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 work material

Shows recommended chip breakers and chip control range according to work material and cutting application.
Graphs are colored 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 :

GRADE APPLICATION RECOMMENDED FOR EACH WORK MATERIAL
cutting conditions suitable for each type of work material is shown as a general guide to select the grade.
●: Stable Cutting ◐: General Cutting ✣: Unstable Cutting

SHAPE & ANGLE MARK

INDICATION OF NEGATIVE/ POSITIVE TYPE

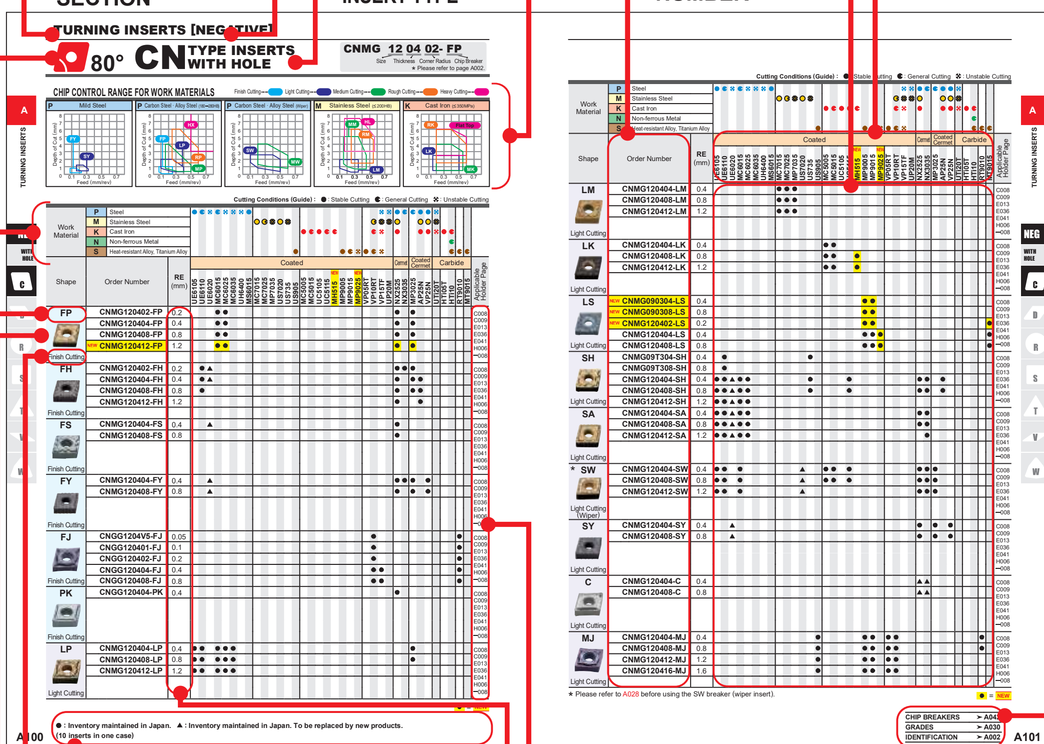
PRODUCT SECTION

TITLE OF PRODUCT ACCORDING TO THE INSERT TYPE

INSERT NUMBER

STOCK STATUS

INSERT GRADES



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 CHIPBREAKER
indicates the designation for a chipbreaker.

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

APPLICABLE HOLDER PAGE
indicates reference pages for details of applicable holders.

INSERT CORNER RADIUS (RE)

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

TURNING TOOLS

INSERT STANDARDS
INSERT GRADES

IDENTIFICATION A002
HOLE GEOMETRY A004
PRECISION BREAKER SYSTEM A006
TOOL NAVI A009
OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING ... A010
PRECISION BREAKER SYSTEM A026
WIPER INSERT A028
GRADES FOR TURNING A030
TURNING APPLICATION RANGE A031
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
RECOMMENDED CUTTING CONDITIONS A076

STANDARD OF INSERTS

NEGATIVE INSERTS WITH HOLE

CN◌◌TYPE...RHOMBIC 80° A100
DN◌◌TYPE...RHOMBIC 55° A107
RN◌◌TYPE...ROUND A114
SN◌◌TYPE...SQUARE 90° A115
TN◌◌TYPE...TRIANGULAR 60° A121
VN◌◌TYPE...RHOMBIC 35° A128
WN◌◌TYPE...TRIGON 80° A132

NEGATIVE INSERTS WITHOUT HOLE

CN◌◌TYPE...RHOMBIC 80° A137
SN◌◌TYPE...SQUARE 90° A138
TN◌◌TYPE...TRIANGULAR 60° A139

POSITIVE INSERTS WITH HOLE

CC◌◌TYPE...RHOMBIC 80° A140
CP◌◌TYPE...RHOMBIC 80° A148
DC◌◌TYPE...RHOMBIC 55° A149
DE◌◌TYPE...RHOMBIC 55° A155
RC◌◌TYPE...ROUND A156
SC◌◌TYPE...SQUARE 90° A157
SP◌◌TYPE...SQUARE 90° A159
TC◌◌TYPE...TRIANGULAR 60° A160
TE◌◌TYPE...TRIANGULAR 60° A163
TP◌◌TYPE...TRIANGULAR 60° A164
VB◌◌TYPE...RHOMBIC 35° A167
VC◌◌TYPE...RHOMBIC 35° A170
VD◌◌TYPE...RHOMBIC 35° A173
VP◌◌TYPE...RHOMBIC 35° A174
WB◌◌TYPE...TRIGON 80° A175
WC◌◌TYPE...TRIGON 80° A176
WP◌◌TYPE...TRIGON 80° A177
XC◌◌TYPE...RHOMBIC 25° A178

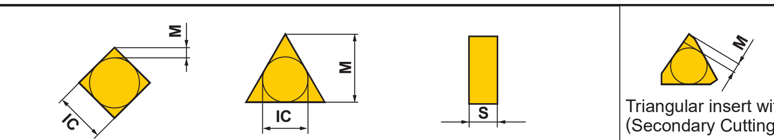
POSITIVE INSERTS WITHOUT HOLE

RTG TYPE A179
SP◌◌TYPE...SQUARE 90° A180
TC◌◌TYPE...TRIANGULAR 60° A181
TP◌◌TYPE...TRIANGULAR 60° A182

IDENTIFICATION

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



Triangular insert with a facet (Secondary Cutting Edge)

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.

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

③ Tolerance Class

① C ② N ③ M ④ 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 + One Countersink (40–60°)	No		A	With Hole	Cylindrical Hole	No	
T	With Hole		One Sided		M	With Hole	Cylindrical Hole	Single Sided	
Q	With Hole	Cylindrical Hole + Double Countersink (40–60°)	No		G	With Hole	Cylindrical Hole	Double Sided	
U	With Hole		Double Sided		N	Without Hole	–	No	
B	With Hole	Cylindrical Hole + One Countersink (70–90°)	No		R	Without Hole	–	Single Sided	
H	With Hole		One Sided		F	Without Hole	–	Double Sided	
C	With Hole	Cylindrical Hole + Double Countersink (70–90°)	No		X	–	–	–	Special Design
J	With Hole		Double Sided						

⑤ Insert Size

Symbol							Diameter of Inscribed Circle (mm)
R	W	V	D	C	S	T	
	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
12	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

⑥ Insert Thickness

*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

12 ⑤ **04** ⑥ **08** ⑦ **(E)** ⑧ **(N)** ⑨ **-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

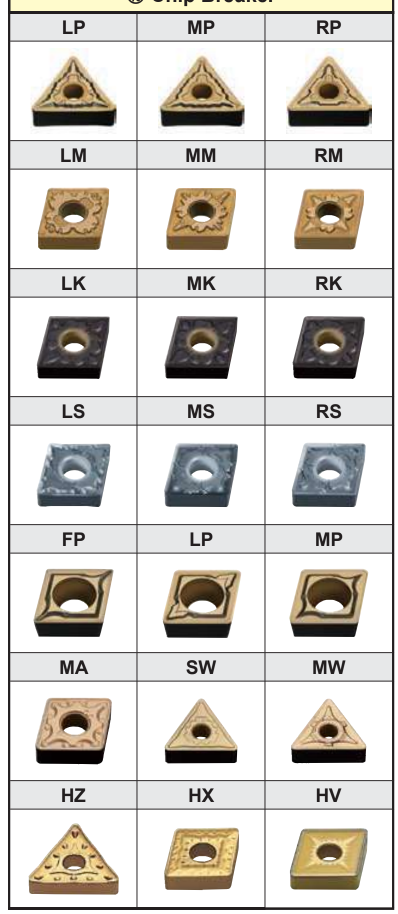
Figure	Feature	Symbol
	Sharp Cutting Edges	F
	Round Cutting Edges	E
	Chamfered Cutting Edges	T
	Chamfered and Rounded Cutting Edges	S
–	(-) Corner R tolerance	M

Mitsubishi Materials omit the honing symbol.

⑨ Cutting Direction

Figure	Hand	Symbol
	Right	R
	Left	L
	Neutral	N

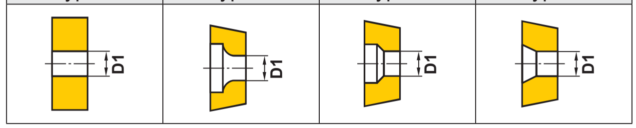
⑩ Chip Breaker



The above table shown as reference example.

HOLE GEOMETRY

Type A	Type B	Type C	Type D



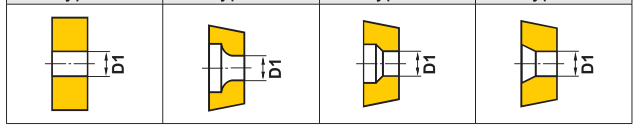
NEGATIVE

Insert Number		Dimensions (mm) D1	Hole Type
CNGA CNGG CNGM CNMA CNMG CNMM CNMP	0903○○	3.81	A
	09T3○○	3.81	A
	0904○○	3.81	A
	1204○○	5.16	A
	1606○○	6.35	A
	1906○○	7.93	A
	2509○○	9.12	A
DNGA DNGG DNGM DNMA DNMG DNMM DNMX	1104○○	3.81	A
	1504○○	5.16	A
	1506○○	5.16	A
SNGA SNGG SNMA SNMG SNMM	0903○○	3.81	A
	1204○○	5.16	A
	1506○○	6.35	A
	1906○○	7.93	A
	2507○○	9.12	A
	2509○○	9.12	A
TNGA TNGG TNGM TNMA TNMG TNMM TNMX	1103○○	2.26	A
	1603○○	3.81	A
	1604○○	3.81	A
	2204○○	5.16	A
	2706○○	6.35	A
	3309○○	7.93	A
VNGA VNGM VNGG VNMA VNMG VNMM	1604○○	3.81	A
WNGA WNMA WNMG	0603○○	3.81	A
	06T3○○	3.81	A
	0604○○	3.81	A
	0804○○	5.16	A
	1006○○	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) D1	Hole Type
CCET	0602○○	2.8	B
	09T3○○	4.4	B
CCGB CCMB CCGH CCMH	0602○○	2.8	B
CCGT	03S1○○	2.0	B
	04T0○○	2.4	B
	0602○○	2.8	B
	09T3○○	4.4	B
	1204○○	5.5	B
CCMT	0602○○	2.8	B
	0803○○	3.4	B
	09T3○○	4.4	B
	1204○○	5.5	B
CCGW CCMW	03S1○○	2.0	B
	04T0○○	2.4	B
	0602○○	2.8	B
	09T3○○	4.4	B
	1204○○	5.5	B
CPGT	0802○○	3.4	B
	0903○○	4.4	B
CPGB CPMB CPMH	0802○○	3.5	D
	0903○○	4.5	D
CPMX	0802○○	3.5	D
	0903○○	4.6	D
DCET DCGT	0702○○	2.8	B
	11T3○○	4.4	B
DCGW DCMW DCMT	0702○○	2.8	B
	11T3○○	4.4	B
	1504○○	5.5	B
DEGX	1504○○	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

Type A	Type B	Type C	Type 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	0802○○	2.7	C
	0902○○	3.2	C
	1103○○	3.7	C
	1103○○R/L	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

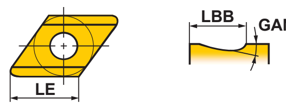
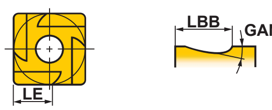
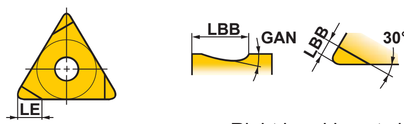
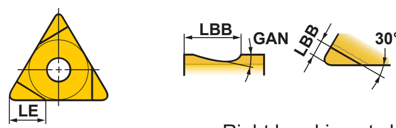
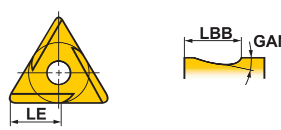
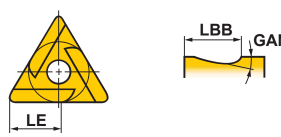
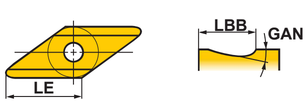
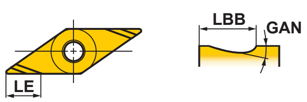
Insert Number		Dimensions (mm)	Hole Type
		D1	
VBET VBGT VBMT VBGW	1103○○	2.9	B
	1604○○	4.4	B
VCGT VCMT VCGW VCMW	0802○○	2.4	B
	1103○○	2.8	B
	1303○○	3.4	B
	1604○○	4.4	B
VPET VPGT	0802○○	2.42	B
	1103○○	2.85	B
VDGX	1603○○	4.5	D
WBGT WBMT	0201○○	2.3	B
	L302○○	2.3	B
WCGT WCMT WCGW WCMW	0201○○	2.3	B
	L302○○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

