat Top(M) 
	CCGW  ➡ A121	DCGW  ➡ A129							Flat Top(G) 



CLASSIFICATION

11° POSITIVE INSERTS WITH HOLE

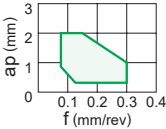
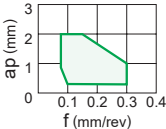
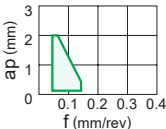
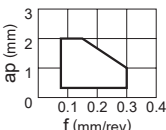
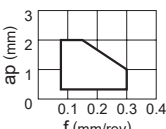
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M	FV 	First recommendation for finishing carbon steel, alloy steel, mild steel and stainless steel Suitable for low depths of cut and low feed rates. Sharp cutting edge and low resistance design achieves excellent cutting performance.	Carbon Steel • Alloy Steel  18° Corner 8° Flank CPMH090304-FV
	G	Standard 	Chip breaker for finishing Lead chip breaker controls chip flow. Good chip control for low to medium feed rates.	Aluminium Alloy  30° Flank CPGT090304
	G	R/L-FS 	Chip breaker for finishing carbon steel, alloy steel, stainless steel, cast iron and aluminium alloy Small wide lead chip breaker. Sharp cutting edge gives a good surface finish.	Carbon Steel • Alloy Steel  15° Flank TPGH090204R-FS
	M	R/L-F 	Chip breaker for finishing Lead chip breaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel • Alloy Steel  15° Flank CPMH090304R-F
	G	R/L-F 	Chip breaker for finishing Lead chip breaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel • Alloy Steel  15° Flank CPGT090304R-F
	G	R/L 	Chip breaker for finishing Lead chip breaker controls chip flow. Good chip control for low to medium feed rates.	Carbon Steel • Alloy Steel  10° Flank TPGX090204R
	M	L 	Chip breaker for finishing Lead chip breaker controls chip flow. Good chip control for low to medium feed rates.	Carbon Steel • Alloy Steel  10° Flank TPMX090204L
	E	SRF 	Chip breaker for finishing Lead chip breaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel • Alloy Steel  15° Flank VPET080201R-SRF
	M	SV 	First recommendation for light cutting of carbon steel, alloy steel, mild steel, stainless steel and cast iron Large rake angle provides sharp cutting action. A peninsular dot ensures chip control at depths of cut under 1mm.	Carbon Steel • Alloy Steel  18° Corner 8° Flank CPMH090304-SV

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 	Breaker Name and Cross Section
	CPMH_FV  ➔ A122			TPMH_FV  ➔ A139				FV 
	CPGT  ➔ A122							Standard 
				TPGH_R/L-FS  ➔ A139		WPGT_R/L-FS  ➔ A152		R/L-FS 
	CPMH_R/L-F  ➔ A122							R/L-F(M) 
	CPGT_R/L-F  ➔ A122							R/L-F(G) 
				TPGX_R/L  ➔ A140				R/L 
				TPMX_L  ➔ A140				L 
					VPET_R/L-SRF  ➔ A149			SRF 
	CPMH_SV  ➔ A122			TPMH_SV  ➔ A140				SV 



CLASSIFICATION

11° POSITIVE INSERTS WITH HOLE

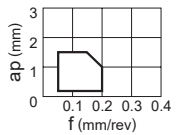
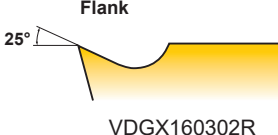
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M	Standard 	Alternative chip breaker for medium cutting of carbon steel, alloy steel and stainless steel Standard, general purpose chip breaker.	Carbon Steel • Alloy Steel  10° Corner 10° Flank CPMX090304
		MV 	First recommendation for medium cutting of carbon steel, alloy steel, mild steel, stainless steel and cast iron A positive insert and large rake angle achieves sharp cutting edge performance. Double breakers in the rake face achieve a wide range of chip discharge.	Carbon Steel • Alloy Steel  20° Corner 20° Flank CPMH090304-MV
	G	SMG 	Chip breaker for medium cutting of automatic lathe machining 3D moulded chip breaker provides good chip control. G class insert gives sharp cutting action, allowing high precision machining. Breaker geometry appropriate for copying and back turning.	Carbon Steel • Alloy Steel  11° Corner 11° Flank VPGT110301M-SMG
For Cast Iron	M	Flat Top 	Chip breaker for Heavy cutting of cast iron Flat top. Most effective for unstable machining due to its high edge strength.	Cast Iron  0° SPMW120308
	G	Flat Top 	Chip breaker for Heavy cutting of cast iron Flat top. Most effective for unstable machining due to its high edge strength. Can be used on workpieces requiring close tolerances due to G class insert tolerance.	Cast Iron  0° SPGX120308

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 	Breaker Name and Cross Section
	CPMX  ➔ A123		SPMT  ➔ A134	TPMX  ➔ A141				Standard 
	CPMH_MV  ➔ A123			TPMH_MV  ➔ A141		WPMT_MV  ➔ A152		MV 
					VPGT_SMG  ➔ A149			SMG 
			SPMW  ➔ A134					Flat Top(M) 
			SPGX  ➔ A134	TPGX  ➔ A141				Flat Top(G) 

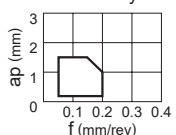
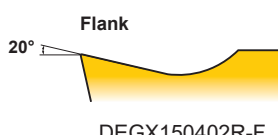
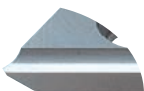
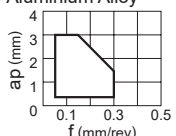
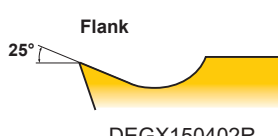


CLASSIFICATION

15° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
For Aluminium Alloy	G	R/L 	Chip breaker for aluminium alloy cutting Lead chip breaker. Sharp cutting edge gives a good surface finish.	Aluminium Alloy 	 VDGX160302R

20° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
For Aluminium Alloy	G	R/L-F 	Chip breaker for aluminium alloy cutting Lead chip breaker. Sharp cutting edge gives a good surface finish.	Aluminium Alloy 	 DEGX150402R-F
		R/L 	Chip breaker for aluminium alloy cutting A parallel chip breaker. Sharp cutting edge gives a good surface finish. Good chip control for medium feed rates.	Aluminium Alloy 	 DEGX150402R

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 	Breaker Name and Cross Section
					VDGX_R/L  ➡ A148			R/L 

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 	Breaker Name and Cross Section
		DEGX_R/L-F  ➡ A130						R/L-F 
		DEGX_R/L  ➡ A130		TEGX_R/L  ➡ A138				R/L 

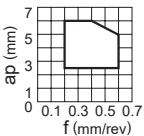
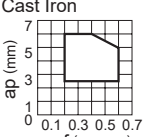


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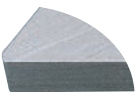
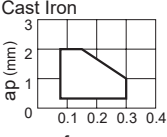
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TURNING INSERTS

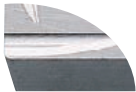
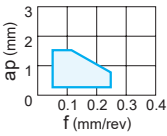
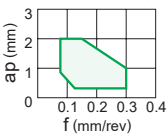
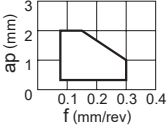
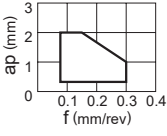
NEGATIVE INSERTS WITHOUT HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
For Cast Iron	M	Flat Top 	Chip breaker for heavy cutting of cast iron Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping.	Cast Iron  0° 	SNMN120408
	G	Flat Top 	Chip breaker for heavy cutting of cast iron Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping. Can be used on workpieces requiring close tolerances due to G class insert tolerance.	Cast Iron  0° 	SNGN120408

7° POSITIVE INSERTS WITHOUT HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
For Cast Iron	G	Flat Top 	Chip breaker for heavy cutting of cast iron Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping. Can be used on workpieces requiring close tolerances due to G class insert tolerance.	Cast Iron  0° 	TCGN090204

11° POSITIVE INSERTS WITHOUT HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
Finish Cutting	G	R/L 	Chip breaker for finishing A parallel chip breaker. Good chip control for low to medium feed rates.	Carbon Steel • Alloy Steel  15° 	SPGR090304R
Light to Medium Cutting	M	Standard 	Chip breaker for light to medium cutting of carbon steel, alloy steel and stainless steel Standard, general purpose chip breaker.	Carbon Steel • Alloy Steel  0° 	SPMR090308
For Cast Iron	M	Flat Top 	Chip breaker for heavy cutting of cast iron Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping.	Cast Iron  0° 	SPMN090308
	G	Flat Top 	Chip breaker for heavy cutting of cast iron Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping. Can be used on workpieces requiring close tolerances due to G class insert tolerance.	Cast Iron  0° 	SPGN090308

	Rhombic 80° 	Square 90° 	Triangular 60° 	Breaker Name and Cross Section
	CNMN  ➔ A111	SNMN  ➔ A112	TNMN  ➔ A113	Flat Top(M) 
		SNGN  ➔ A112	TNGN  ➔ A113	Flat Top(G) 

	Rhombic 80° 	Square 90° 	Triangular 60° 	Breaker Name and Cross Section
			TCGN  ➔ A156	Flat Top 

	Rhombic 80° 	Square 90° 	Triangular 60° 	Breaker Name and Cross Section
		SPGR_R  ➔ A155	TPGR_R/L  ➔ A157	R/L 
		SPMR  ➔ A155	TPMR  ➔ A157	Standard 
		SPMN  ➔ A155	TPMN  ➔ A157	Flat Top(M) 
		SPGN  ➔ A155	TPGN  ➔ A157	Flat Top(G) 

SPECIAL PURPOSE INSERTS

Application	Tolerance	Tool Holder Type	Inserts
Special	G	TL Type	RTG  ➔ A154

A

TURNING INSERTS



TURNING INSERTS [NEGATIVE]

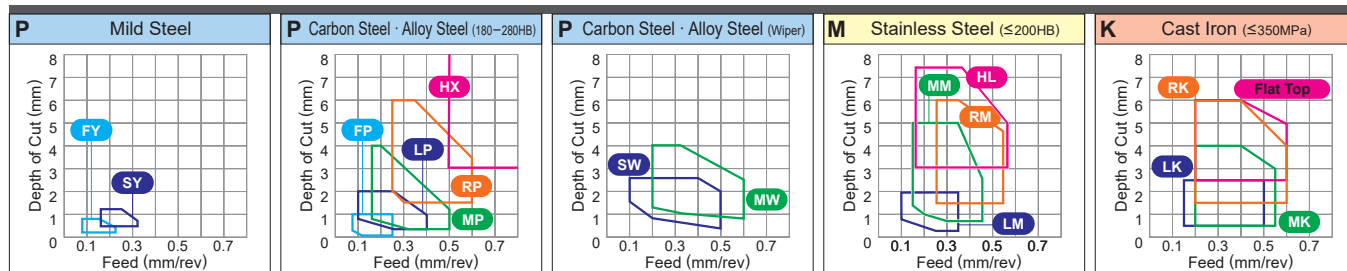
80° CN TYPE INSERTS WITH HOLE

CNMG 12 04 02- FP

Size Thickness Corner Radius Chip Breaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	Shape	Order Number	RE (mm)	Coated																				Coated Cermet	Cermet	Carbide																					
				UE6105	UE6110	UE6020	NEW MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	US905	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9010	MT9015						
P Steel	FP	CNMG120402-FP	0.2						▲▲																																						
		CNMG120404-FP	0.4						▲▲																																						
		CNMG120408-FP	0.8						▲▲																																						
		CNMG120412-FP	1.2						▲▲																																						
M Stainless Steel	FH	CNMG120402-FH	0.2	▲▲																																											
		CNMG120404-FH	0.4	▲▲																																											
		CNMG120408-FH	0.8	▲																																											
		CNMG120412-FH	1.2																																												
K Cast Iron	FS	CNMG120404-FS	0.4		▲																																										
		CNMG120408-FS	0.8																																												
N Non-ferrous Metal	FY	CNMG120404-FY	0.4		▲																																										
		CNMG120408-FY	0.8		▲																																										
S Heat resistant Alloy, Titanium Alloy	FJ	CNMG1204V5-FJ	0.05																																												
		CNMG120401-FJ	0.1																																												
		CNMG120402-FJ	0.2																																												
		CNMG120404-FJ	0.4																																												
		CNMG120408-FJ	0.8																																												
P Carbon Steel - Alloy Steel (Wiper)	LP	CNMG120404-LP	0.4	▲▲			●●	▲▲▲▲																																							
		CNMG120408-LP	0.8	▲▲			●●	▲▲▲▲																																							
		CNMG120412-LP	1.2	▲▲			●●	▲▲▲▲																																							

● = NEW

● : Inventory maintained in Japan.
▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

A

TURNING INSERTS

NEG

WITH HOLE

c

D

R

S

T

V



● = NEW



CHIP BREAKERS	➤ A042
GRADES	➤ A030
IDENTIFICATION	➤ A002

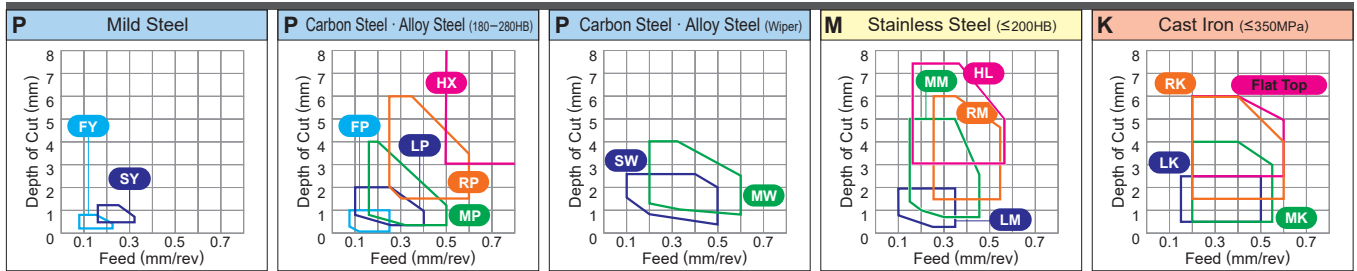
A075

TURNING INSERTS [NEGATIVE]

CNMG 12 04 04- MP
 Size Thickness Corner Radius Chip Breaker
 * Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....


 ● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
 ○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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*1 Newly designed breakers : MP9005, MP9015, MP9025, MT9015

● = NEW

 ● : Inventory maintained in Japan.
 ▲ : Inventory maintained in Japan. To be replaced by new products.
 (10 inserts in one case)

 Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
 The successor grades are the MC61 series and the MC51 series (scheduled to be released).

A

TURNING INSERTS

NEG

**WITH
HOLE**

c

D

R

S

V

W

● = NEW

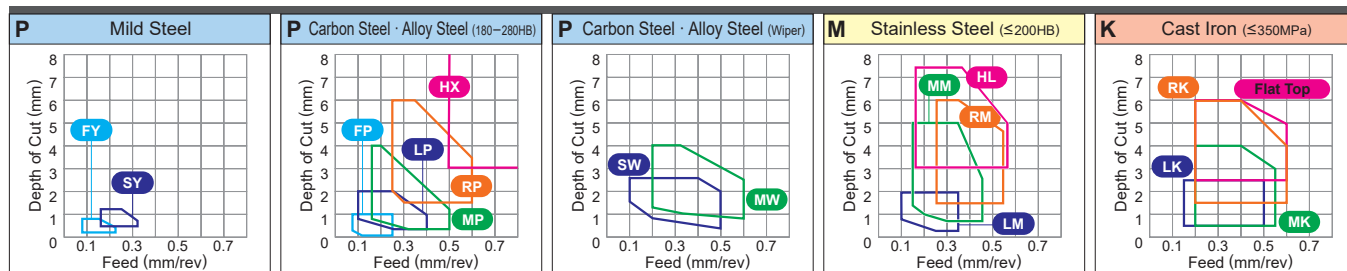


CHIP BREAKERS	➤ A042
GRADES	➤ A030
IDENTIFICATION	➤ A002

A077

* Please refer to page A002.

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

*1 Please refer to A028 before using the MW breaker (wiper insert).

● = NEW

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A

TURNING INSERTS

NEG

**WITH
HOLE**

C

D

R

S

V

W

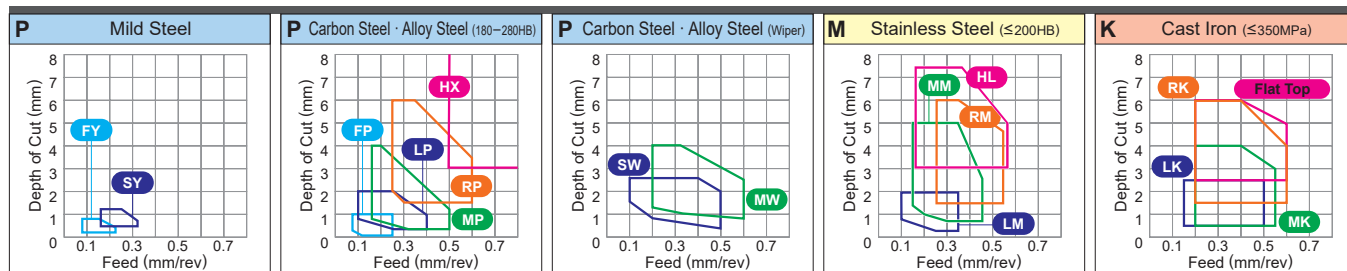
● = NEW



CHIP BREAKERS	➤ A042
GRADES	➤ A030
IDENTIFICATION	➤ A002

Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



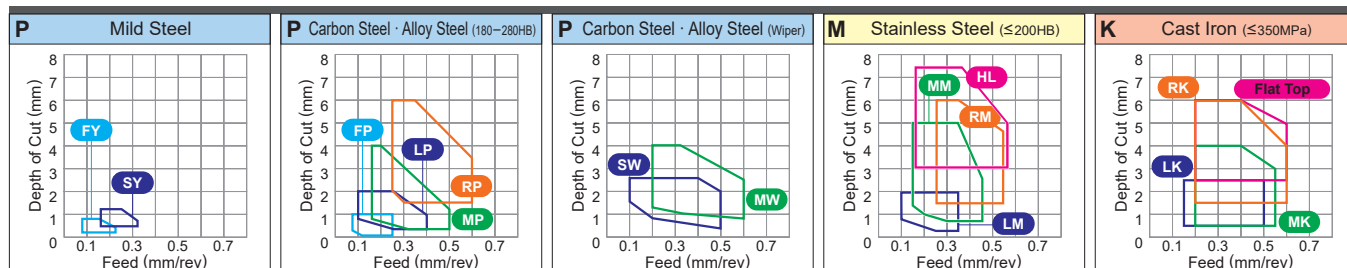
● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
 ○ : Stable Cutting (2nd recommendation) ⊙ : General Cutting (2nd recommendation) ⊗ : Unstable Cutting (2nd recommendation)

[illegible]

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Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

● = NEW

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
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TURNING INSERTS
A

NEG
WITH
HOLE

D

B

2

V

● = NEW

TURNING INSERTS [NEGATIVE]