PRECISION BREAKER SYSTEM

STANDARD OF INSERTS WITH HAND OF TOOL

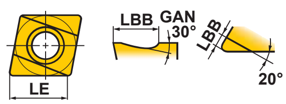
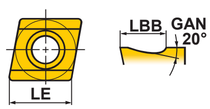
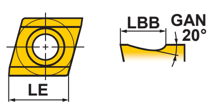
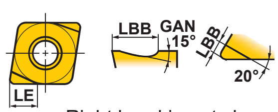
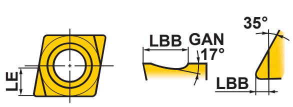
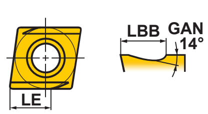
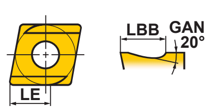
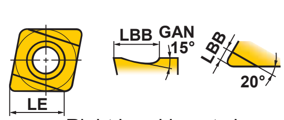
●NEGATIVE INSERTS

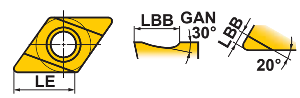
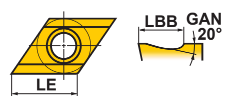
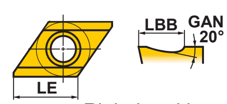
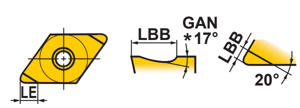
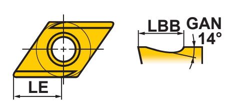
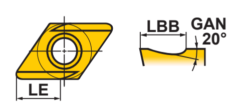
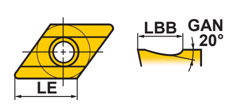
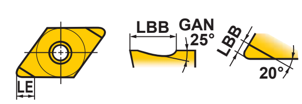
Unit : mm

Geometry	Insert Number	LBB	LE	GAN
 Right hand insert shown.	DNGG150404R/L	2.8	14.9	15
	DNGG150408R/L	2.8	14.3	15
	DNGG150604R/L	2.8	14.9	15
	DNGG150608R/L	2.8	14.3	15
 Right hand insert shown.	SNGG090304R/L	1.8	1.6	15
	SNGG090308R/L	1.8	1.6	15
	SNGG120404R/L	2.3	3.7	15
	SNGG120408R/L	2.3	3.7	15
 Right hand insert shown.	TNGG160402R/L-FS	1.3	2.7	15
	TNGG160404R/L-FS	1.3	2.8	15
	TNGG160408R/L-FS	1.3	3.1	15
 Right hand insert shown.	TNGG160402R/L-F	2.5	5.1	15
	TNGG160404R/L-F	2.5	5.2	15
	TNGG160408R/L-F	2.5	5.5	15
 Right hand insert shown.	TNGG160402R/L-K	1.5	7.1	15
	TNGG160404R/L-K	1.5	5.4	15
	TNGG160408R/L-K	1.5	5.1	15
 Right hand insert shown.	TNGG110302R/L	1.3	3.2	15
	TNGG110304R/L	1.3	3.0	15
	TNGG110308R/L	1.3	2.7	15
	TNGG160304R/L	2.3	5.4	15
	TNGG160402R/L	1.3	8.7	15
	TNGG160404R/L	2.3	5.4	15
	TNGG160408R/L	2.3	5.1	15
	TNGG220404R/L	2.8	9.4	15
	TNGG220408R/L	2.8	9.1	15
 Right hand insert shown.	VNGG160404R/L	1.8	15.6	15
 Right hand insert shown.	VNGG160402R/L-F	2.5	7.4	15
	VNGG160404R/L-F	2.5	7.6	15

●POSITIVE INSERTS

Unit : mm

Geometry	Insert Number	LBB	LE
	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
Right hand insert shown.	CCET09T304R/L-SR	3.2	9.2
	CCET060200R/L-SN	1.0	6.4
	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
Right hand insert shown.	CCET09T304R/L-SN	1.5	9.2
	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
Right 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
Left hand insert shown.	CCGT04T004(M)R/L-F	1.0	2.0
	CCGT0602V3R/L-SS	1.0	3.0
	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
Right hand insert shown.	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
	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
Right hand insert shown.	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
Right hand insert shown.			

Geometry	Insert Number	LBB	LE
	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
Right hand insert shown.	DCET11T304R/L-SR	3.7	11.0
	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.	DCET11T304R/L-SN	1.5	11.0
	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
*DCGT11T3○○type : 14°	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
	DCGT11T302(M)R/L-SN	1.5	6.5
Right hand insert shown.	DCGT11T304(M)R/L-SN	1.5	6.5
	DEGX150402R/L	2.8	15.2
	DEGX150404R/L	2.8	14.9
Right hand insert shown.			
	DEGX150402R/L-F	2.5	7.4
	DEGX150404R/L-F	2.5	7.6
Right hand insert shown.			

PRECISION BREAKER SYSTEM

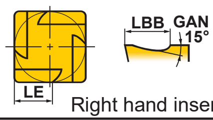
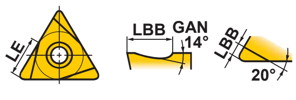
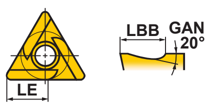
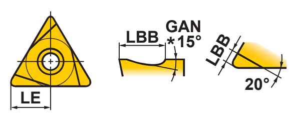
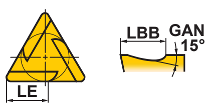
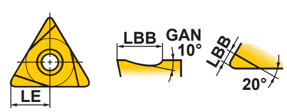
A

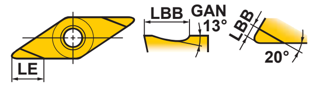
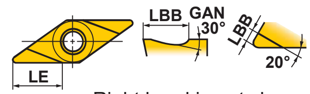
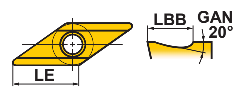
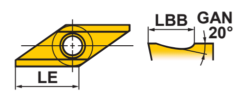
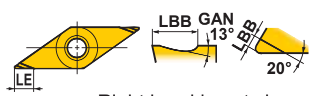
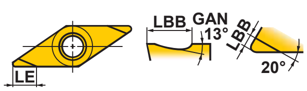
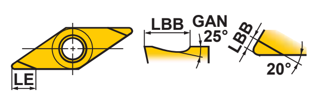
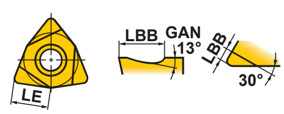
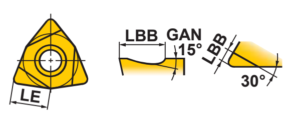
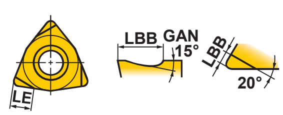
TURNING INSERTS

STANDARD OF INSERTS WITH HAND OF TOOL

●POSITIVE INSERTS

Unit : mm

Geometry	Insert Number	LBB	LE
 Right hand insert shown.	SPGR090304R	1.8	1.6
 Left hand insert shown.	TCGT0601V3L-F	1.0	2.9
	TCGT060101L-F	1.0	3.0
	TCGT060102R/L-F	1.0	3.0
	TCGT060104R/L-F	1.0	3.2
 Right hand insert shown.	TEGX160302R/L	2.0	6.0
	TEGX160304R/L	2.0	6.0
 *TPGH1603◌◌type : 14° Right hand insert shown.	TPGH080202R/L-FS	0.9	2.7
	TPGH080204R/L-FS	0.9	2.9
	TPGH090202R/L-FS	1.0	3.0
	TPGH090204R/L-FS	1.0	3.2
	TPGH110302R/L-FS	1.4	4.2
	TPGH110304R/L-FS	1.4	4.4
	TPGH160304R/L-FS	2.0	6.1
	TPGH160308R/L-FS	2.0	6.5
 Right hand insert shown.	TPGR110304R/L	1.3	3.0
	TPGR160304R/L	2.3	5.4
	TPGR160308R/L	2.3	5.1
 Right hand insert shown.	TPGX080202R/L	1.3	3.9
	TPGX080204R/L	1.3	4.1
	TPGX090202R/L	1.6	4.8
	TPGX090204R/L	1.6	5.0
	TPGX090208R/L	1.4	4.7
	TPGX110302L	1.8	5.4
	TPGX110304R/L	1.8	5.5
	TPGX110308R/L	1.8	5.9

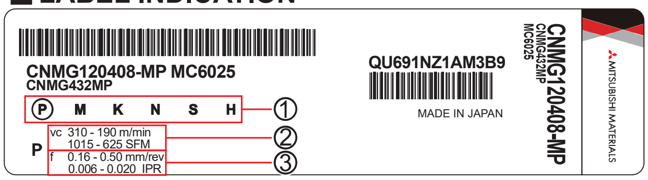
Geometry	Insert Number	LBB	LE
 Right hand insert shown.	VBGT110302R/L-F	1.0	3.0
	VBGT110304R/L-F	1.0	3.2
	VBGT160402R/L-F	1.5	4.5
	VBGT160404R/L-F	1.5	4.7
 Right hand insert shown.	VBET1103V3R/L-SR	2.5	7.3
	VBET110301R/L-SR	2.5	7.3
	VBET110302R/L-SR	2.5	7.4
	VBET110304R/L-SR	2.5	7.6
 Right hand insert shown.	VBET110300R/L-SN	1.0	11.0
	VBET1103V3R/L-SN	1.0	11.0
	VBET110301R/L-SN	1.0	10.8
	VBET110302R/L-SN	1.0	10.5
	VBET110304R/L-SN	1.0	11.0
 Right hand insert shown.	VBET1103V3R/LW-SN	1.0	11.0
 Right hand insert shown.	VPET080201R-SRF	0.8	2.4
	VPET080202R-SRF	0.8	2.5
	VPET1103V3R-SRF	1.0	2.9
	VPET110301R-SRF	1.0	3.0
	VPET110302R-SRF	1.0	3.0
 Right hand insert shown.	VCGT080202R/L-F	0.8	2.5
	VCGT080204R/L-F	0.8	2.6
 Right hand insert shown.	VDGX160302R/L	2.0	6.0
	VDGX160304R/L	2.0	6.1
 Right hand insert shown.	WBGT0201V3L-F	1.0	2.0
	WBGT020101L-F	1.0	2.0
	WBGT020102L-F	1.0	2.1
	WBGT020104L-F	1.0	2.2
	WBGTL302V3L-F	1.0	2.0
	WBGTL30201L-F	1.0	2.0
	WBGTL30202R/L-F	1.0	2.1
	WBGTL30204R/L-F	1.0	2.2
 Right hand insert shown.	WCGT020102R/L	1.0	2.1
	WCGT020104R/L	1.0	2.2
	WCGTL30202L	1.0	2.1
	WCGTL30204L	1.0	2.2
 Right hand insert shown.	WPGT040204R/L-FS	1.0	3.2
	WPGT060304R/L-FS	1.0	3.2

TOOL NAVI

OUTLINE

TOOL NAVI supports our customers with information and suitable cutting conditions for each work material by selecting an optimal indexable insert together with the optional tool.

LABEL INDICATION



*1 The above is an example. There may be inserts recommended for multiple work materials.
*2 Please contact us for recommended cutting conditions using coefficient values other than the above.

① Work materials

P : Steel (Material reference : Carbon steel, alloy steel 180HB)
M : Stainless steel (Material reference : Austenitic stainless steel 180HB)
K : Cast iron (Material reference : Gray cast iron, ductile cast iron 180HB)
N : Aluminium alloy, non-ferrous metal
S : Material reference : Titanium alloy 320HB, Ni, Co-Based Alloy 400HB
H : Hardened steel 60HRC

② Cutting speed standards

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

③ Feed rate

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

*3. N :Life based on each grade. For stable choose the performance cutting speed and for unstable choose the tool life feed rate.
*4. The 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 affect 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 is found for each work material. When the customer requires a different tool life, obtain coefficient values of the grade you use 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
UE6105	1.00	0.79	0.69	0.63	0.55
MC6015	1.00	0.82	0.72	0.67	0.59
MC6025	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

● 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
The 1st recommendation : MC6025
Indexable inserts : CNMG120408-MP
Recommended cutting speed : vc=310m/min
(Tool life : 15min.)

⬇

Tool life required by the customer : 30min.

310×0.83≒257m/min

HARDNESS OF THE WORK MATERIAL

Hardness of the work 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 work material from the chart below. Multiply the coefficient value by the recommended cutting speed of the grade you use to calculate a new cutting speed.

Work Material	Soft ← (Hardness of Workpiece) → Hard											
	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

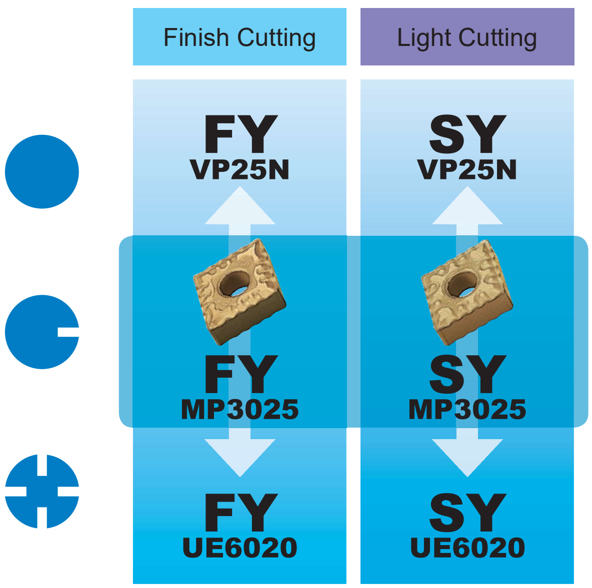
The following diagrams show for each type of work material, the optimal combination of suitable grades and chip breakers for each application area in turning.