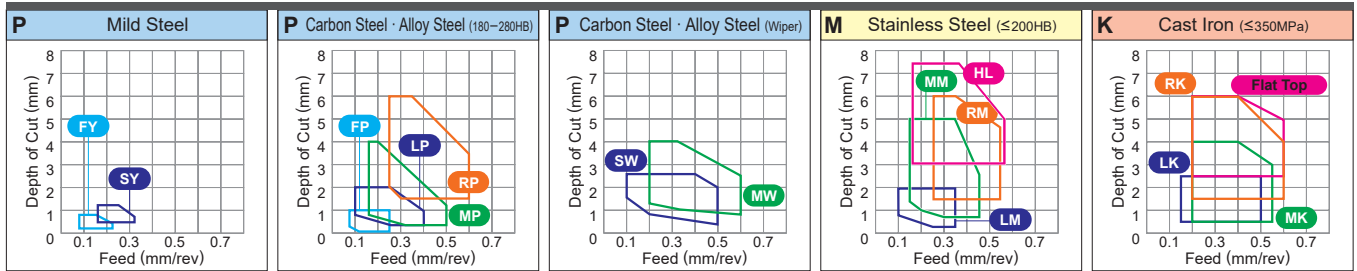
55° DN TYPE INSERTS WITH HOLE

DNMG 15 04 04- MP

Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	M	K	N	S																																				
						○	○	○	●	●	●	✖	✖	✖	✖	✖	✖	✖	✖	✖																					
Shape	Order Number	RE (mm)	Coated															Coated Cermet	Cermet	Carbide																					
			UE6105	UE6110	UE6020	NEW MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	US905	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9010	MT9015	
	DNMG150404-MP	0.4	▲	▲	▲	●	●	▲	▲	▲																															
	DNMG150408-MP	0.8	▲	▲	▲	●	●	▲	▲	▲																															
	DNMG150412-MP	1.2	▲	▲	▲	●	●	▲	▲	▲																															
	DNMG150416-MP	1.6	▲	▲	▲	●	●	▲	▲	▲																															
	DNMG150604-MP	0.4	▲	▲	▲	●	●	▲	▲	▲																															
	DNMG150608-MP	0.8	▲	▲	▲	●	●	▲	▲	▲																															
	DNMG150612-MP	1.2	▲	▲	▲	●	●	▲	▲	▲																															
	DNMG150408-MM	0.8											●	●	●																										
	DNMG150412-MM	1.2											●	●	●																										
	DNMG150608-MM	0.8											●	●	●																										
	DNMG150612-MM	1.2											●	●	●																										
	DNMG110408-MK	0.8																▲	▲																						
	DNMG150404-MK	0.4																	▲	▲																					
	DNMG150408-MK	0.8																	▲	▲																					
	DNMG150412-MK	1.2																	▲	▲																					
	DNMG150604-MK	0.4																	▲	▲																					
	DNMG150608-MK	0.8																	▲	▲																					
	DNMG150612-MK	1.2																	▲	▲																					
	DNMG150404-MS	0.4																					●	●	●															●	
	DNMG150408-MS	0.8																				●	●	●															●		
	DNMG150412-MS	1.2																				●	●	●															●		
	DNMG150604-MS	0.4																				●	●	●															●		
	DNMG150608-MS	0.8																				●	●	●															●		
	DNMG150612-MS	1.2																				●	●	●															●		
	DNMG110408-MS	0.8	▲															●																							
	DNMG150404-MS	0.4	▲	▲														●																							
	DNMG150408-MS	0.8	▲															●																						●	
	DNMG150412-MS	1.2	▲															●																							
	DNMG150604-MS	0.4	▲															●																							
	DNMG150608-MS	0.8	▲															●																							

*1 Newly designed breakers : MP9005, MP9015, MP9025, MT9015

● = NEW

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(10 inserts in one case)

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TURNING INSERTS
A

NEG

WITH HOLE

C

D

R

S

T

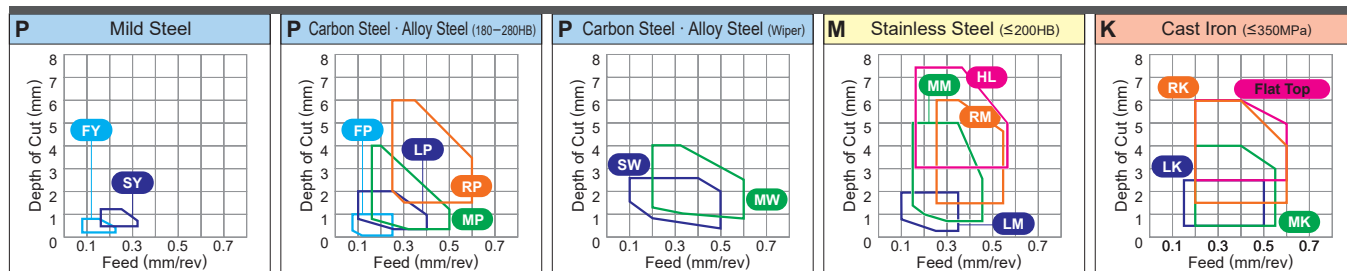
V

W

● = NEW

Size Thickness Corner Radius R/L
* Please refer to page A002.

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
 ○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

● = NEW

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A

TURNING INSERTS

NEG

**WITH
HOLE**



R

S



Scan here for product NEWS ► 

CHIP BREAKERS	➤ A042
GRADES	➤ A030
IDENTIFICATION	➤ A002

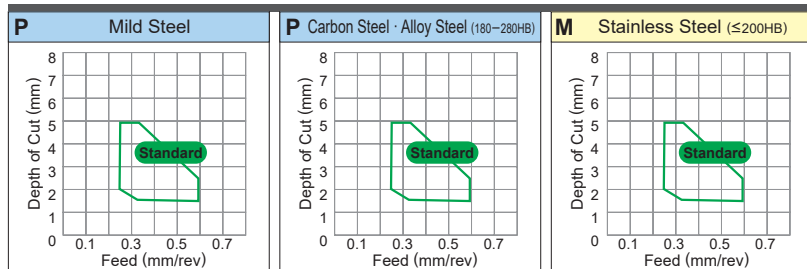
RNMG 12 04 00

Size Thickness Corner Radius

* Please refer to page A002.

A

TURNING INSERTS



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
 ○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

● : Inventory maintained in Japan.

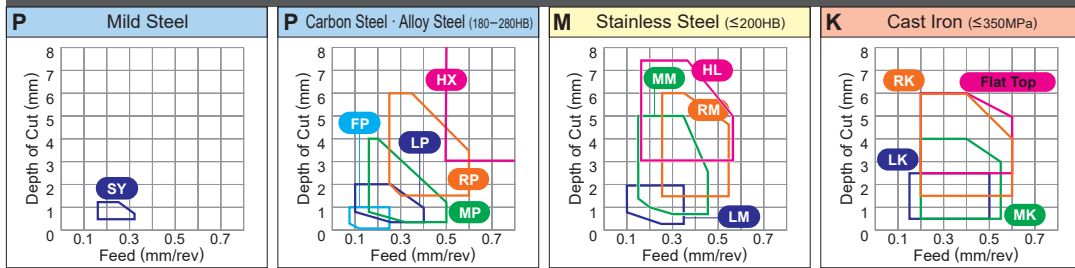
▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.

The successor grades are the MC61 series and the MC51 series (scheduled to be released).

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	Shape	Order Number	RE (mm)	Coated																		Coated Cermet	Cermet	Carbide																			
				UE6105	UE6110	UE6020	NEW MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	US905	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9010	MT9015		
P Steel	FP	SNMG120404-FP	0.4						▲▲																																		
		SNMG120408-FP	0.8						▲▲																																		
		SNMG120412-FP	1.2						▲▲																																		
M Stainless Steel	FH	SNMG090304-FH	0.4																																								
		SNMG090308-FH	0.8																																								
		SNMG120404-FH	0.4	▲																																							
		SNMG120408-FH	0.8	▲																																							
K Cast Iron	FS	SNMG120408-FS	0.8																																								
N Non-ferrous Metal	LP	SNMG120404-LP	0.4	▲▲			●●	▲▲▲																																			
		SNMG120408-LP	0.8	▲▲			●●	▲▲▲																																			
		SNMG120412-LP	1.2	▲▲			●●	▲▲▲																																			
S Heat resistant Alloy, Titanium Alloy	LM	SNMG120404-LM	0.4											●●●																													
		SNMG120408-LM	0.8											●●●																													
S Heat resistant Alloy, Titanium Alloy	LK	SNMG120408-LK	0.8																▲▲																								
		SNMG120412-LK	1.2																▲▲																								

● = NEW

TURNING INSERTS [NEGATIVE]

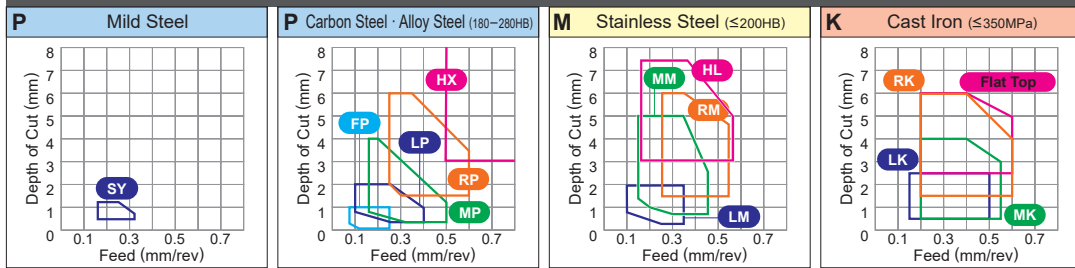
90° SN TYPE INSERTS WITH HOLE

SNMG 12 04 04- SH

Size Thickness Corner Radius Chip Breaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
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P Steel	SH	SNMG120404-SH	0.4	▲																																								
		SNMG120408-SH	0.8	▲▲▲	●●																																							
		SNMG120412-SH	1.2	▲▲																																								
M Stainless Steel	SA	SNMG120404-SA	0.4	▲																																								
		SNMG120408-SA	0.8	▲▲▲	●●																																							
		SNMG120412-SA	1.2	▲▲																																								
K Cast Iron	SY	SNMG120408-SY	0.8	▲																																								
N Non-ferrous Metal	MP	SNMG120404-MP	0.4	▲▲▲	●●	▲▲▲																																						
		SNMG120408-MP	0.8	▲▲▲	●●	▲▲▲																																						
		SNMG120412-MP	1.2	▲▲▲	●●	▲▲▲																																						
S Heat resistant Alloy, Titanium Alloy	MM	SNMG120408-MM	0.8											●●●																														
		SNMG120412-MM	1.2											●●●																														
		SNMG120416-MM	1.6											●●●																														
		SNMG150608-MM	0.8											●●●																														
		SNMG150612-MM	1.2											●●●																														
		SNMG150616-MM	1.6											●●●																														
		SNMG190612-MM	1.2											●●●																														
		SNMG190616-MM	1.6											●●●																														

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(10 inserts in one case)

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A

TURNING INSERTS

NEG

**WITH
HOLE**

c

D

R

S

V

● = NEW



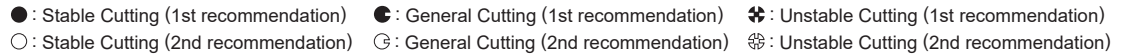
CHIP BREAKERS	➤ A042
GRADES	➤ A030
IDENTIFICATION	➤ A002

A091

90° SN TYPE INSERTS WITH HOLE

* Please refer to page A002.