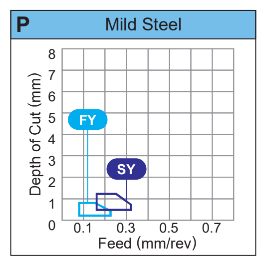
■CUTTING CONDITIONS

- **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



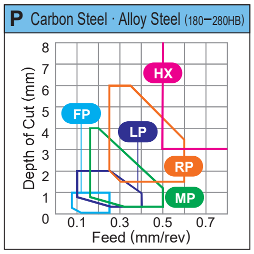


P Mild Steel (Ex : SS400, S10C)

NEGATIVE INSERTS

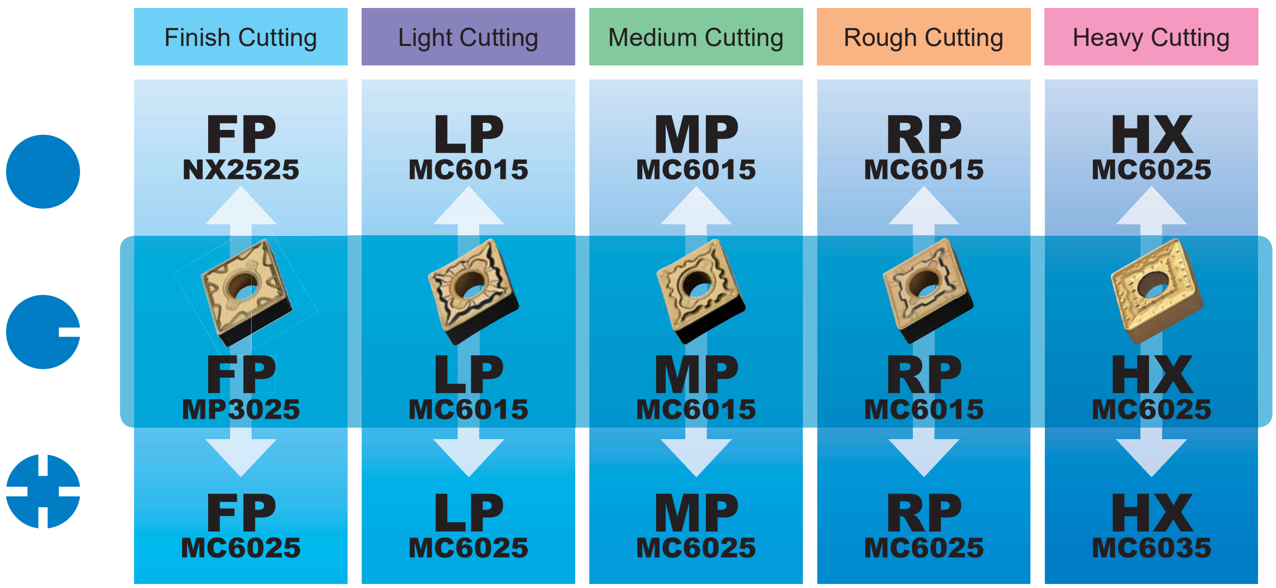
vc : Cutting Speed
f : Feed
ap : Depth of Cut

	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



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

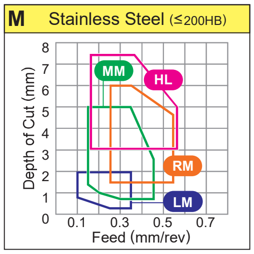
NEGATIVE INSERTS

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

	Cutting Area	Chip Breaker	1st Recommendation Grade	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**	**MC6015**	210—360	0.10—0.40	0.30—2.00
	M	**MP**	**MC6015**	195—330	0.16—0.50	0.30—4.00
	R	**RP**	**MC6015**	185—310	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**	**MC6015**	210—360	0.10—0.40	0.30—2.00
	M	**MP**	**MC6015**	195—330	0.16—0.50	0.30—4.00
	R	**RP**	**MC6015**	185—310	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**	**MC6025**	210—345	0.10—0.40	0.30—2.00
	M	**MP**	**MC6025**	195—315	0.16—0.50	0.30—4.00
	R	**RP**	**MC6025**	185—295	0.25—0.60	1.50—6.00
	H	**HX**	**MC6035**	140—200	0.50—1.26	3.00—11.00

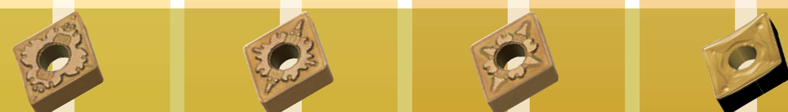
CLASSIFICATION ➤ A042

OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING



Stable Cutting	General Cutting	Unstable Cutting	
L Light Cutting	M Medium Cutting	R Rough 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

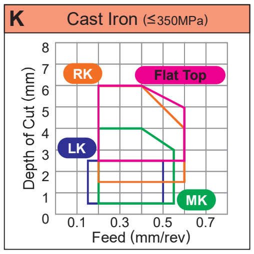


M Stainless Steel (Ex : SUS304, SUS316)

NEGATIVE INSERTS

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

Cutting Area		1st Recommendation Chip Breaker	Grade	vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	L	LM	MC7015	180−285	0.10−0.30	0.30−2.00
	M	MM	MC7015	160−260	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	0.40−1.00	1.50−8.00
General Cutting	L	LM	MC7025	165−220	0.10−0.30	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	0.40−1.00	1.50−8.00
Unstable Cutting	L	LM	MP7035	95−155	0.10−0.30	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	0.40−1.00	1.50−8.00



Stable Cutting
General Cutting
Unstable Cutting

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

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

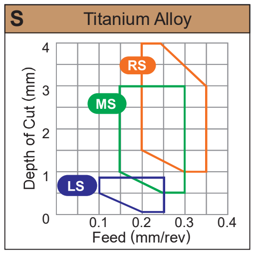
NEGATIVE INSERTS

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

Cutting Area		1st Recommendation				
		Chip Breaker	Grade	vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	**L**	**LK**	**MC5005**	230−365	0.10−0.40	0.30−2.00
	M	**MK**	**MC5005**	210−335	0.20−0.55	1.00−4.00
	R	**RK**	**MC5005**	195−315	0.25−0.60	1.50−6.00
	H	**Flat Top**	**MC5005**	195−315	0.20−0.60	2.50−6.00
General Cutting	**L**	**LK**	**MC5015**	205−335	0.10−0.40	0.30−2.00
	M	**MK**	**MC5015**	190−305	0.20−0.55	1.00−4.00
	R	**RK**	**MC5015**	180−285	0.25−0.60	1.50−6.00
	H	**Flat Top**	**MC5015**	180−285	0.20−0.60	2.50−6.00
Unstable Cutting	**L**	**LK**	**MC5015**	205−335	0.10−0.40	0.30−2.00
	M	**MK**	**MC5015**	190−305	0.20−0.55	1.00−4.00
	R	**RK**	**MC5015**	180−285	0.25−0.60	1.50−6.00
	H	**Flat Top**	**MC5015**	180−285	0.20−0.60	2.50−6.00

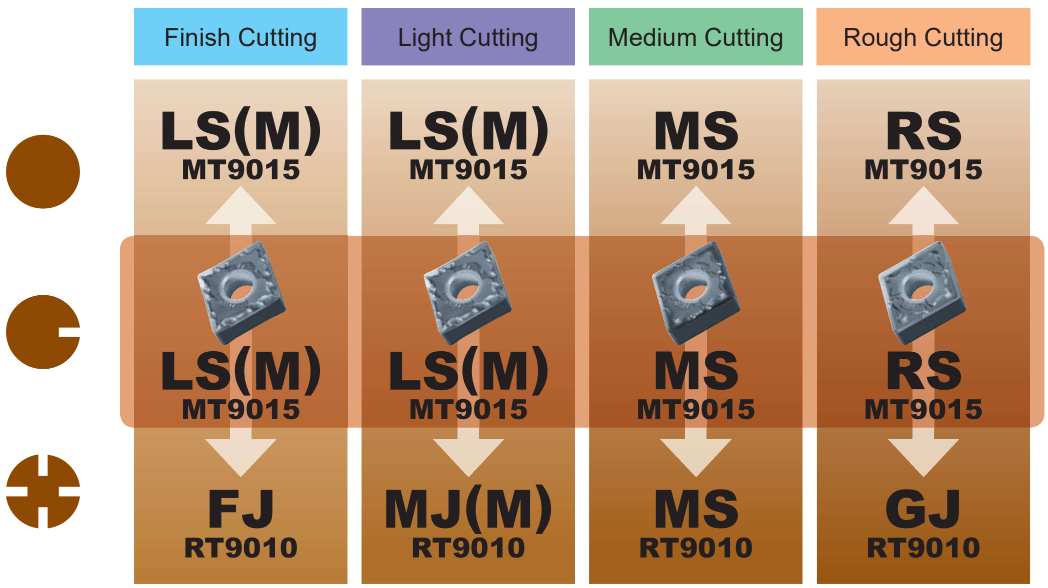
CLASSIFICATION ➢ A042

OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING



- Stable Cutting
- General Cutting
- Unstable Cutting

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

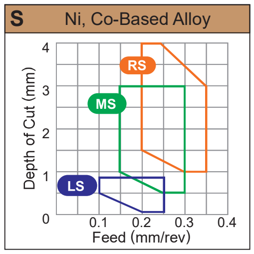


S Titanium Alloy (Ex : Ti-6Al-4V)

NEGATIVE INSERTS

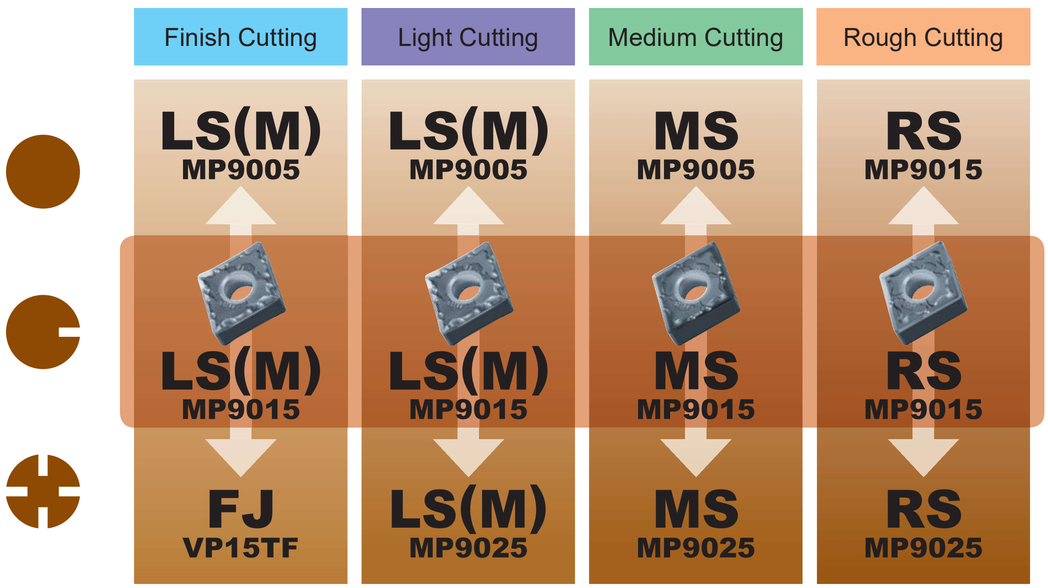
vc : Cutting Speed
f : Feed
ap : Depth of Cut

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	LS(M)	MT9015	40−85	0.10−0.25	0.20−0.80
	L	LS(M)	MT9015	40−85	0.10−0.25	0.20−0.80
	M	MS	MT9015	40−80	0.10−0.25	0.50−4.00
	R	RS	MT9015	35−75	0.20−0.35	1.00−4.00
General Cutting	F	LS(M)	MT9015	40−85	0.10−0.25	0.20−0.80
	L	LS(M)	MT9015	40−85	0.10−0.25	0.20−0.80
	M	MS	MT9015	40−80	0.10−0.25	0.50−4.00
	R	RS	MT9015	35−75	0.20−0.35	1.00−4.00
Unstable Cutting	F	FJ	RT9010	45−95	0.07−0.20	0.10−1.00
	L	MJ(M)	RT9010	40−85	0.07−0.25	0.40−1.50
	M	MS	RT9010	40−80	0.10−0.25	0.50−4.00
	R	GJ	RT9010	35−75	0.16−0.35	1.00−3.00



● Stable Cutting
General Cutting
Unstable Cutting

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



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

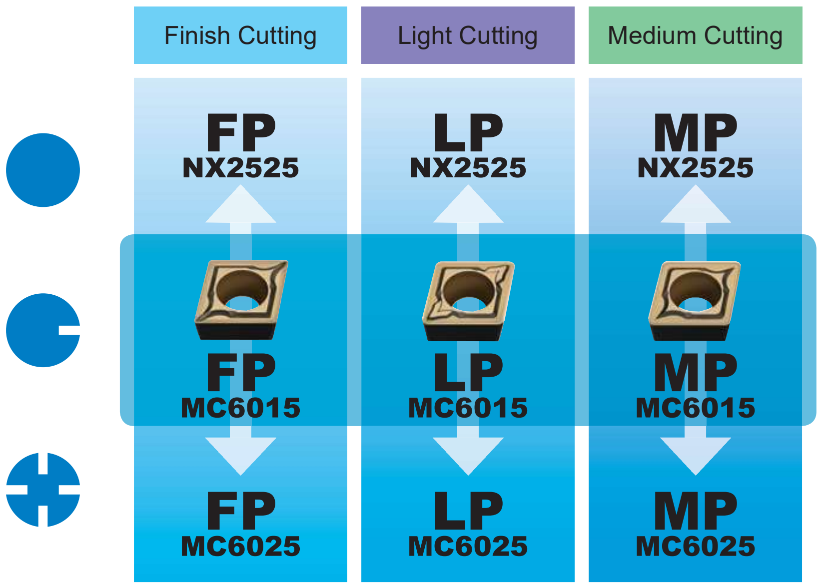
NEGATIVE INSERTS

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

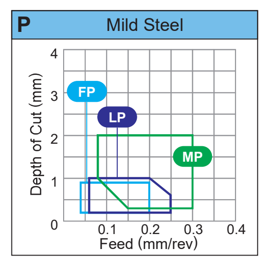
Cutting Area		1st Recommendation				
		Chip Breaker	Grade	vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	**LS(M)**	**MP9005**	30—110	0.10—0.25	0.20—0.80
	L	**LS(M)**	**MP9005**	30—110	0.10—0.25	0.20—0.80
	M	**MS**	**MP9005**	30—100	0.10—0.25	0.50—4.00
	R	**RS**	**MP9015**	20—75	0.20—0.35	1.00—4.00
General Cutting	F	**LS(M)**	**MP9015**	25—85	0.10—0.25	0.20—0.80
	L	**LS(M)**	**MP9015**	25—85	0.10—0.25	0.20—0.80
	M	**MS**	**MP9015**	25—80	0.10—0.25	0.50—4.00
	R	**RS**	**MP9015**	20—75	0.20—0.35	1.00—4.00
Unstable Cutting	F	**FJ**	**VP15TF**	20—40	0.07—0.20	0.10—1.00
	L	**LS(M)**	**MP9025**	20—30	0.10—0.25	0.20—0.80
	M	**MS**	**MP9025**	20—30	0.10—0.25	0.50—4.00
	R	**RS**	**MP9025**	15—25	0.20—0.35	1.00—4.00

CLASSIFICATION ➤ A042

OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING



Stable Cutting
General Cutting
Unstable Cutting
F Finish Cutting
L Light Cutting
M Medium Cutting

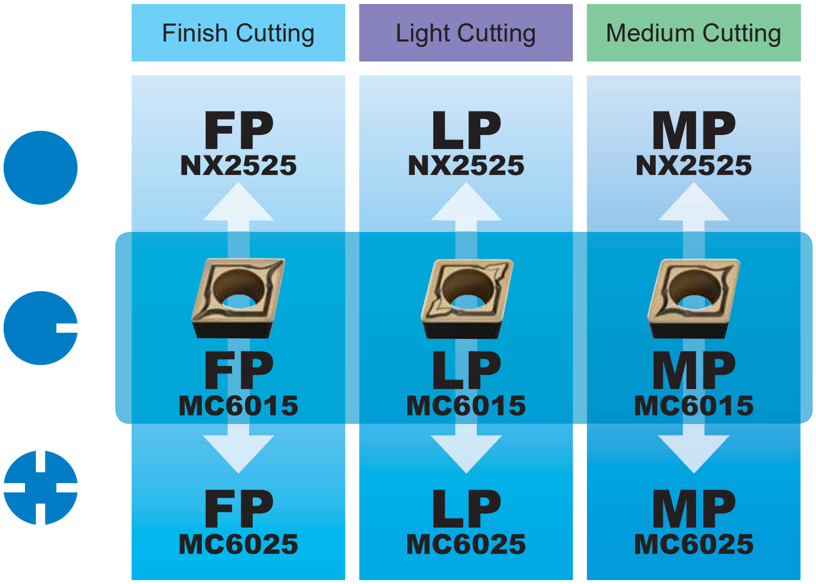


P Mild Steel (Ex : SS400, S10C)

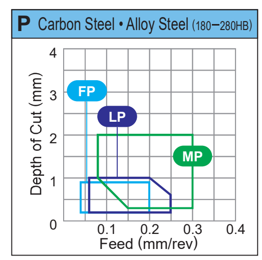
7°POSITIVE INSERTS WITH HOLE

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	**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



- Stable Cutting
- General Cutting
- Unstable Cutting
- **F** Finish Cutting
- **L** Light Cutting
- **M** Medium Cutting



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

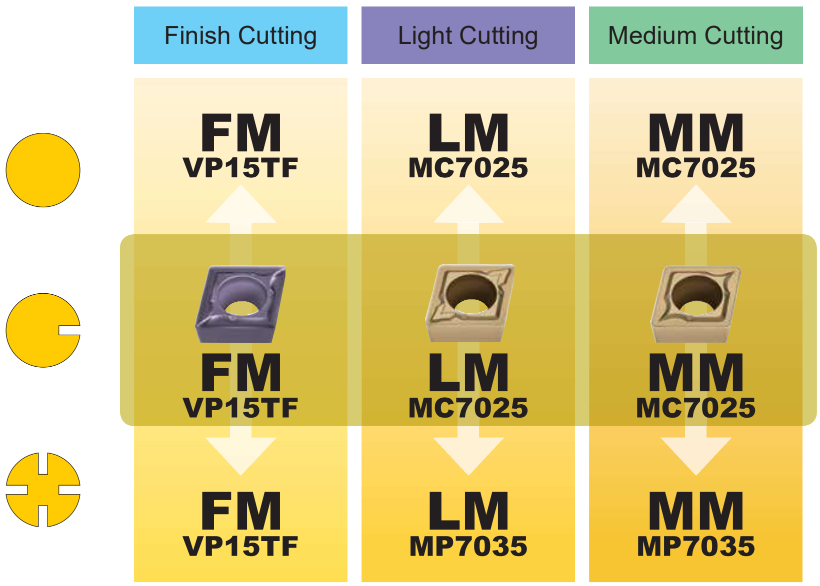
7°POSITIVE INSERTS WITH HOLE

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

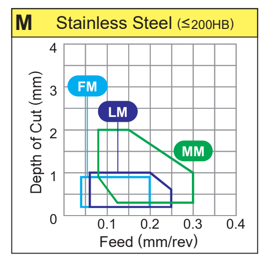
	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	FP	NX2525	165—240	0.04—0.20	0.20—0.90
	L	LP	NX2525	165—240	0.06—0.25	0.20—1.00
	M	MP	NX2525	140—200	0.08—0.30	0.30—2.00
General Cutting	F	FP	MC6015	185—315	0.04—0.20	0.20—0.90
	L	LP	MC6015	185—315	0.06—0.25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

CLASSIFICATION ➤ A060

OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING



- Stable Cutting
- General Cutting
- Unstable Cutting
- **F** Finish Cutting
- **L** Light Cutting
- **M** Medium Cutting

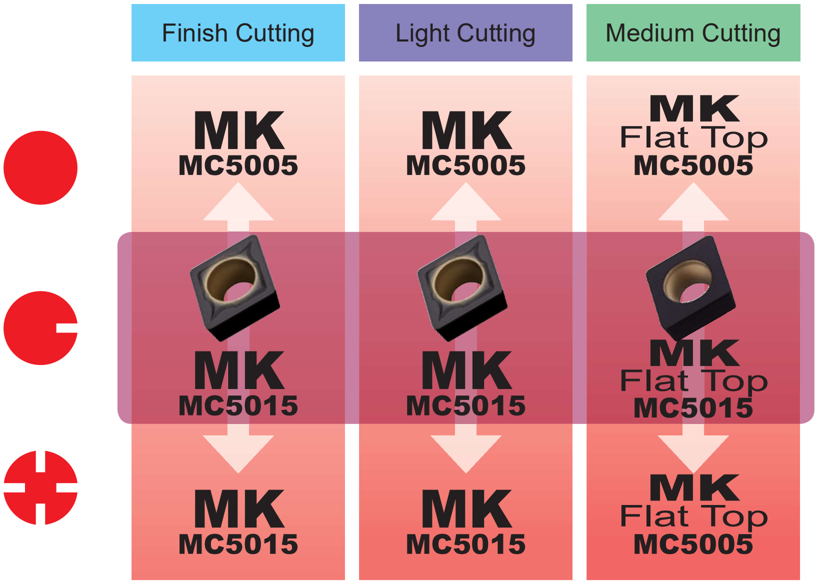


M Stainless Steel (Ex : SUS304, SUS316)

7°POSITIVE INSERTS WITH HOLE

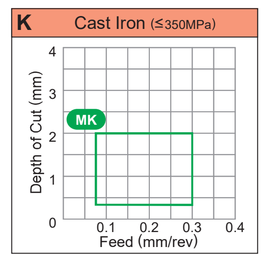
vc : Cutting Speed
f : Feed
ap : Depth of Cut

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



Stable Cutting
General Cutting
Unstable Cutting
F Finish Cutting
L Light Cutting
M Medium Cutting

A
TURNING INSERTS



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

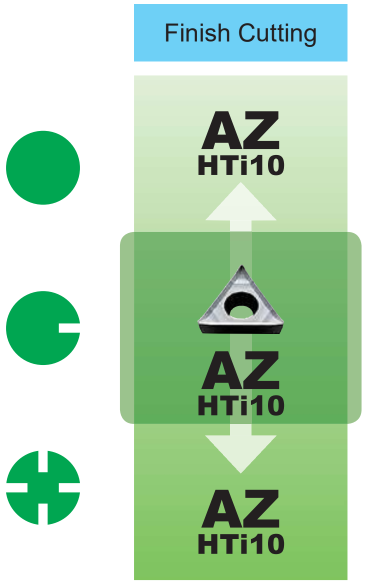
7°POSITIVE INSERTS WITH HOLE

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

Cutting Area		1st Recommendation				
		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

CLASSIFICATION ➤A060

OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING



- Stable Cutting
- General Cutting
- Unstable Cutting
- F Finish Cutting

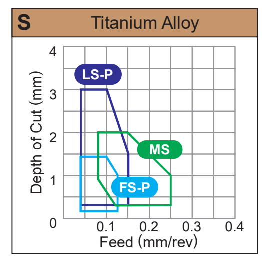
N Aluminium Alloy (Ex : A6061, A7075)

7°POSITIVE INSERTS WITH HOLE

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

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

- Stable Cutting
- General Cutting
- Unstable Cutting
- **F** Finish Cutting
- **L** Light Cutting
- **M** Medium Cutting



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

7°POSITIVE INSERTS WITH HOLE

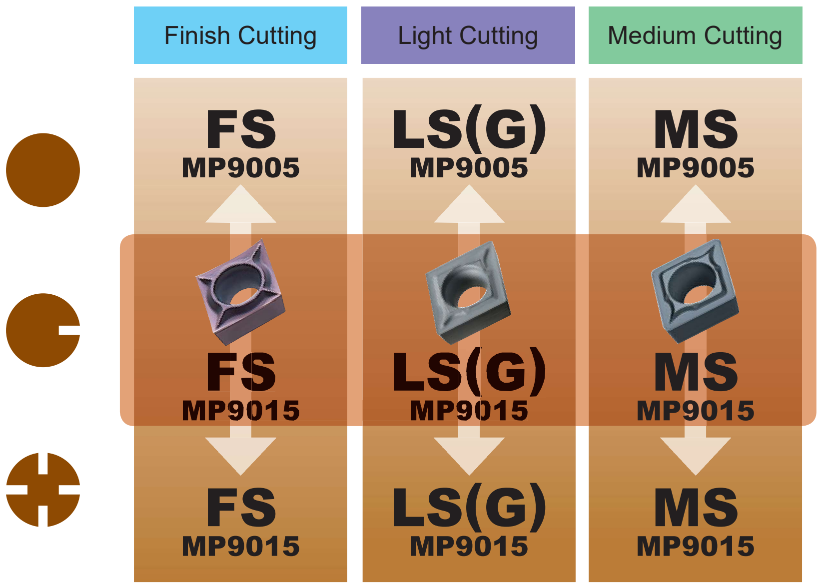
vc : Cutting Speed
f : Feed
ap : Depth of Cut

	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

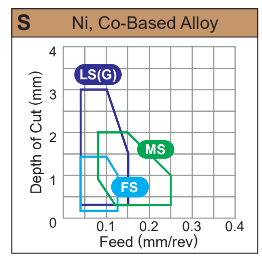
CLASSIFICATION ➢A060

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



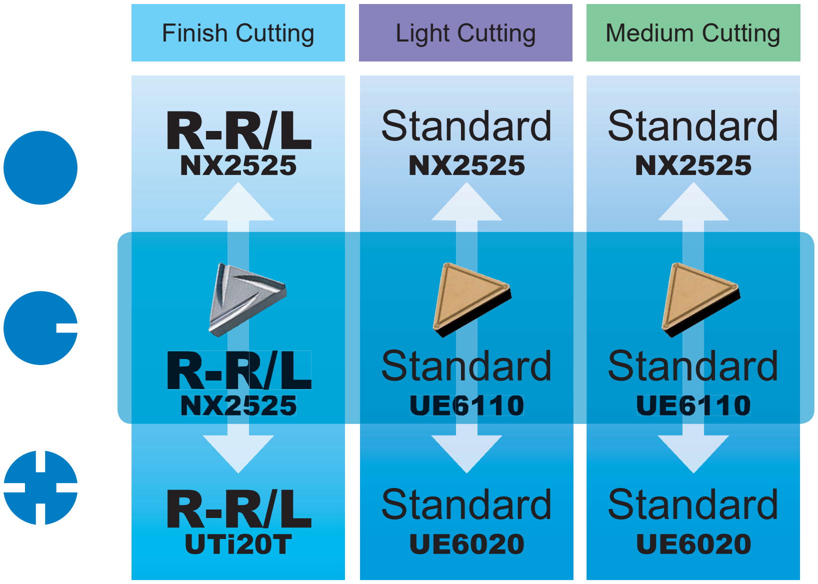
S Ni, Co-Based Alloy (Ex : Inconel718)

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	25−95	0.04−0.12	0.20−1.40
	L	LS(G)	MP9005	25−95	0.04−0.15	0.30−3.00
	M	MS	MP9005	20−80	0.08−0.25	0.30−2.00
General Cutting	F	FS	MP9015	20−75	0.04−0.12	0.20−1.40
	L	LS(G)	MP9015	20−75	0.04−0.15	0.30−3.00
	M	MS	MP9015	20−60	0.08−0.25	0.30−2.00
Unstable Cutting	F	FS	MP9015	20−75	0.04−0.12	0.20−1.40
	L	LS(G)	MP9015	20−75	0.04−0.15	0.30−3.00
	M	MS	MP9015	20−60	0.08−0.25	0.30−2.00

* The G class is recommended for the above FS/LS breaker



- Stable Cutting
- General Cutting
- Unstable Cutting
- F Finish Cutting
- L Light Cutting
- M Medium Cutting

P Mild Steel (Ex : SS400, S10C)