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● = NEW

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A

TURNING INSERTS

NEG

WITH HOLE

c

D

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● = NEW



CHIP BREAKERS	➤ A042
GRADES	➤ A030
IDENTIFICATION	➤ A002

A093

TURNING INSERTS [NEGATIVE]

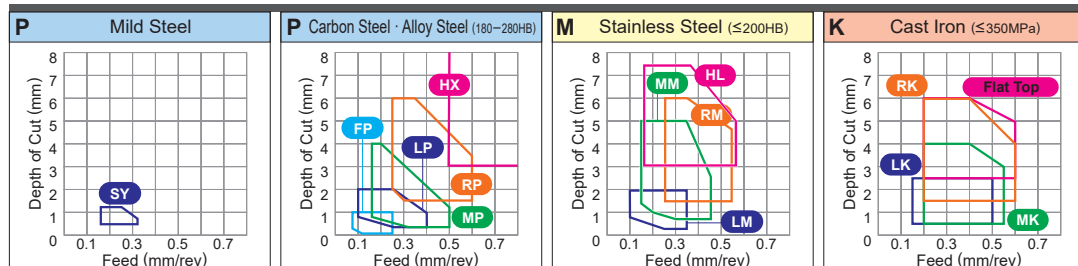
90° SN TYPE INSERTS WITH HOLE

SNMM 12 04 08- HZ

Size Thickness Corner Radius Chip Breaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



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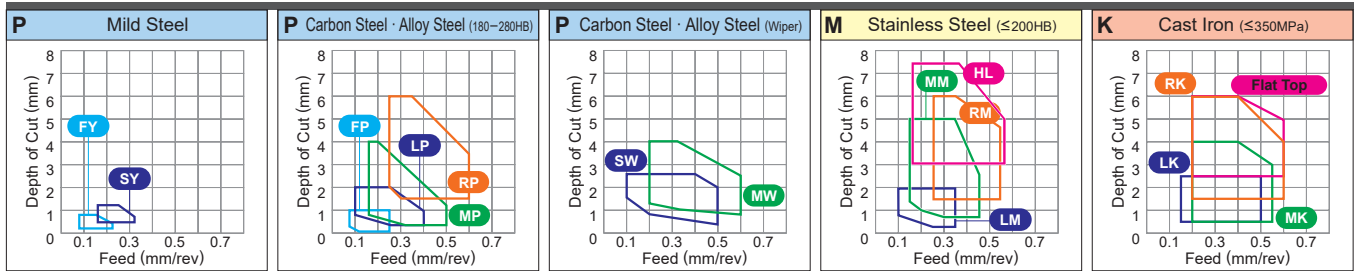
Workpiece Material	Shape	Order Number	RE (mm)	Coated															Coated Cermet	Cermet	Carbide																				
				UE6105	UE6110	UE6020	NEW MC6115	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	US905	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9010	MT9015	
P Steel	HZ	SNMM120408-HZ	0.8	▲▲				▲▲																																	
		SNMM120412-HZ	1.2	▲▲				▲▲																																	
		SNMM150612-HZ	1.2	▲▲																																					
		SNMM190612-HZ	1.2	▲▲								●																													
		SNMM190616-HZ	1.6	▲▲								●																													
N Non-ferrous Metal	HM	SNMM150612-HM	1.2					▲▲										●																							
		SNMM190612-HM	1.2					▲▲										●																							
		SNMM190616-HM	1.6					▲▲										●																							
		SNMM190624-HM	2.4					▲▲										●																							
		SNMM250724-HM	2.4					▲▲																																	
		SNMM250924-HM	2.4					▲▲																																	
K Cast Iron	Flat Top	SNMA090304	0.4																																						
		SNMA090308	0.8															▲▲▲																							
		SNMA120408	0.8															▲▲▲▲																							
		SNMA120412	1.2															▲▲▲▲																							
		SNMA120416	1.6															▲▲▲																							
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		SNMA150616	1.6															▲▲																							
		SNMA190612	1.2															▲▲▲																							
		SNMA190616	1.6															▲▲▲																							
S Heat resistant Alloy, Titanium Alloy	Flat Top	SNGA090304	0.4																																						
		SNGA120404	0.4																																						
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Workpiece Material	P	Steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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A

TURNING INSERTS

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WITH HOLE

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Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

A

TURNING INSERTS

NEG

**WITH
HOLE**

c

D

B

S

V

● = NEW

*2 Newly designed breakers : MP9005, MP9015, MP9025, MT9015

TURNING INSERTS [NEGATIVE]

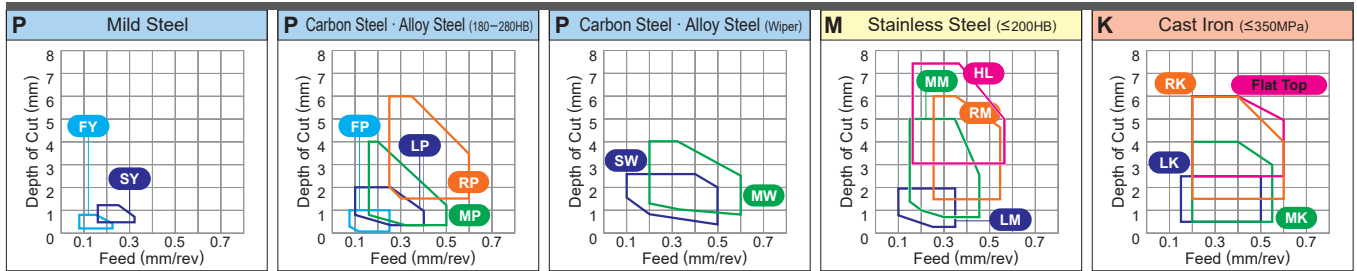


TNMG 16 04 04- MS

Size Thickness Corner Radius Chip Breaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



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○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✱ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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● = NEW

● : Inventory maintained in Japan.
▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

A

TURNING INSERTS

NEG

**WITH
HOLE**

C

D

R

S



V



● = NEW



CHIP BREAKERS	➤ A042
GRADES	➤ A030
IDENTIFICATION	➤ A002

A099

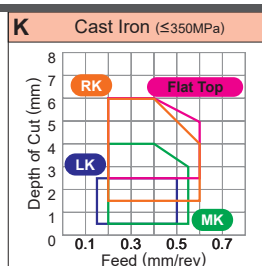
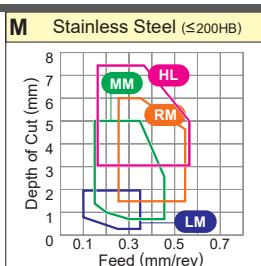
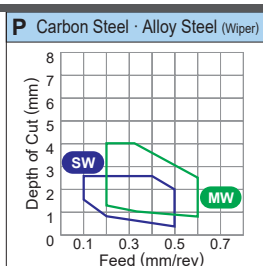
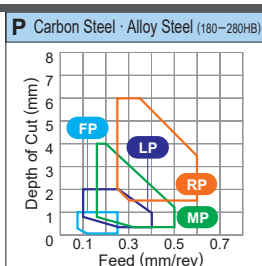
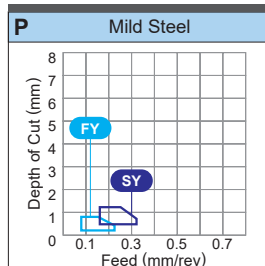
60°

TN TYPE INSERTS WITH HOLE

Size Thickness Corner Radius R/L

* Please refer to page A002.

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
 ○ : Stable Cutting (2nd recommendation) ⊙ : General Cutting (2nd recommendation) ⊗ : Unstable Cutting (2nd recommendation)

[illegible]

● = NEW

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A

TURNING INSERTS

NEG

WITH HOLE

c

D

B

S

V

Scan here for product NEWS ► 

CHIP BREAKERS	➤ A042
GRADES	➤ A030
IDENTIFICATION	➤ A002

TURNING INSERTS [NEGATIVE]



35°

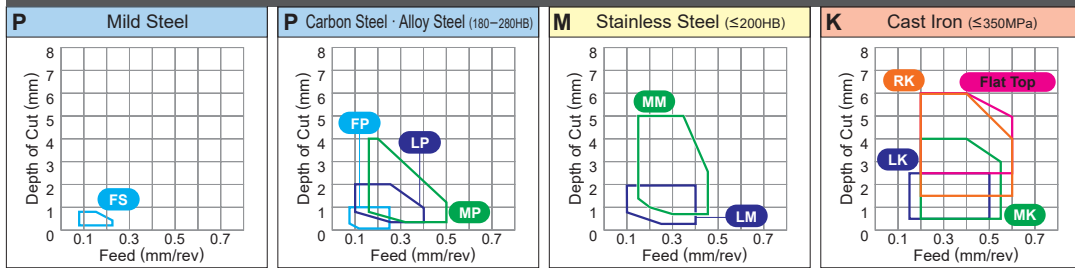
VN TYPE INSERTS
WITH HOLE

VNMG 16 04 02- FP

Size Thickness Corner Radius Chip Breaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																																																				
	M	Stainless Steel																																																				
Shape	K	Cast Iron																																																				
	N	Non-ferrous Metal																																																				
S	S	Heat resistant Alloy, Titanium Alloy																																																				
Order Number	RE (mm)	Coated																																																				
FP	VNMG160402-FP	0.2	UE6105	UE6110	UE6020	NEW MC6115	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	US905	VP05RT	VP10RT	VP15TF																										
FH	VNMG160402-FH	0.2																																																				
FS	VNMG160404-FS	0.4																																																				
FJ	VNMG160408-FJ	0.8																																																				
R/L-F	VNMG160402-R-F	0.2																																																				
LP	VNMG160404-LP	0.4																																																				

● = NEW

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(10 inserts in one case)

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A

TURNING INSERTS

NEO

**WITH
HOLE**

C

1

 = **NEW**



CHIP BREAKERS	➤ A042
GRADES	➤ A030
IDENTIFICATION	➤ A002

TURNING INSERTS [NEGATIVE]



35°

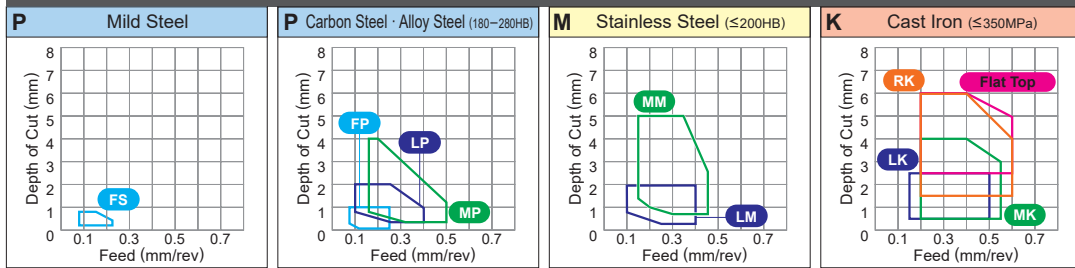
VN TYPE INSERTS
WITH HOLE

VNMG 16 04 04- MK

Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																																								
	M	Stainless Steel																																								
	K	Cast Iron																																								
	N	Non-ferrous Metal																																								
	S	Heat resistant Alloy, Titanium Alloy																																								
Shape	Order Number	RE (mm)	Coated																				Coated Cermet	Cermet	Carbide																	
			UE6105	UE6110	UE6020	NEW MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	US905	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9010	MT9015		
MK  Medium Cutting	VNMG160404-MK	0.4															▲	▲																								
	VNMG160408-MK	0.8																▲	▲		●																					
	VNMG160412-MK	1.2																▲	▲																							
*1 MS  Medium Cutting	VNMG160404-MS	0.4																				●	●	●																●		
	VNMG160408-MS	0.8																					●	●	●																●	
MS  Medium Cutting	VNMG160404-MS	0.4	▲											▲	●										●	●	●		●													
	VNMG160408-MS	0.8	▲													●										●	●	●							●						●	
GK  Medium Cutting	VNMG160404-GK	0.4															▲	▲																								
	VNMG160408-GK	0.8																▲	▲																							
	VNMG160412-GK	1.2																▲	▲																							
GM  Medium Cutting	VNMG160404-GM	0.4										●	●	●																												
	VNMG160408-GM	0.8											●	●	●																											
MA  Medium Cutting	VNMG160404-MA	0.4	▲	▲	▲	●	●	▲	▲			●	●	▲	●	▲	▲	▲									●															
	VNMG160408-MA	0.8	▲	▲	▲	●	●	▲	▲	▲		●	●	▲	●	▲	▲	▲	▲									●														