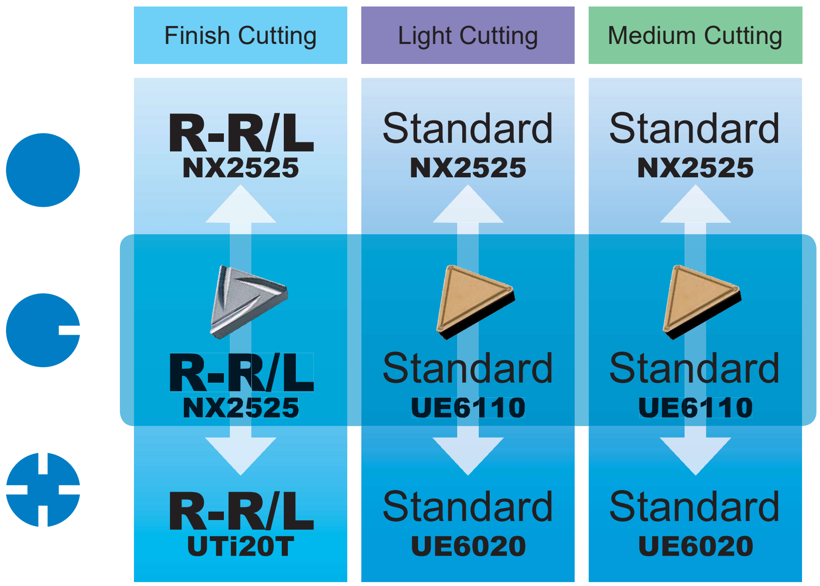
11°POSITIVE INSERTS WITHOUT HOLE

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	**R-R/L**	**NX2525**	225—320	0.05—0.12	0.20—0.60
	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-R/L**	**NX2525**	225—320	0.05—0.12	0.20—0.60
	L	**Standard**	**UE6110**	210—355	0.08—0.30	0.30—2.00
	M	**Standard**	**UE6110**	210—355	0.08—0.30	0.30—2.00
Unstable Cutting	F	**R-R/L**	**UTi20T**	115—165	0.05—0.12	0.20—0.60
	L	**Standard**	**UE6020**	195—320	0.08—0.30	0.30—2.00
	M	**Standard**	**UE6020**	195—320	0.08—0.30	0.30—2.00

CLASSIFICATION ➤ A060, A068

OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING



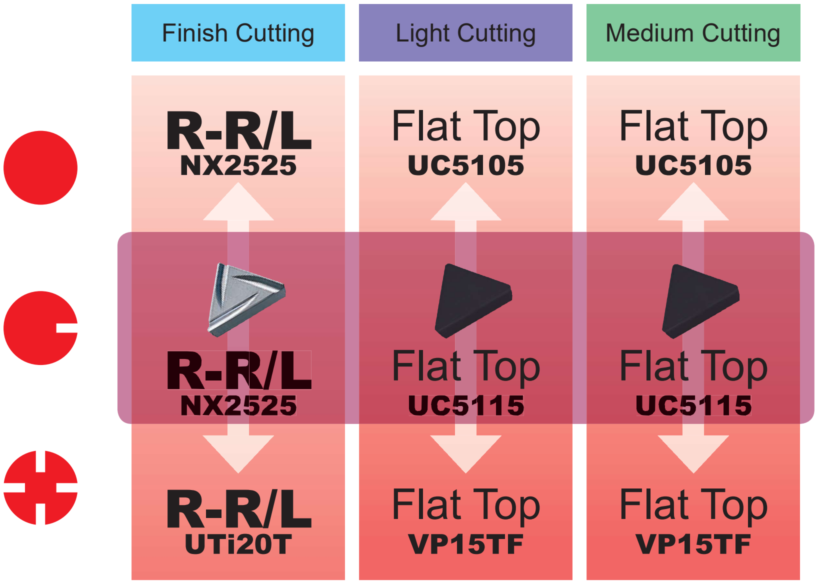
- Stable Cutting
- General Cutting
- Unstable Cutting
- **F** Finish Cutting
- **L** Light Cutting
- **M** Medium Cutting

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

11°POSITIVE INSERTS WITHOUT HOLE

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

	Cutting Area	1st Recommendation				
		Chip Breaker	Grade	vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	R-R/L	NX2525	165—240	0.05—0.12	0.20—0.60
	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-R/L	NX2525	165—240	0.05—0.12	0.20—0.60
	L	Standard	UE6110	155—260	0.08—0.30	0.30—2.00
	M	Standard	UE6110	155—260	0.08—0.30	0.30—2.00
Unstable Cutting	F	R-R/L	UTi20T	85—120	0.05—0.12	0.20—0.60
	L	Standard	UE6020	145—240	0.08—0.30	0.30—2.00
	M	Standard	UE6020	145—240	0.08—0.30	0.30—2.00



- Stable Cutting
- General Cutting
- Unstable Cutting
- **F** Finish Cutting
- **L** Light Cutting
- **M** Medium Cutting

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

11°POSITIVE INSERTS WITHOUT HOLE

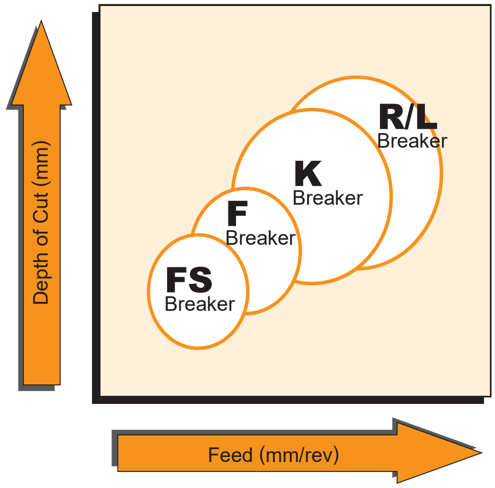
vc : Cutting Speed
f : Feed
ap : Depth of Cut

Cutting Area		Chip Breaker	Grade	1st Recommendation vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	**R-R/L**	**NX2525**	145—200	0.05—0.12	0.20—0.60
	L	**Flat Top**	**UC5105**	135—245	0.08—0.30	0.30—2.00
	M	**Flat Top**	**UC5105**	135—245	0.08—0.30	0.30—2.00
General Cutting	F	**R-R/L**	**NX2525**	145—200	0.05—0.12	0.20—0.60
	L	**Flat Top**	**UC5115**	130—240	0.08—0.30	0.30—2.00
	M	**Flat Top**	**UC5115**	130—240	0.08—0.30	0.30—2.00
Unstable Cutting	F	**R-R/L**	**UTi20T**	80—115	0.05—0.12	0.20—0.60
	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

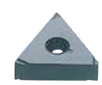
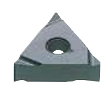
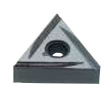
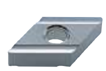
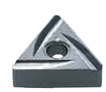
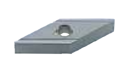
PRECISION BREAKER SYSTEM

ANGULAR AND PARALLEL CHIP BREAKERS (NEGATIVE INSERTS)

■CHIP CONTROL RANGE

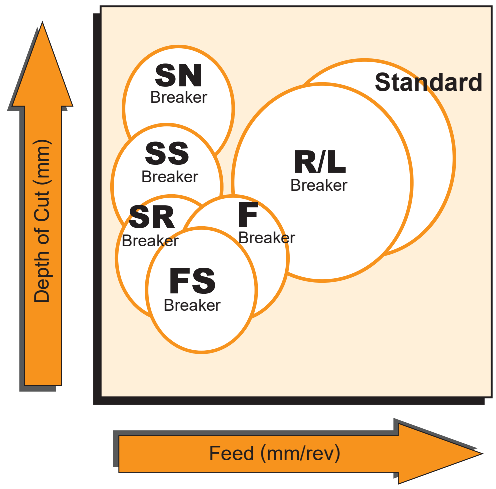


■FEATURES OF CHIP BREAKER

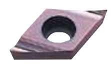
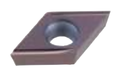
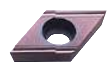
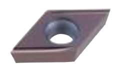
Breaker	Features	DNGG Type	SNGG Type	TNGG Type	VNGG Type
FS	● For precision finishing. ● Small width lead breaker for good chip control. ● Sharp cutting edge gives a good surface finish.	—	—		—
F	● For finish cutting. ● Lead breaker controls chip flow. ● Sharp cutting edge gives a good surface finish.	—	—		—
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.				

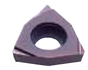
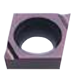
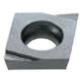
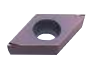
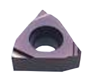
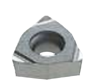
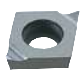
ANGULAR AND PARALLEL CHIP BREAKERS (POSITIVE INSERTS)

■CHIP CONTROL RANGE



■FEATURES OF CHIP BREAKER

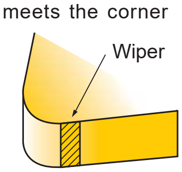
Breaker	Features	**CCET** Type	**CCGT** Type	**DCET** Type	**DCGT** Type	**VBET** Type
SR	● The wide lead breaker for medium cutting is suitable for automatic lathe machining. ● The insert design for low resistance controls chip flow.		–		–	
SS	● The parallel breaker for light cutting is suitable for 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	**WCGT** 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?

- The 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.

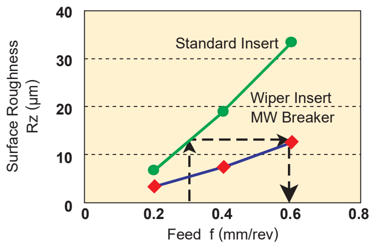
●Improving Efficiency
High feed rates not only shortened machining times but also make it possible to combine roughing and finishing operations.

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

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

Wiper insert + High feed (The feed rate is doubled.) = (Finished surface Same surface roughness) **Standard insert + The conventional feed condition**

*Please use a wiper insert at high feed rate.



<Cutting Conditions>
Workpiece : JIS S45C
Insert : CNMG120408-◌◌
Cutting Speed=200m/min
Depth of Cut=1.5mm
Feed Speed=0.2−0.6mm/rev
Wet Outer Diameter Cutting

<Ex>The surface roughness does not deteriorate even if the feed rate is doubled (0.3→0.6)!

■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)

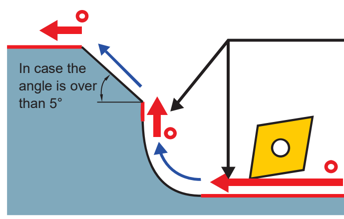
- Reducing cycle times
- Increased productivity
- Avoiding Line-Stoppage

<The Realization of Reduced Costs!!>

■ The 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×0.5

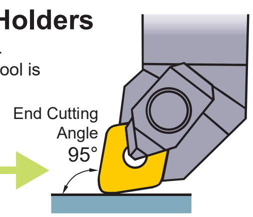
Rz(W) = Finished surface roughness when using a wiper insert.
Rz : Finished surface roughness from conventional conditions. (When using a standard insert)

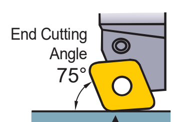
Effective uses of a wiper insert
Non effective uses of a wiper insert

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

●No Restriction for Holders
A standard holders can be used.
(*A double clamp, high rigidity tool is recommended.)

Non restriction

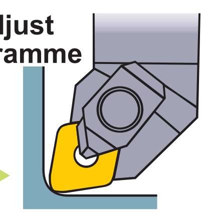




The CNMG type can be used as a wiper at the 100°corner.

■Not Necessary to Adjust the Machining Programme
Conventional machining programmes can be used.
(The CNMG • WNMG • CCMT types are based on the ISO/ANSI.)

Not necessary to adjust

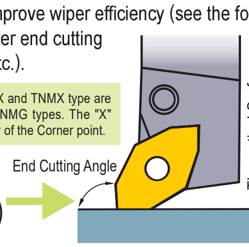


■ Special attention is necessary when using the DNMX • TNMX types due to the special top face geometry

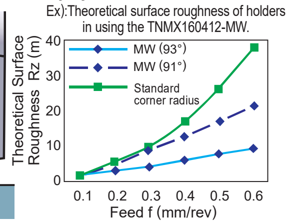
●Restriction for Holders
Use a holder with end cutting angle 93° for improving wiper efficiency. A holder with end cutting angle 91° can improve wiper efficiency (see the following figure), however, there is no wiper efficiency with other end cutting angles (60°, 90°, 107°etc.).

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.

93° (Specified)

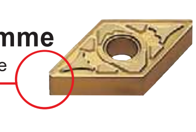


Ex):Theoretical surface roughness of holders in using the TNMX160412-MW.

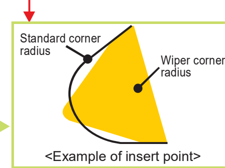


●Necessary to Adjust the Machining Programme
When machining errors occur, please adjust the programme.
(The DNMX•TNMX types are not based on the ISO/ANSI. Please refer to the next page.)

(Please refer to the next page.)



Adjustment necessary

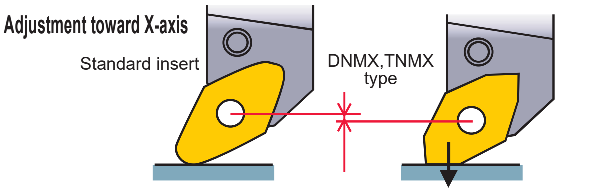


<Example of insert point>

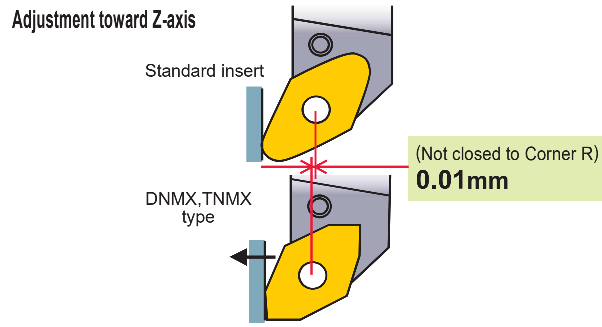
■Adjustment of machining programmes for DNMX • TNMX types

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

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



Corner radius 0.4,0.8: **0.04 mm**
Corner radius 1.2 : **0.05 mm**

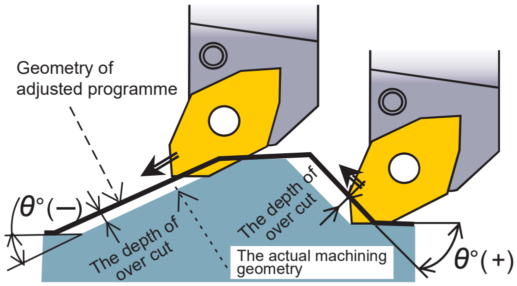


A) Adjusting a Taper

*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 minus (θ =60°—70°) 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**

The number→+numbers:adjustment of relief angle, -numbers:adjustment of drive-in angle (mm)

B) Adjusting a Corner R

*Necessary to maintain a correct corner radius.

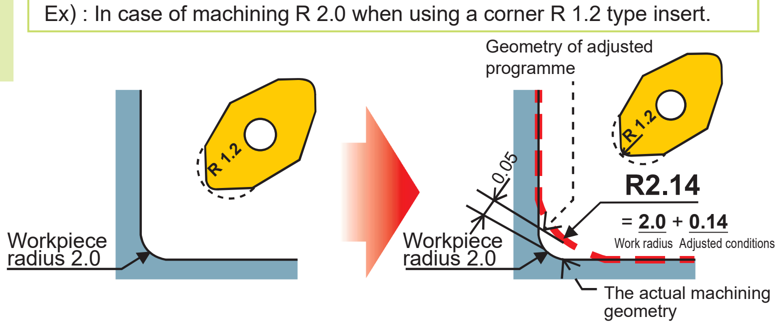
Adjust the work diameter same as the taper to prevent over-cut.

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.



The Easy-to-correct Method

In correcting corner radius:
It is not necessary to adjust the machining programme, however, machining errors can occur within max. ±0.03mm due to correcting by an approximate number.

Corner Radius Correction

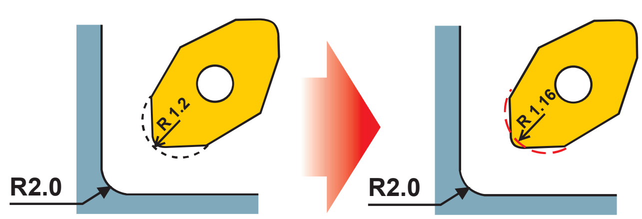
Input the correction number of each corner radius.

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)

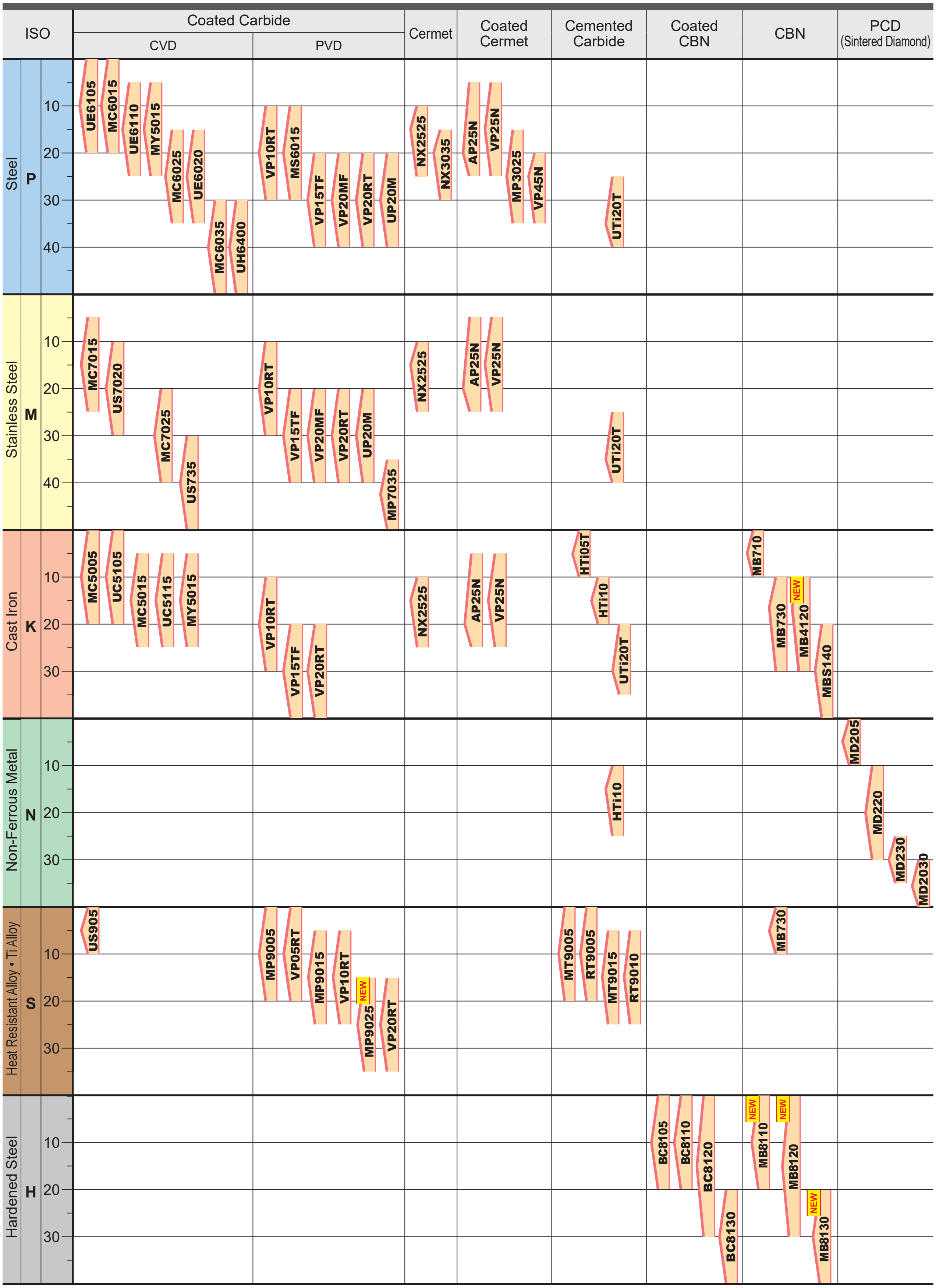
Ex):In the case of machining a corner with a radius R 2.0 when using an insert with a corner radius R 1.2.



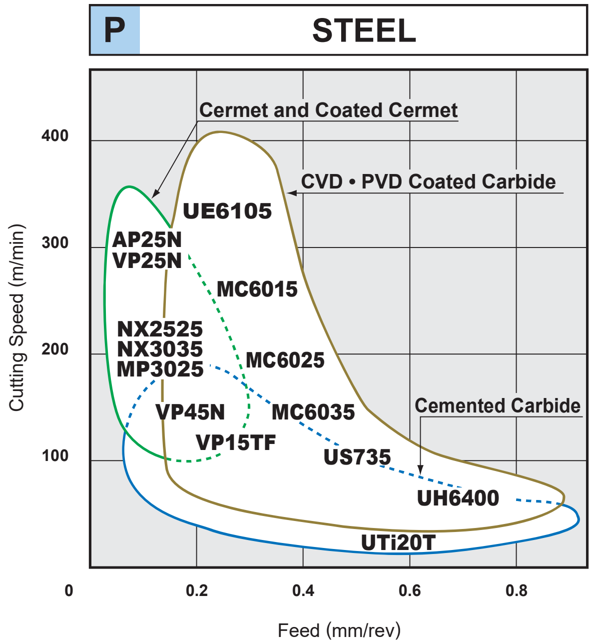
Others) The value of correction is same for both DNMX and TNMX. Discriminate them by the size of corner radius.

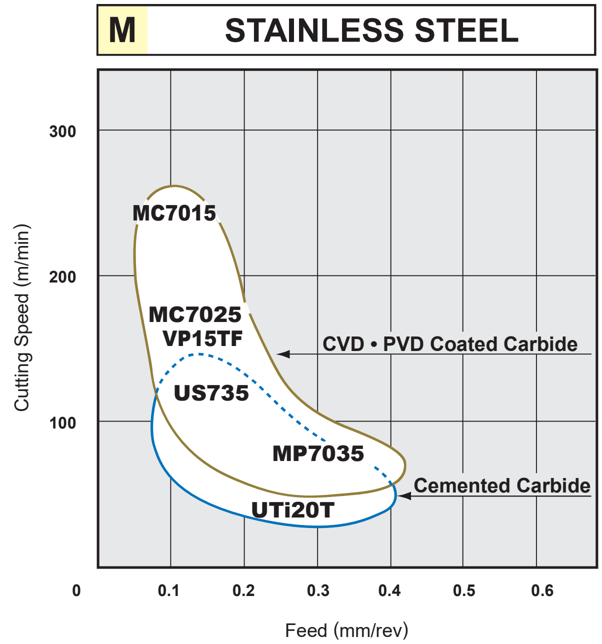
GRADES FOR TURNING

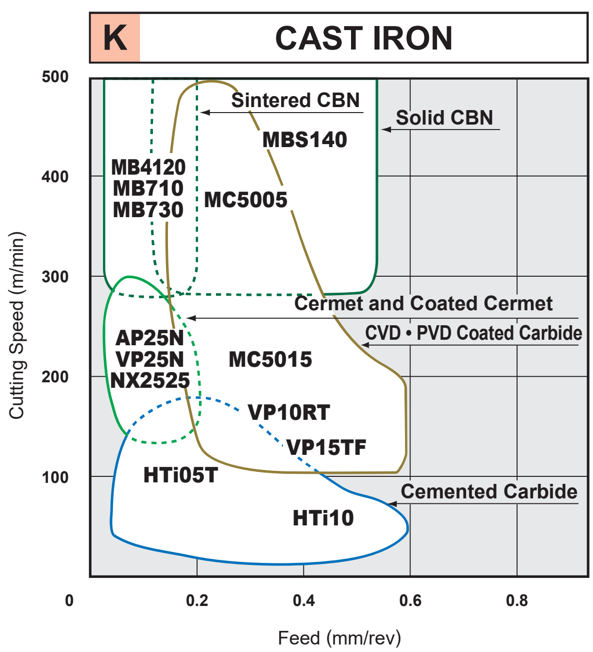
●INDEXABLE INSERT GRADES FOR TURNING

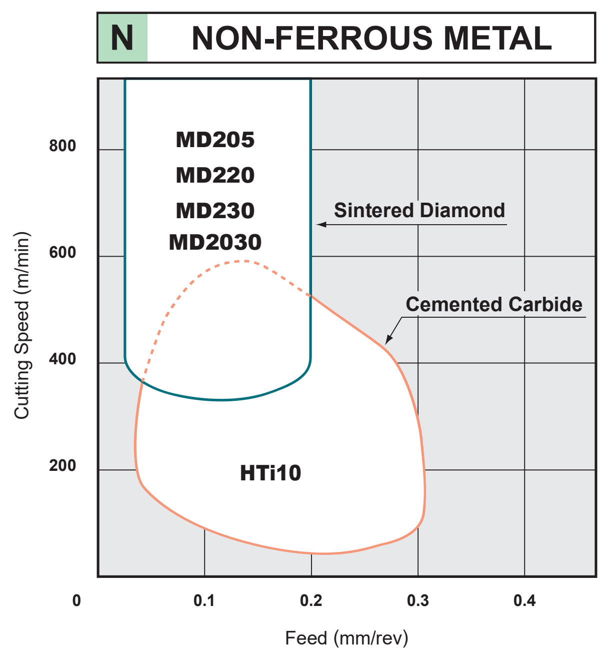


TURNING APPLICATION RANGE





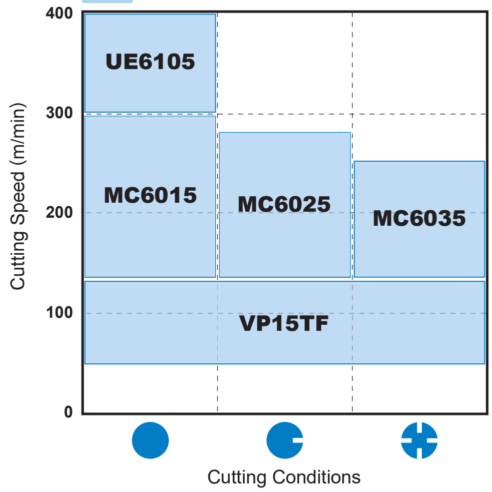




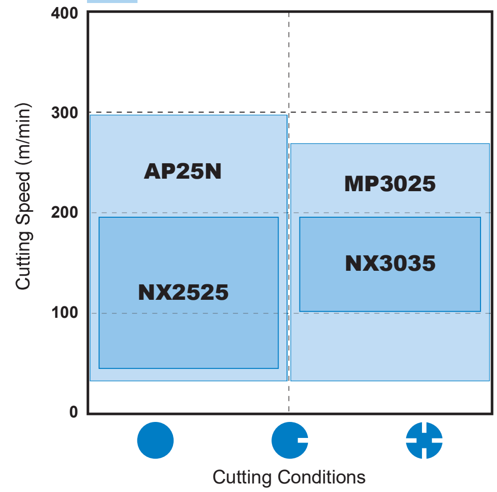
TURNING APPLICATION RANGE

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

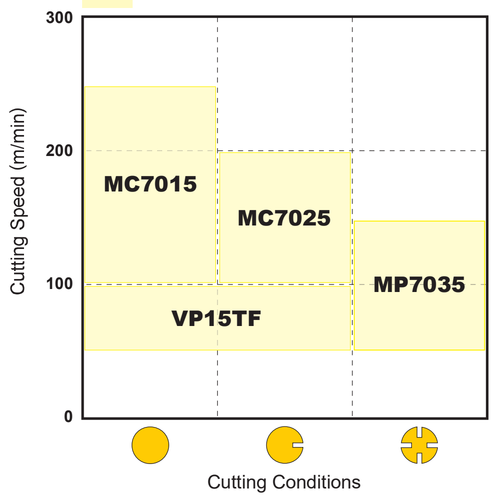
P STEEL (Medium to Rough Cutting)



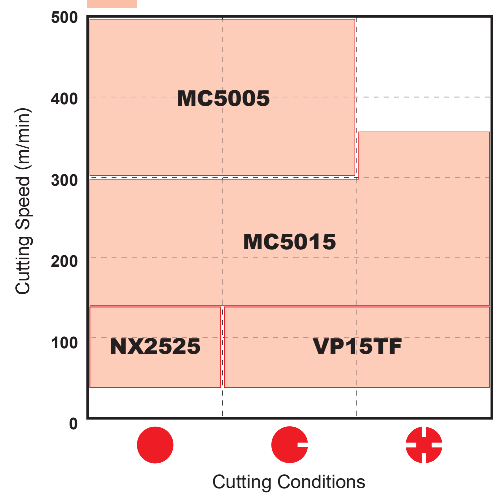
P STEEL (Finish Cutting)