*1 Newly designed breakers : MP9005, MP9015, MP9025, MT9015

● = NEW

● : Inventory maintained in Japan.
▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

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A

TURNING INSERTS

NEG

**WITH
HOLE**

c

D

R

S



● = NEW

TURNING INSERTS [NEGATIVE]

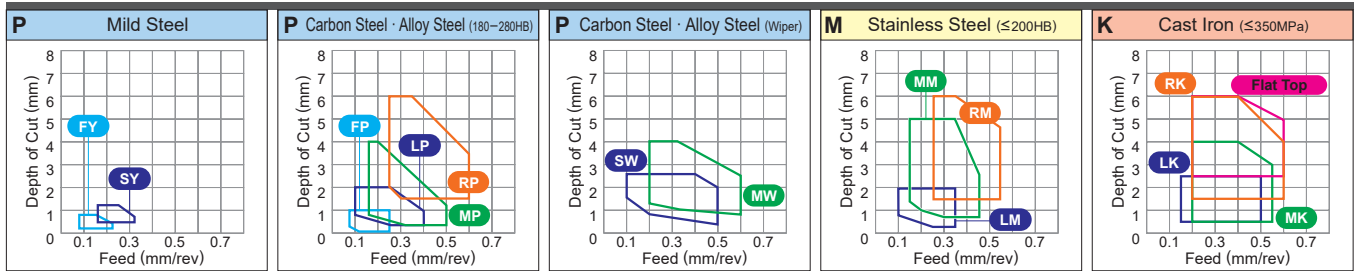


WNMG 08 04 02- FP

Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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● : Inventory maintained in Japan.
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(10 inserts in one case)

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The successor grades are the MC61 series and the MC51 series (scheduled to be released).

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TURNING INSERTS [NEGATIVE]



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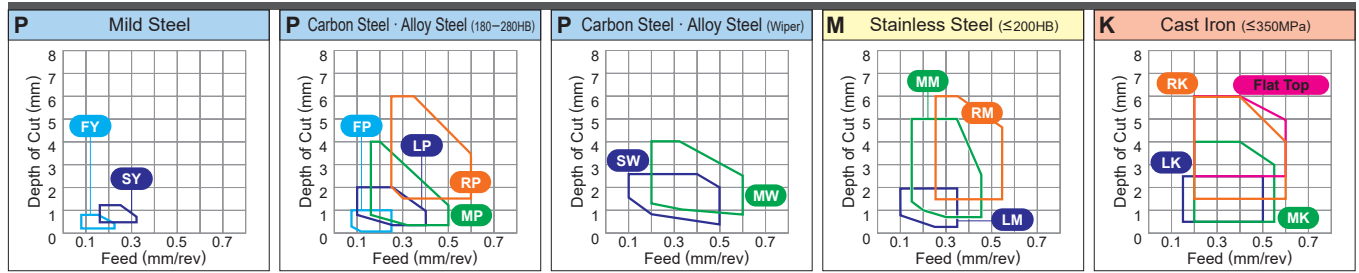
WN TYPE INSERTS WITH HOLE

WNMG 06 T3 04- MP

Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✱ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✱ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																○	G	⊗	●	✱	G	✱	⊗	●																○	G	⊗	●	○	○	○	○	⊗																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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*1 Newly designed breakers : MP9005, MP9015, MP9025, MT9015

● = NEW

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(10 inserts in one case)

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TURNING INSERTS [NEGATIVE]



80°

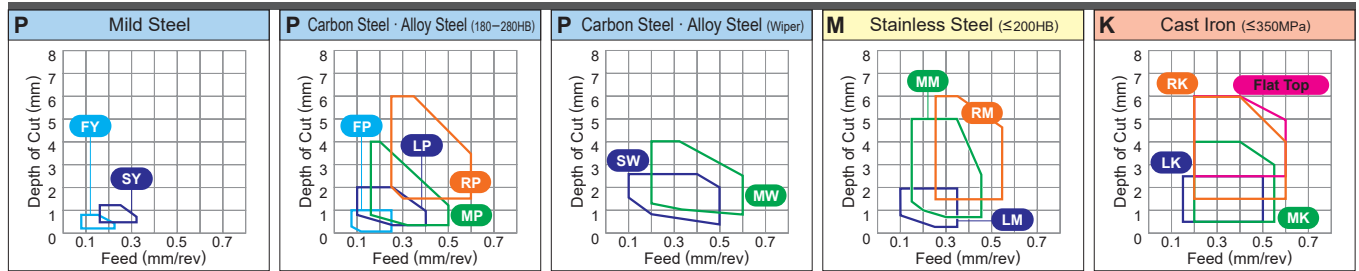
WN TYPE INSERTS WITH HOLE

WNMG 06 04 08- RM

Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Rough Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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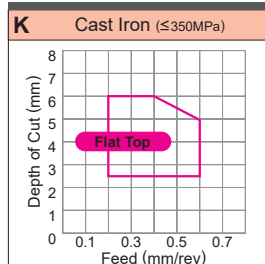
● = NEW

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

● : Inventory maintained in Japan.
▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

CHIP BREAKERS > A042

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
 ○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

A

TURNING INSERTS

NEG

WITHOUT HOLE

C

D

R

R

R

S

T

V

W



90° SN TYPE INSERTS WITHOUT HOLE

* Please refer to page A002.

Heavy Cutting.....



WITHOUT HOLE

W

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released. The successor grades are the MC61 series and the MC51 series (scheduled to be released).

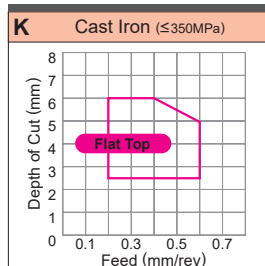


TNMN 16 03 08

Size Thickness Corner Radius

* Please refer to page A002.

Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

A

TURNING INSERTS

NEG

WITHOUT HOLE

C

D

R

S

T

V

W

Scan here for product NEWS ►



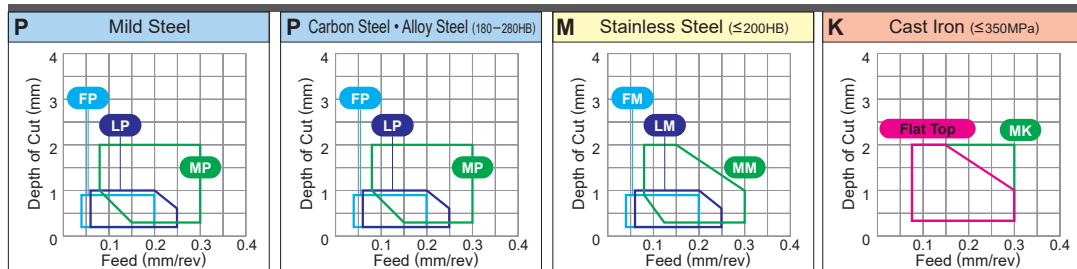
EXTERNAL TURNING	➤	—
BORING	➤	—

CHIP BREAKERS	➤ A072
GRADES	➤ A030
IDENTIFICATION	➤ A002

A113

Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

Finish Cutting..... Light Cutting..... Medium Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
 ○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel	○ G																																						
	M	Stainless Steel																																							
	K	Cast Iron																																							
	N	Non-ferrous Metal																																							
	S	Heat resistant Alloy, Titanium Alloy																																							
Shape	Order Number	RE (mm)	Coated																Coated Cermet	Cermet	Carbide																				
			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	MS7025	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UT120T	HT105T	HT110	RT9010	MT9005	MT9015	TF15
FP  Finish Cutting	CCMT060202-FP	0.2	▲	▲▲																								●			●										
	CCMT060204-FP	0.4	▲	▲▲																									●			●									
	CCMT09T302-FP	0.2	▲	▲▲																									●			●									
	CCMT09T304-FP	0.4	▲	▲▲																									●			●									
	CCMT09T308-FP	0.8	▲	▲▲																									●			●									
FM  Finish Cutting	CCMT060202-FM	0.2																										●													
	CCMT060204-FM	0.4																											●												
	CCMT09T302-FM	0.2																											●												
	CCMT09T304-FM	0.4																											●												
	CCMT09T308-FM	0.8																											●												
FS  Finish Cutting	CCGT060201M-FS	0.1*1																●●●																							
	CCGT060202M-FS	0.2*1																	●●●																						
	CCGT09T301M-FS	0.1*1																	●●●																						
	CCGT09T302M-FS	0.2*1																	●●●																						
	CCGT09T304M-FS	0.4*1																	●●●																						
FS-P  Finish Cutting	CCGT060201M-FS																																								

*1 Indicates the maximum value of the corner R. For more details, see page D003.

● = NEW

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released. The successor grades are the MC61 series and the MC51 series (scheduled to be released).

A

TURNING INSERTS

POSI
7°

**WITH
HOLE**



D

R

S

X

115

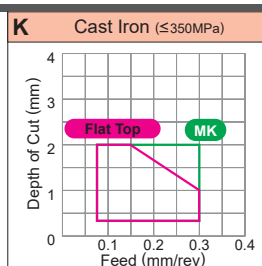


CHIP BREAKERS	➤ A058
GRADES	➤ A030
IDENTIFICATION	➤ A002

A115

Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

Finish Cutting..... Light Cutting..... Medium Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

● = NEW

*2 Indicates the maximum value of the corner R. For more details, see page D003.

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

A

TURNING INSERTS

POS
7°

**WITH
HOLE**



D

R

S



*1 Indicates the maximum value of the corner R. For more details, see page D003.