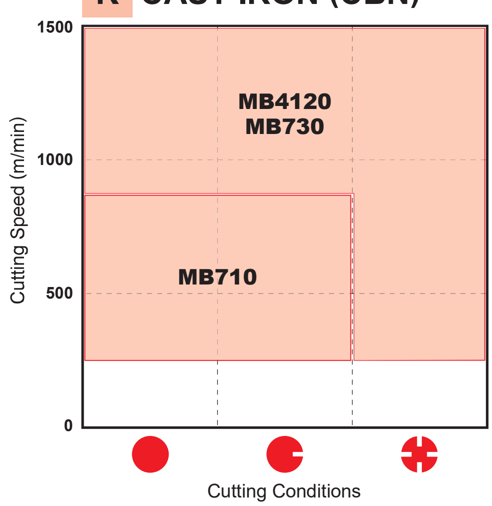
M STAINLESS STEEL



K CAST IRON



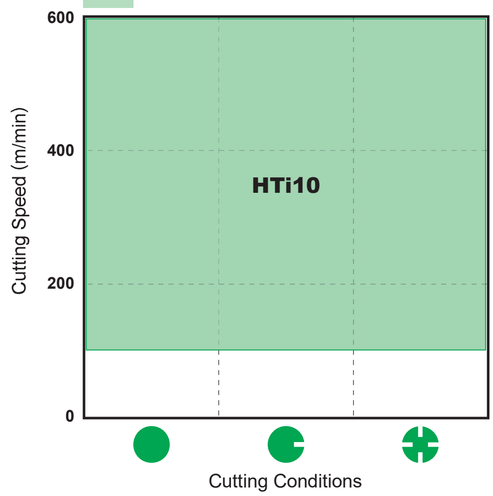
K CAST IRON (CBN)



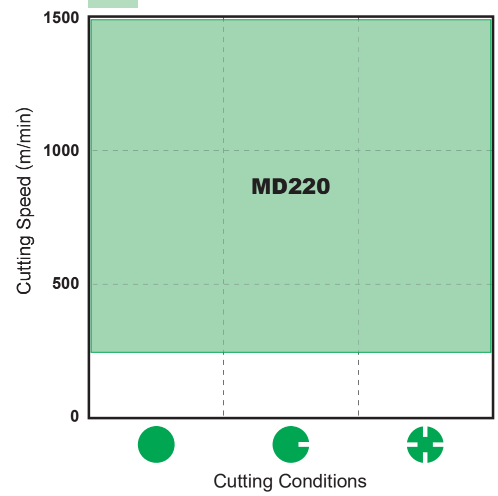
CUTTING CONDITIONS

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

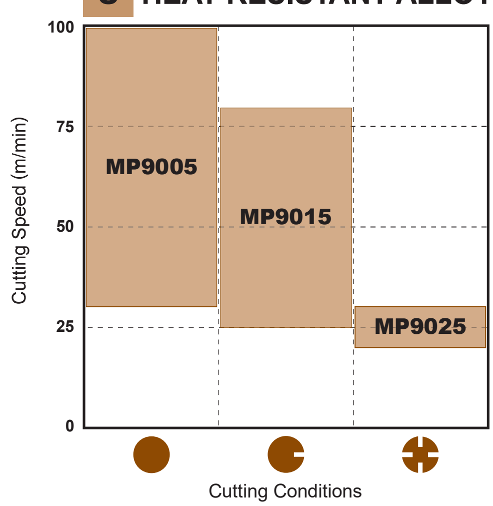
N NON-FERROUS METAL



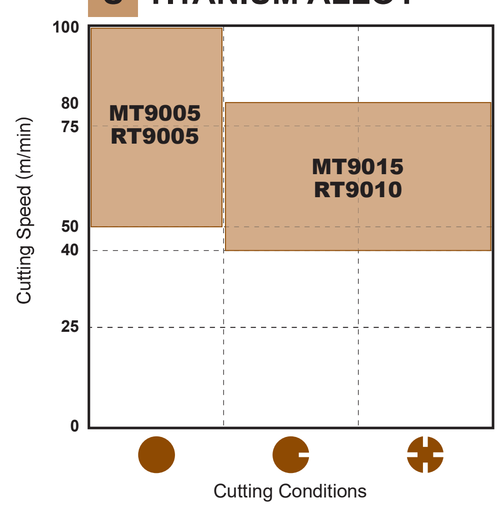
N NON-FERROUS METAL (PCD)



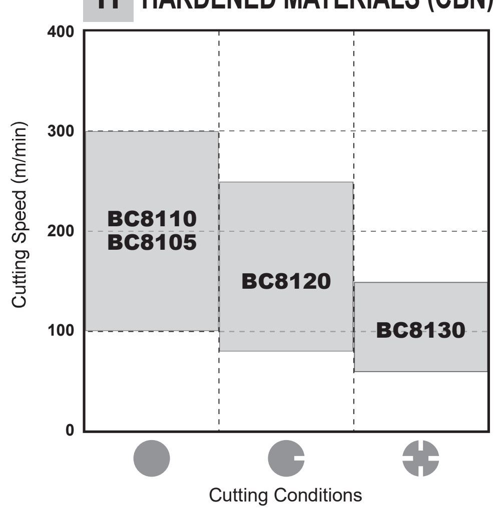
S HEAT RESISTANT ALLOY



S TITANIUM ALLOY



H HARDENED MATERIALS (CBN)



COATED CARBIDE (CVD)

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

SELECTION STANDARD

TURNING

	Work Material	Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO		Application Range
P	Steel	Continuous Cutting	UE6105	300 (200 — 400)	P	10, 20, 30, 40	UE6105, MC6015, UE6110, MC6025, UE6020, MC6035, UH6400
			MC6015	250 (150 — 400)			
		Interrupted Cutting	MC6025	200 (100 — 280)			
			MC6035	150 (80 — 200)			
M	Stainless Steel	Continuous Cutting	MC7015	200 (160 — 250)	M	10, 20, 30, 40	MC7015, US7020, MC7025, US735
			MC7025	150 (120 — 200)			
		Continuous and Interrupted Cutting	US735	100 (80 — 120)			
K	Cast Iron Ductile Cast Iron	Continuous Cutting	MC5005	300 (200 — 400)	K	10, 20, 30	MC5005, UC5105, MC5015, UC5115
		Interrupted Cutting	MC5015	250 (150 — 300)			
S	Heat Resistant Alloy	Continuous and Interrupted Cutting	US905	80 (50 — 100)	S	5	US905

High reliability for a wide range of steel machining.

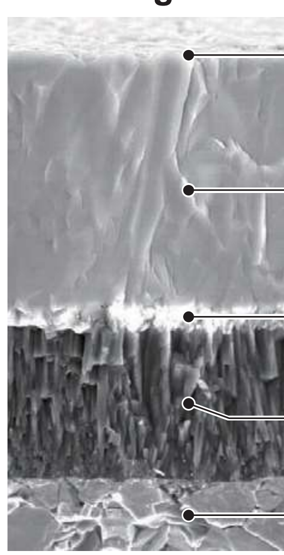
MC6015

Nano-Texture Technology

The optimized crystal growth in linear direction of Nano-texture coating technology maintains fine surface and provides outstanding wear and chipping under high speed cutting conditions.

TOUGH-Grip Technology

The interface between the layers is controlled at the nano level, allowing the TOUGH-grip layer extremely high levels of adhesion to prevent delamination.



Smooth coating surface
Prevents abnormal damage, welding and chipping

Ultra thick layer Nano-texture Al_2O_3
Delivers outstanding wear resistance even at high temperature

TOUGH-Grip
Prevents delamination of a coating

Nano-texture TiCN
Provides superior wear resistance and chipping resistance

Special carbide substrate
Prevents crack development
Stable tool life

■ GRADE CHARACTERISTICS

Work Material		Grade	Substrate Hardness (HRA)	Coating Layer Composition	Coating Layer Thickness
P	Steel	UE6105	90.8	Accumulated TiCN-Al_2O_3-Ti Compound	Thick
		MC6015	90.2	Accumulated TiCN-Al_2O_3-Ti Compound	Thick
		UE6110	90.3	Accumulated TiCN-Al_2O_3-Ti Compound	Thick
		MC6025	90.2	Accumulated TiCN-Al_2O_3-Ti Compound	Thick
		UE6020	90.0	Accumulated TiCN-Al_2O_3-Ti Compound	Thick
		MC6035	89.5	Accumulated TiCN-Al_2O_3-Ti Compound	Thick
		UH6400	89.5	Accumulated TiCN-Al_2O_3-Ti Compound	Thick
M	Stainless Steel	MC7015	90.7	TiCN-Al_2O_3-TiN	Thin
		US7020	90.5	TiCN-Al_2O_3-TiN	Thin
		MC7025	89.4	TiCN-Al_2O_3-TiN	Thin
		US735	89.0	Ti Compound	Thin
K	Cast Iron Ductile Cast Iron	MC5005	91.0	TiCN-Al_2O_3	Thick
		UC5105	92.2	TiCN-Al_2O_3	Thick
		MC5015	91.0	TiCN-Al_2O_3	Thick
		UC5115	91.0	TiCN-Al_2O_3	Thick
	Heat Resistant Cast Steel	MH515	91.0	TiCN-Al_2O_3	Thick
S	Heat Resistant Alloy	US905	92.2	TiCN-Al_2O_3-TiN	Thin

Note 1) Hardness shows representative value of the substrate.

For interrupted cutting, medium to low surface speeds

MC6035

Prevents severe damage for increased stability

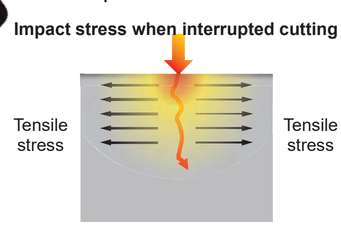
The smooth coating surface provides excellent welding resistance.
With the thickened TiCN, MC6035 also achieves superior wear resistance for increased stability.

MC6035 **MC6025**

Reducing the effect of severe fracturing

By reducing the tensile stress in the coating layer during interrupted cutting, crack development caused by impact stress is prevented.

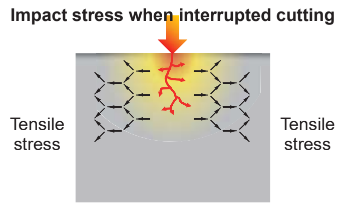
Impact stress when interrupted cutting



Conventional coating

Conventional products tend to result in fracturing because impact stress is transmitted deep into the coating layer during interrupted cutting.

Impact stress when interrupted cutting



MC6035

MC6035 has succeeded in alleviating tensile stress in the coating layer therefore, cracks that can develop by impact stress can be prevented when interrupted cutting.

COATED CARBIDE (PVD)

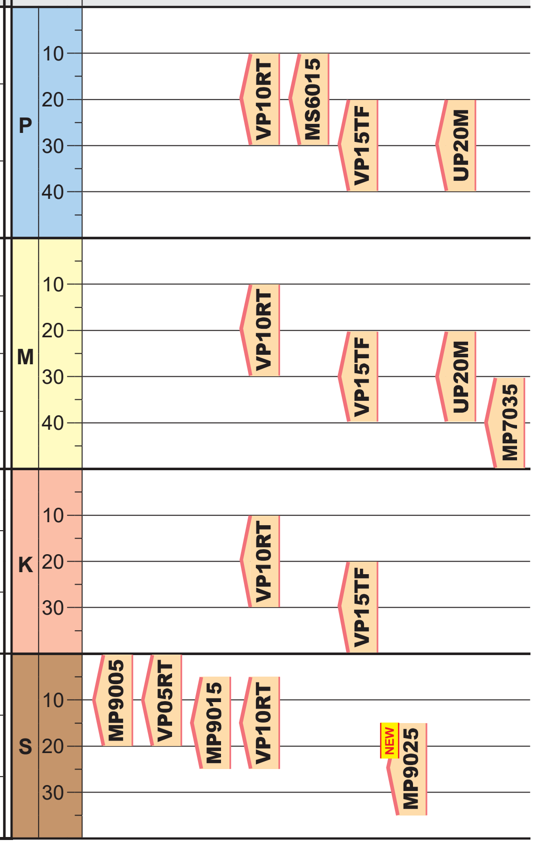
- PVD coating prolongs tool life under the same cutting conditions compared to uncoated carbide.
- Coating of tools with sharp edges is possible without softening or changing the edge quality of the substrate.

■SELECTION STANDARD

●TURNING

	Work Material	Recommended Grade	Recommended Cutting Speed (m/min)
P	Steel	**VP10RT**	120 (100 — 150)
		VP15TF	120 (100 — 150)
		UP20M	120 (100 — 150)
M	Stainless Steel	**VP10RT**	120 (100 — 150)
		VP15TF	120 (100 — 150)
		VP20MF	120 (100 — 150)
		UP20M	120 (100 — 150)
K	Cast Iron	**VP10RT**	120 (100 — 150)
		VP15TF	120 (100 — 150)
		VP20RT	120 (100 — 150)
S	Heat Resistant Alloy	**MP9005**	60 (30 — 100)
		MP9015	50 (25 — 80)
		MP9025	25 (20 — 30)

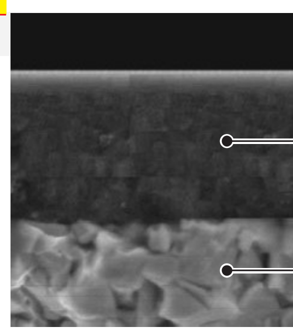
ISO / Application Range



ISO Turning Inserts for Difficult to Cut Materials

NEW

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	NEW **MP9025**	Prevents severe damage for increased stability.	Heat Resistant Alloy Interrupted • Light-Rough Cutting

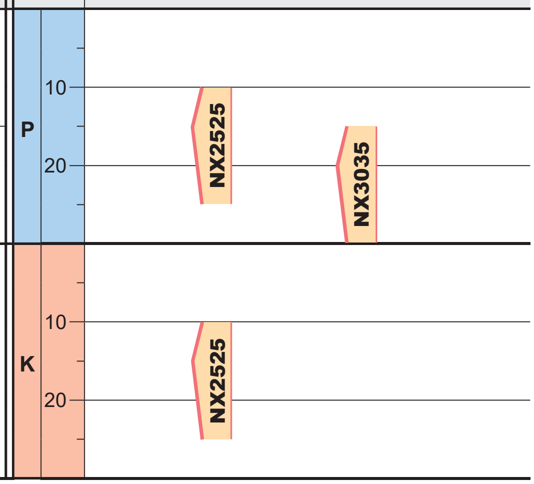
CERMET

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

■SELECTION STANDARD

●TURNING

	Work Material	Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P	Steel	Continuous Cutting	**NX2525**	220 (180—250)	P	
		Interrupted Cutting	**NX3035**	200 (190—260)		
K	Cast Iron Ductile Cast Iron	Finishing	**NX2525**	180 (150—210)	K	



■GRADE CHARACTERISTICS

Grade	Hardness (HRA)
NX2525	92.2
NX3035	91.5

Note 1) Hardness shows representative value of the substrate.