CHIP BREAKERS	➤ A058
GRADES	➤ A030
IDENTIFICATION	➤ A002

A117

TURNING INSERTS [POSITIVE]

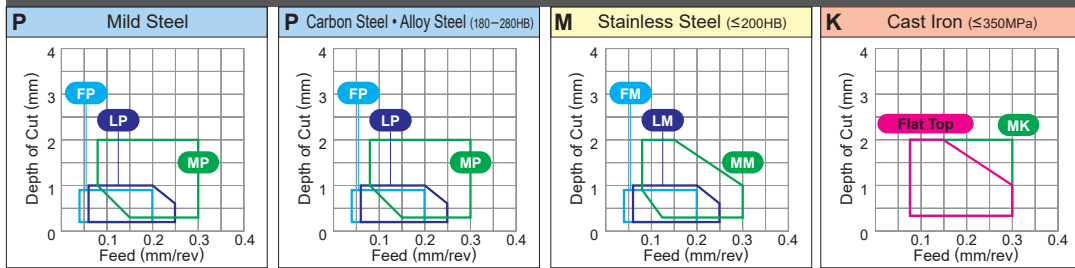
80° CC TYPE INSERTS WITH HOLE

CCMT 06 02 02- MS

Size Thickness Corner Radius Chip Breaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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*1 Please refer to A028 before using the MW breaker (wiper insert).

● = NEW

● : Inventory maintained in Japan.
▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

TURNING INSERTS

● = NEW

TURNING INSERTS [POSITIVE]

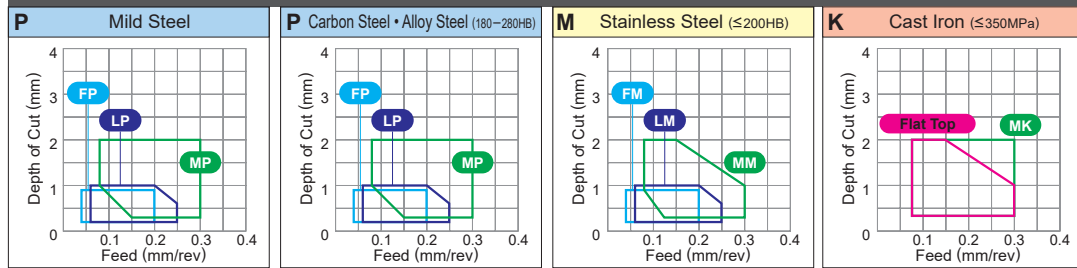
80° CC TYPE INSERTS WITH HOLE

CCET 06 02 00 R-SN

Size Thickness Corner Radius R/L Chip Breaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel	M	Stainless Steel	K	Cast Iron	N	Non-ferrous Metal	S	Heat resistant Alloy, Titanium Alloy																																
Shape	Order Number	RE (mm)	Coated																Coated Cermet		Cermet		Carbide																			
			UE6105	UE6110	UE6020	MC6015	UH6400	MS6015	MC7025	MP7035	US7020	US735	MS7025	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	RTi10	MT9010	MT9005	MT9015	TF15		
R/L-SN	CCET060200R-SN	0.0 *2																																								
	CCET060200L-SN	0.0 *2																																								
	CCET0602V3R-SN	0.03*2																																								
	CCET0602V3L-SN	0.03*2																																								
	CCET060201R-SN	0.1 *2																																								
	CCET060201L-SN	0.1 *2																																								
	CCET060202R-SN	0.2 *2																																								
	CCET060202L-SN	0.2 *2																																								
	CCET060204R-SN	0.4 *2																																								
	CCET060204L-SN	0.4 *2																																								
	CCET09T300R-SN	0.0 *2																																								
	CCET09T300L-SN	0.0 *2																																								
	CCET09T3V3R-SN	0.03*2																																								
	CCET09T3V3L-SN	0.03*2																																								
	CCET09T301R-SN	0.1 *2																																								
	CCET09T301L-SN	0.1 *2																																								
	CCET09T302R-SN	0.2 *2																																								
	CCET09T302L-SN	0.2 *2																																								
	CCET09T304R-SN	0.4 *2																																								
	CCET09T304L-SN	0.4 *2																																								
Medium Cutting																																										
R/LW-SN *1	CCET0602V3RW-SN	0.03*2																																								
	CCET0602V3LW-SN	0.03*2																																								
	CCET09T3V3RW-SN	0.03*2																																								
	CCET09T3V3LW-SN	0.03*2																																								
SMG	CCGT060201M-SMG	0.1 *2																																								
	CCGT060202M-SMG	0.2 *2																																								
	CCGT060204M-SMG	0.4 *2																																								
	CCGT09T301M-SMG	0.1 *2																																								
	CCGT09T302M-SMG	0.2 *2																																								
Medium Cutting	CCGT09T304M-SMG	0.4 *2																																								

*1 Please refer to A028 before using the R/LW-SN breaker (wiper insert).

*2 Indicates the maximum value of the corner R. For more details, see page D003.

● : Inventory maintained in Japan.

▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

A

TURNING INSERTS

POSI
7°

**WITH
HOLE**



D

R

S



V

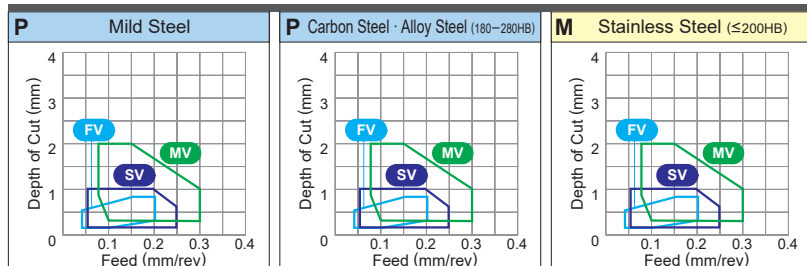
X

[illegible]

CHIP BREAKERS	➤ A058
GRADES	➤ A030
IDENTIFICATION	➤ A002

Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

Finish Cutting..... Light Cutting..... Medium Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
 ○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released. The successor grades are the MC61 series and the MC51 series (scheduled to be released).

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TURNING INSERTS

POSI
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WITH HOLE



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CHIP BREAKERS	➤ A066
GRADES	➤ A030
IDENTIFICATION	➤ A002

A

TURNING INSERTS

POSI
7°

**WITH
HOLE**

C

D



W

X

● = NEW



CHIP BREAKERS	➤ A058
GRADES	➤ A030
IDENTIFICATION	➤ A002

TURNING INSERTS [POSITIVE]

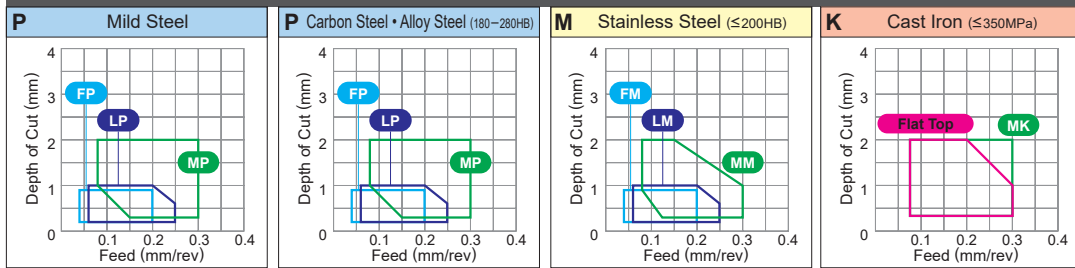
55° DC TYPE INSERTS WITH HOLE

DCGT 07 02 V3 R-SS

Size Thickness Corner Radius R/L Chip Breaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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*1 Indicates the maximum value of the corner R. For more details, see page D003.

● : Inventory maintained in Japan.
▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

A

POSI
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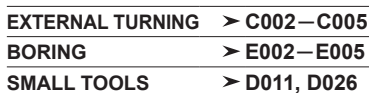


R



*1 Indicates the maximum value of the corner R. For more details, see page D003.

Scan here for product NEWS ►



A127

TURNING INSERTS

*2 Indicates the maximum value of the corner R. For more details, see page D003.



CHIP BREAKERS	➤ A058
GRADES	➤ A030
IDENTIFICATION	➤ A002

TURNING INSERTS [POSITIVE]

55° DE TYPE INSERTS WITH HOLE

DEGX 15 04 02 R-F

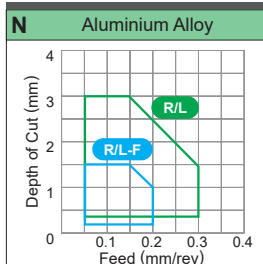
Size Thickness Corner Radius R/L Chip Breaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Medium Cutting.....

A

TURNING INSERTS



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

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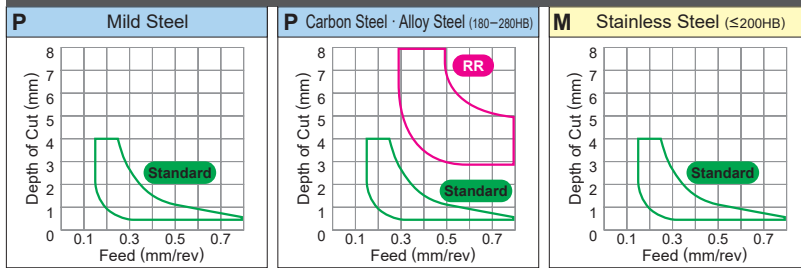
Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

● : Inventory maintained in Japan.
▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

CHIP BREAKERS > A070

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Medium Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	</
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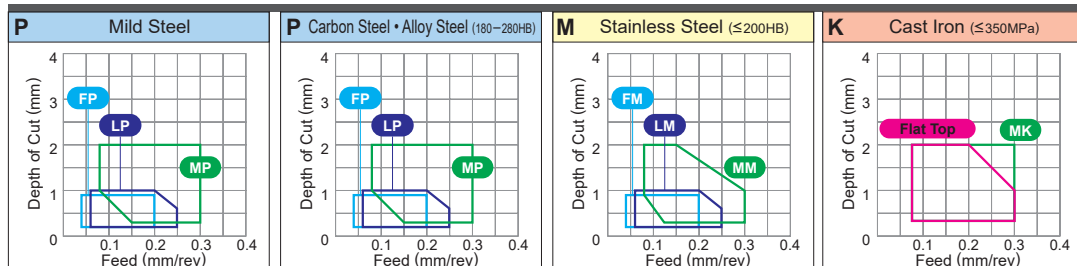
 **90° SC** TYPE INSERTS
WITH HOLE

SCMT 09 T3 04- FP

Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

● : Inventory maintained in Japan.
▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

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11



CHIP BREAKERS	➤ A058
GRADES	➤ A030
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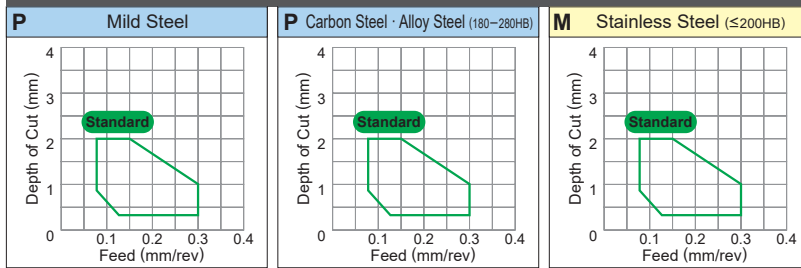


CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Medium Cutting.....

A

TURNING INSERTS



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

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Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

● : Inventory maintained in Japan.

▲ : Inventory maintained in Japan. To be replaced by new products.

(10 inserts in one case)

TURNING INSERTS [POSITIVE]

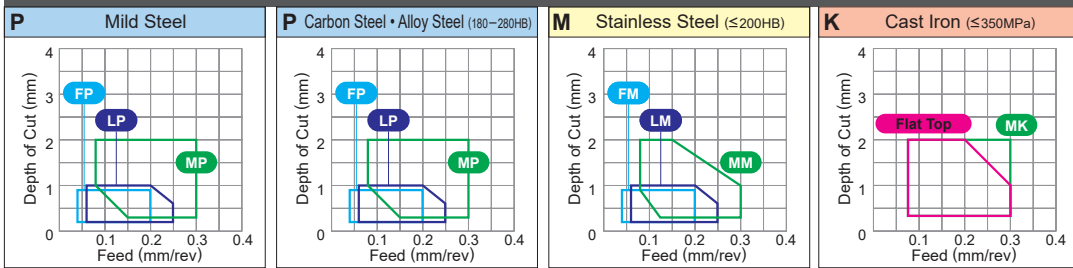
60° TC TYPE INSERTS WITH HOLE

TCMT 09 02 04- LP

Size Thickness Corner Radius Chip Breaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

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● = NEW

● : Inventory maintained in Japan.
▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

A

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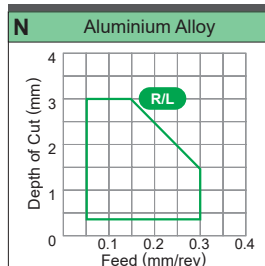
CHIP BREAKERS	➤ A058
GRADES	➤ A030
IDENTIFICATION	➤ A002

60°

TE TYPE INSERTS WITH HOLE

Size Thickness Corner Radius R/L
* Please refer to page A002.

Medium Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
 ○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

▲ : Inventory maintained in Japan. To be replaced by new products.

(10 inserts in one case)

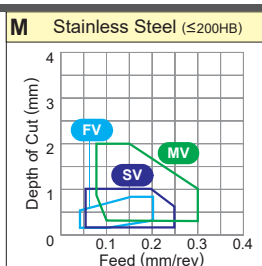
CHIP BREAKERS ➤ A070



TPMH 08 02 02- FV

Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

Finish Cutting..... Light Cutting..... Medium Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
 ○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

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TURNING INSERTS

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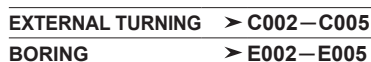
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Scan here for product NEWS ►



CHIP BREAKERS	➤ A066
GRADES	➤ A030
IDENTIFICATION	➤ A002

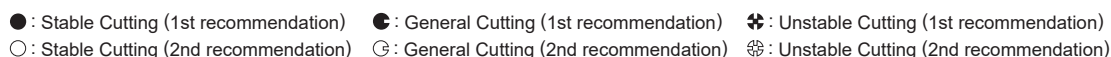
A139

Size Thickness Corner Radius R/L
* Please refer to page A002.

Size Thickness Corner Radius R/L

* Please refer to page A002.

Finish Cutting..... Light Cutting..... Medium Cutting.....



● : Inventory maintained in Japan.
▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released. The successor grades are the MC61 series and the MC51 series (scheduled to be released).

A

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[illegible]

TURNING INSERTS [POSITIVE]



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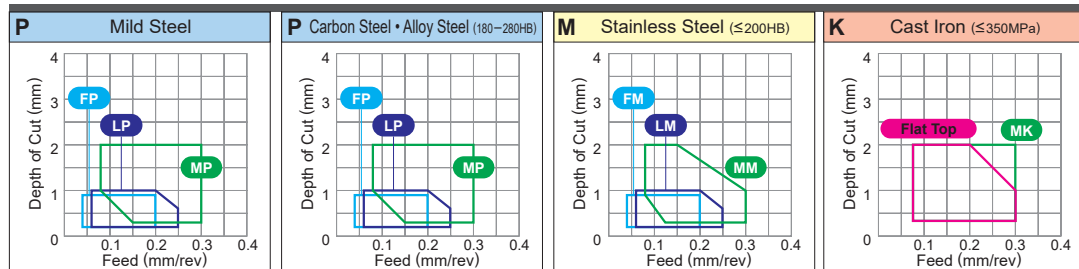
VB TYPE INSERTS WITH HOLE

VBMT 11 03 02- FP

Size Thickness Corner Radius Chip Breaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✱ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✱ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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● : Inventory maintained in Japan.

▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

A

TURNING INSERTS

POS
5°

**WITH
HOLE**

E

1

F

S

T

V

W

X

● = NEW



CHIP BREAKERS	➤ A052
GRADES	➤ A030
IDENTIFICATION	➤ A002

TURNING INSERTS [POSITIVE]



35°

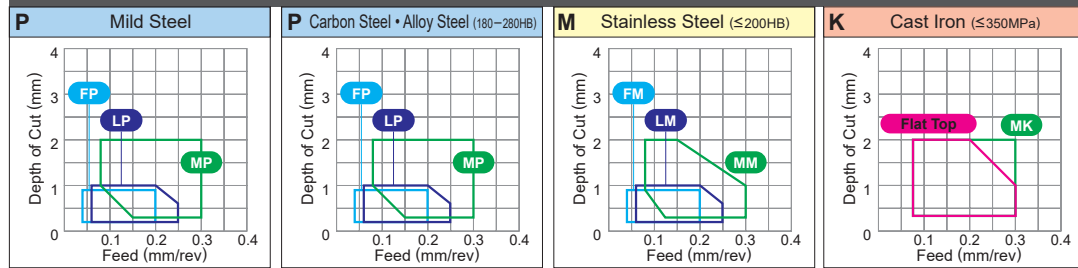
VB TYPE INSERTS WITH HOLE

VBET 11 03 V3 R-SR

Size Thickness Corner Radius R/L Chip Breaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																																							
	M	Stainless Steel																																							
	K	Cast Iron																																							
	N	Non-ferrous Metal																																							
	S	Heat resistant Alloy, Titanium Alloy																																							
Shape	Order Number	RE (mm)	Coated																Coated Cermet	Cermet	Carbide																				
			UE6105	UE6110	UE6020	MC6015	UH6400	MS6015	MC7025	MP7035	US7020	US735	NEW MS7025	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9010	MT9005	MT9015	TF15	
	R/L-SR	VBET1103V3R-SR	0.03*2																																						
		VBET1103V3L-SR	0.03*2																																						
		VBET110301R-SR	0.1 *2																																						
		VBET110301L-SR	0.1 *2																																						
		VBET110302R-SR	0.2 *2																																						
		VBET110302L-SR	0.2 *2																																						
		VBET110304R-SR	0.4 *2																																						
		VBET110304L-SR	0.4 *2																																						
	R/L-SN	VBET110300R-SN	0.0 *2																																						
		VBET110300L-SN	0.0 *2																																						
		VBET1103V3R-SN	0.03*2																																						
		VBET1103V3L-SN	0.03*2																																						
		VBET110301R-SN	0.1 *2																																						
		VBET110301L-SN	0.1 *2																																						
		VBET110302R-SN	0.2 *2																																						
		VBET110302L-SN	0.2 *2																																						
		VBET110304R-SN	0.4 *2																																						
		VBET110304L-SN	0.4 *2																																						
	R/LW-SN *1	VBET1103V3RW-SN	0.03*2																																						
		VBET1103V3LW-SN	0.03*2																																						
	Flat Top	VBMW160408	0.8											▲▲																											

*1 Please refer to A028 before using the R/LW-SN breaker (wiper insert).

*2 Indicates the maximum value of the corner R. For more details, see page D003.

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

● : Inventory maintained in Japan.

▲ : Inventory maintained in Japan. To be replaced by new products.

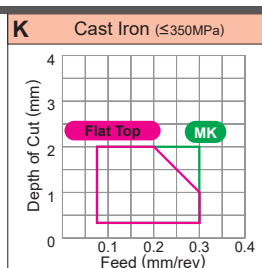
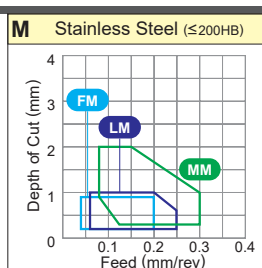
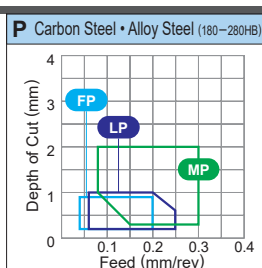
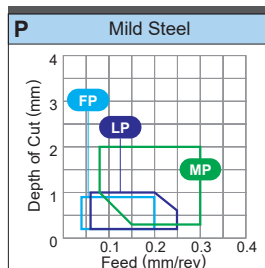
(10 inserts in one case)

CHIP BREAKERS

➤ A056

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Light Cutting..... Medium Cutting..... Heavy Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
 ○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

A

TURNING INSERTS

POSI
7°

**WITH
HOLE**

C

D

B

S

T

V

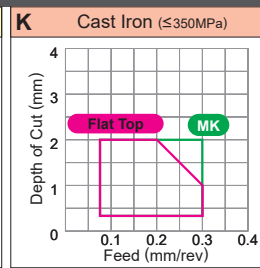
W

X



Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

Finish Cutting..... Light Cutting..... Medium Cutting..... Heavy Cutting.....



A146

A

TURNING INSERTS

POSI
7°

**WITH
HOLE**

C

D

R

S

T

V

W

y

● = NEW



CHIP BREAKERS	➤ A058
GRADES	➤ A030
IDENTIFICATION	➤ A002

TURNING INSERTS [POSITIVE]



35° V D TYPE INSERTS WITH HOLE

VDGX 16 03 02 R

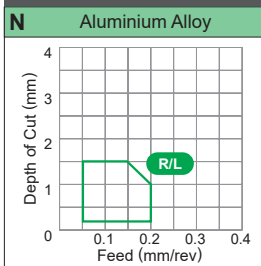
Size Thickness Corner Radius R/L
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Medium Cutting.....

A

TURNING INSERTS



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel	○	○	○	○	○	●		●	✱	○	✱	●									●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	M	Stainless Steel																					●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	K	Cast Iron													●	●	○	○	○					○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	N	Non-ferrous Metal																																						○
	S	Heat resistant Alloy, Titanium Alloy																		●	●	✱	○	●	○	○	○	○	○										○	
Shape	Order Number	RE (mm)	Coated																	Coated Cermet		Cermet	Carbide																	
			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	NEW MS7025	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9010	MT9005	MT9015
R/L  Medium Cutting (For Aluminium)	VDGX160302R	0.2																																					●	
	VDGX160302L	0.2																																				●		
	VDGX160304R	0.4																																				●		
	VDGX160304L	0.4																																				●		

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

● : Inventory maintained in Japan.
(10 inserts in one case)

CHIP BREAKERS > A070

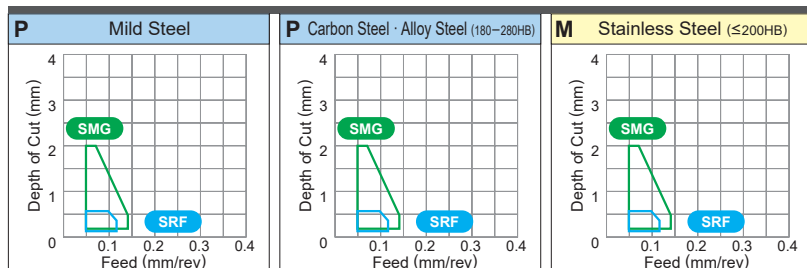
35°

VP TYPE INSERTS WITH HOLE

VPET 08 02 01 R-SRF

Size Thickness Corner Radius R/L Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS Finish Cutting..... Medium Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

*1 Indicates the maximum value of the corner R. For more details, see page D003.

A

TURNING INSERTS

POS
11°

**WITH
HOLE**

C

D

B

S

T

V

W

X



Scan here for product NEWS ►

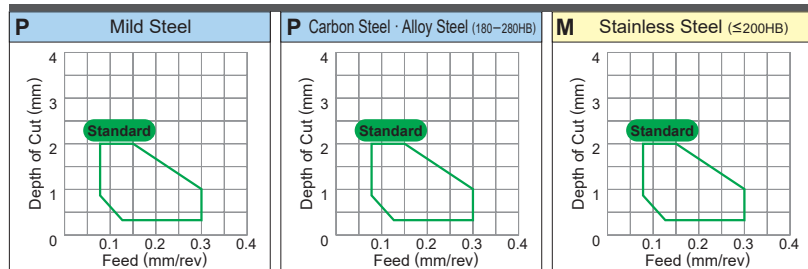
EXTERNAL TURNING	➤ C002—C005
BORING	➤ —
SMALL TOOLS	➤ D012, D013

CHIP BREAKERS	➤ A066
GRADES	➤ A030
IDENTIFICATION	➤ A002

A149

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Medium Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
 ○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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A

TURNING INSERTS

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WITH
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W

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TURNING INSERTS [POSITIVE]



80°

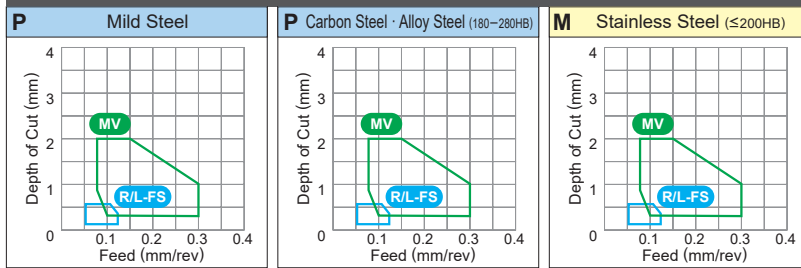
WP TYPE INSERTS WITH HOLE

WPGT 04 02 04 R-FS

Size Thickness Corner Radius R/L Chip Breaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS

Finish Cutting..... Medium Cutting.....



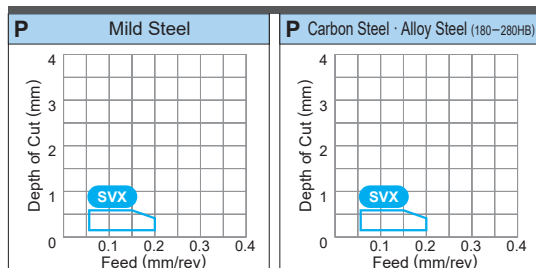
● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																																									
	M	Stainless Steel																																									
	K	Cast Iron																																									
	N	Non-ferrous Metal																																									
	S	Heat resistant Alloy, Titanium Alloy																																									
Shape	Order Number	RE (mm)	Coated																Coated Cermet		Cermet	Carbide																					
			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	NEW MS7025	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9010	MT9005	MT9015	TF15		
 Finish Cutting	WPGT040204R-FS	0.4																																									
	WPGT040204L-FS	0.4																																									
	WPGT060304R-FS	0.4																																									
	WPGT060304L-FS	0.4																																									
 Medium Cutting	WPMT040202-MV	0.2		▲	▲				●																		●	●					●	●									
	WPMT040204-MV	0.4		▲	▲				●				▲														●	●					●	●	●								
	WPMT060304-MV	0.4		▲	▲				●				▲														●	●					●	●	●								
	WPMT060308-MV	0.8		▲	▲				●				▲														●	●					●	●	●								

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

● : Inventory maintained in Japan.
▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS Finish Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

A

TURNING INSERTS

POSI
7°

**WITH
HOLE**

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D

B

S

T

V

W

X



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
 ○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

TURNING INSERTS

POSIT 6°

WITHOUT HOLE

c

D

R

S

T

V

W

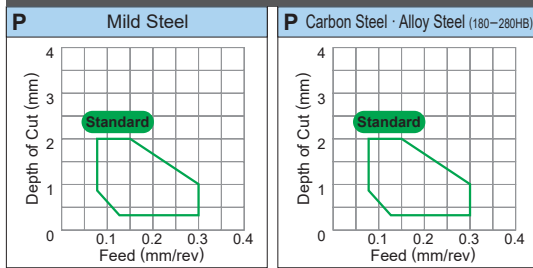
K

[illegible]

▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released. The successor grades are the MC61 series and the MC51 series (scheduled to be released).

CHIP CONTROL RANGE FOR WORKPIECE MATERIALS Medium Cutting.....



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

Workpiece Material	P	Steel																	Coated Cermet	Cermet	Carbide
			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
Shape	Order Number	RE (mm)	Coated																Coated Cermet	Cermet	Carbide
			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	MS7025	MC5005	MC5015	UC5105	UC5115	MH515		
R 	SPGR090304R	0.4																			
Standard 	SPMR090304	0.4	▲▲																		
	SPMR090308	0.8	▲▲																		
	SPMR120304	0.4	▲▲																		
	SPMR120308	0.8	▲▲																		
Flat Top 	SPMN090304	0.4																			
	SPMN090308	0.8	▲																		
	SPMN120304	0.4	▲																		
	SPMN120304T	0.4																			
	SPMN120308	0.8	▲																		
	SPMN120312	1.2	▲▲																		
	SPMN120408	0.8																			
	SPMN120412	1.2																			
	SPMN150408	0.8																			
	SPMN150412	1.2																			
	SPMN190404	0.4																			
Flat Top 	SPGN090304	0.4																			
	SPGN090308	0.8																			
	SPGN120304	0.4																			
	SPGN120308	0.8																			
	SPGN120312	1.2																			
	SPGN120404	0.4																			
	SPGN120408	0.8																			
	SPGN150404	0.4																			
	SPGN150408	0.8																			

A

TURNING INSERTS

POSI 11°
WITHOUT HOLE

C

D

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W

X

TURNING INSERTS [POSITIVE]



60° TC TYPE INSERTS WITHOUT HOLE

TCGN 06 01 04

Size Thickness Corner Radius

★ Please refer to page A002.

● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

A

TURNING INSERTS

POSI
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WITHOUT
HOLE

C

D

R

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V

W

X

Workpiece Material	P	Steel																																								
	M	Stainless Steel																																								
Shape	K	Cast Iron																																								
	N	Non-ferrous Metal																																								
Flat Top	S	Heat resistant Alloy, Titanium Alloy																																								
Order Number	RE (mm)	Coated												Coated Cermet				Cermet		Carbide																						
		UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	MS7025	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9010	MT9005	MT9015	TF15		
Flat Top	TCGN060104	0.4																																								
	TCGN090204	0.4																																								

Orders for the MC60 series, UE60 series, MC50 series, and UC51 series will be discontinued after new grades are released.
The successor grades are the MC61 series and the MC51 series (scheduled to be released).

● : Inventory maintained in Japan.

▲ : Inventory maintained in Japan. To be replaced by new products.

(10 inserts in one case)

CHIP BREAKERS

➤ A072



TPGR 11 03 04 R

Size Thickness Corner Radius R/L

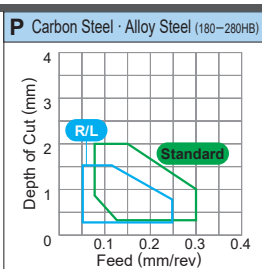
* Please refer to page A002.

P Mild Steel

Graph for Mild Steel showing Depth of Cut (mm) vs Feed (mm/rev). The R/L condition (blue line) shows a maximum depth of cut of approximately 1.5 mm at a feed of 0.1 mm/rev. The Standard condition (green line) shows a maximum depth of cut of approximately 2.2 mm at a feed of 0.15 mm/rev.

P Carbon Steel - Alloy Steel (180-280HB)

Graph for Carbon Steel - Alloy Steel (180-280HB) showing Depth of Cut (mm) vs Feed (mm/rev). The R/L condition (blue line) shows a maximum depth of cut of approximately 1.5 mm at a feed of 0.1 mm/rev. The Standard condition (green line) shows a maximum depth of cut of approximately 2.2 mm at a feed of 0.15 mm/rev.



● : Stable Cutting (1st recommendation) ● : General Cutting (1st recommendation) ✖ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ○ : General Cutting (2nd recommendation) ✖ : Unstable Cutting (2nd recommendation)

[illegible]

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EXTERNAL TURNING	➤	—
BORING	➤	—

SMALL TOOLS	➤ —
CHIP BREAKERS	➤ A072

GRADES	➤ A030
IDENTIFICATION	➤ A002

A157

A

TURNING INSERTS

POS
11°

WITHOUT HOLE

C

D

R

S

T

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W

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