COATED CERMET

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

■SELECTION STANDARD

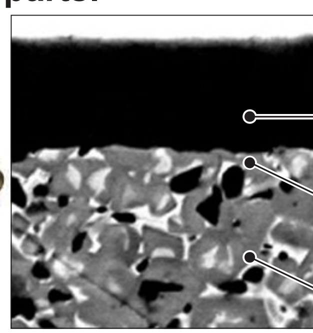
●TURNING

	Work Material	Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO		Application Range
P	Steel	Continuous Cutting	**VP25N** **AP25N**	240 (190—290)	P	10 20 30	VP25N, AP25N, MP3025, VP45N
		Interrupted Cutting	**MP3025**	230 (180—280)			
K	Cast Iron Ductile Cast Iron	Finishing	**VP25N** **AP25N**	160 (110—230)	K	10 20	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

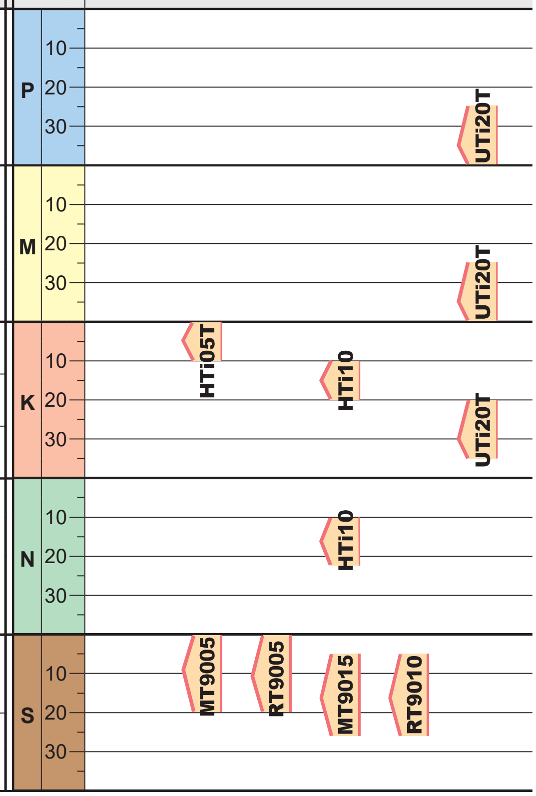
● UTi grades are available for steel and cast iron. HTi grades are available for non-ferrous and non-metal materials and are also suitable for cast iron.

■SELECTION STANDARD

●TURNING

	Work Material	Recommended Grade	Recommended Cutting Speed (m/min)	ISO
P	Steel	**UTi20T**	100 (60 — 130)	P
M	Stainless Steel	**UTi20T**	100 (60 — 130)	M
K	Cast Iron	**HTi05T**	120 (80 — 150)	K
		HTi10	100 (50 — 150)	
		UTi20T	100 (50 — 150)	
N	Non-Ferrous Metal	**HTi10**	300 (100 — 600)	N
S	Heat Resistant Alloy Ti Alloy	**MT9005 RT9005**	70 (50 — 100)	S
		MT9015 RT9010	60 (40 — 80)	

Application Range



■MAIN COMPONENT AND APPLICATION

ISO	Main Component	Characteristics	Work 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	92.0

Note 1) Hardness shows representative value of the substrate.

MICRO-GRAIN CEMENTED CARBIDE (SOLID TOOLS)

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

■SELECTION STANDARD

Cutting Tool	Recommended Grade	Work 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

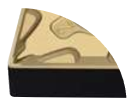
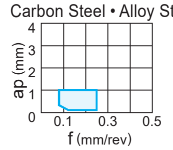
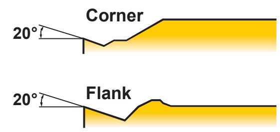
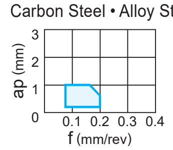
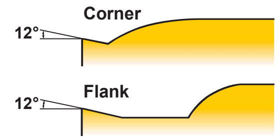
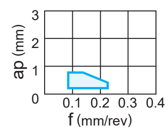
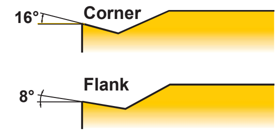
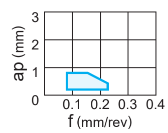
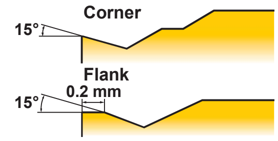
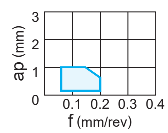
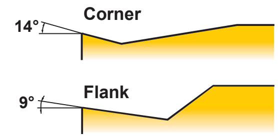
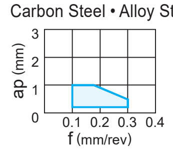
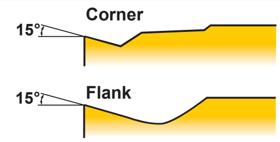
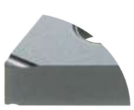
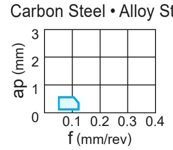
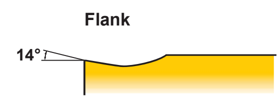
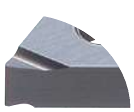
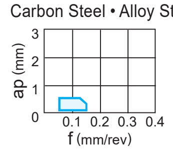
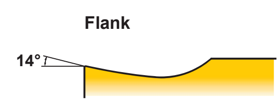
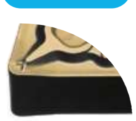
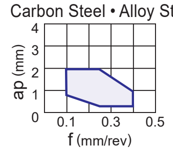
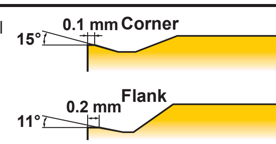
Grade	Grade Characteristics *		ISO	Wear Resistance	Fracture Resistance	Corrosion Resistance
	Hardness (HRA)	T.R.S (GPa)				
HTi10	92.0	3.2	K10	◎	○	○
TF15	91.0	4.0	K20	◎	○	◎
SF10	92.7	3.8	K01	◎	○	◎
MF10	93.0	4.0	K01	◎	○	◎
MF20	92.0	4.4	K10	○	◎	◎
MF30	90.7	4.3	K20	○	◎	◎

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

Memo

CLASSIFICATION

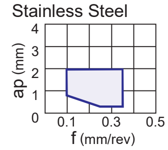
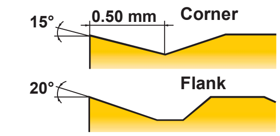
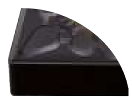
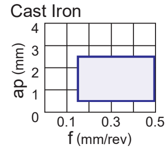
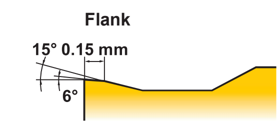
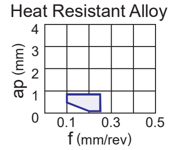
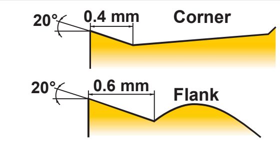
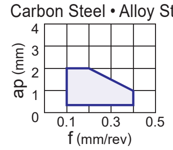
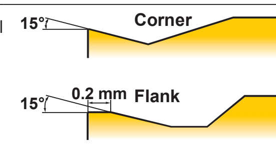
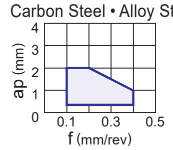
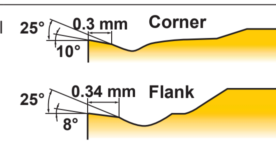
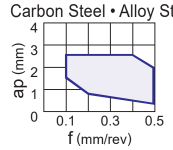
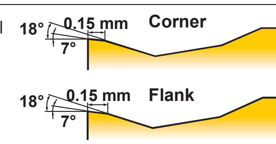
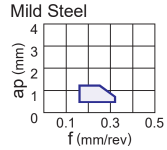
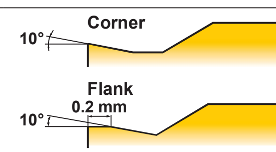
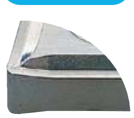
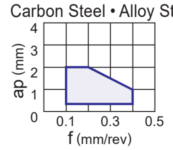
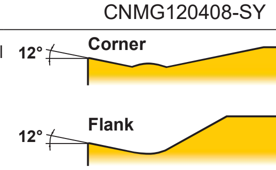
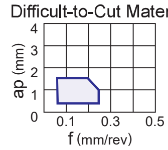
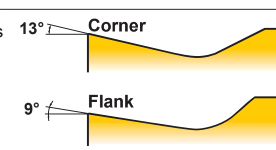
NEGATIVE INSERTS WITH HOLE

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 work materials from running onto their surfaces. Large rake angle suppress chatter vibration and deformation in processing of low rigidity work material. 	 CNMG120408-FP
Finish Cutting	M	**FH** 	**First recommendation for finishing carbon steel and alloy steel** Stable chip control even at small depth of cut. 	 CNMG120408-FH
Finish Cutting	M	**FS** 	**Alternative chipbreaker for finishing mild steel** Stable chip control even at small depth of cut. Sharp edge gives best performance. 	 CNMG120408-FS
Finish Cutting	M	**FY** 	**First recommendation for finishing mild steel** Effectively controls adhesive chips. Suitable for mild steel finishing. 	 CNMG120408-FY
Finish Cutting	G	**FJ** 	**Alternative chip breaker for finishing difficult-to-cut materials** Ideal for heat-resistant alloy and titanium alloy. The sharp edge produces good cutting surface. The curved edge allows smooth chip discharge. 	 CNGG120404-FJ
Finish Cutting	G	**PK** 	**Alternative chipbreaker for finishing carbon steel and alloy steel** G class insert tolerance is suitable for workpieces requiring close dimensional tolerances. Stable chip control even at small depth of cut. 	 CNGG120404-PK
Finish Cutting	G	**R/L-FS** 	**Chipbreaker for precise finishing** A narrow lead chipbreaker for good chip control. The sharp edge produces a good surface finish. 	 TNGG160404R-FS
Finish Cutting	G	**R/L-F** 	**Chipbreaker for finishing** Lead chipbreaker controls chip flow. The sharp edge produces a good surface finish. 	 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. 	 CNMG120408-LP

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Breaker Name and Cross Section
	CNMG_FP A100	DNMG_FP A107	SNMG_FP A115	TNMG_FP A121	VNMG_FP A128	WNMG_FP A132		FP
	CNMG_FH A100	DNMG_FH A107	SNMG_FH A115	TNMG_FH A121	VNMG_FH A128	WNMG_FH A132		FH
	CNMG_FS A100	DNMG_FS A107	SNMG_FS A115	TNMG_FS A121	VNMG_FS A128	WNMG_FS A132		FS
	CNMG_FY A100	DNMG_FY A107		TNMG_FY A121		WNMG_FY A132		FY
	CNGG_FJ A100	DNGG_FJ A107			VNGG_FJ A128			FJ
	CNGG_PK A100	DNGG_PK A107		TNGG_PK A121				PK
				TNGG_R/L-FS A121				R/L-FS
				TNGG_R/L-F A122	VNGG_R/L-F A128			R/L-F
	CNMG_LP A100	DNMG_LP A108	SNMG_LP A115	TNMG_LP A122	VNMG_LP A128	WNMG_LP A132		LP

CLASSIFICATION

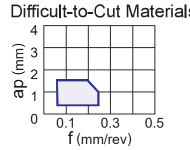
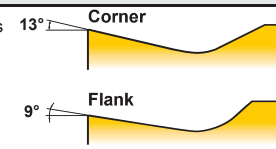
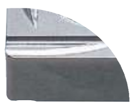
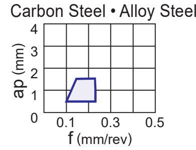
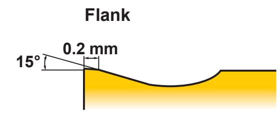
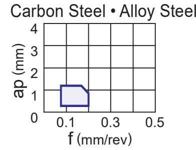
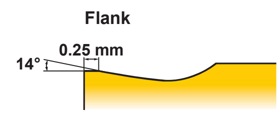
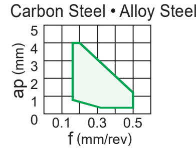
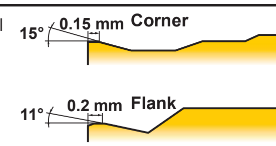
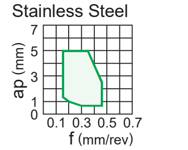
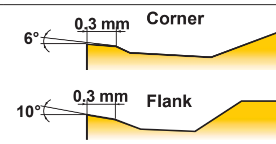
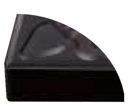
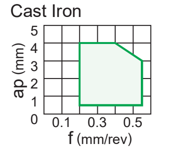
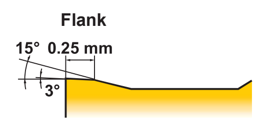
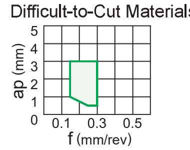
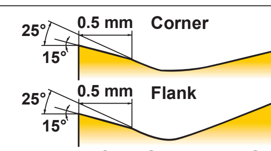
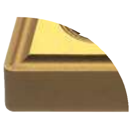
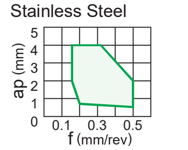
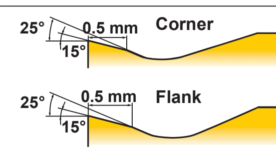
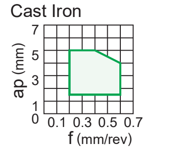
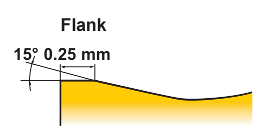
NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
Light Cutting	M	**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   CNMG120408-LM	
		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 chipbreaker for light cutting of stainless steel** Enhanced chip disposal for depth of cut smaller than the corner R.	Heat Resistant Alloy   CNMG120408-LS	
		SH 	**Alternative chipbreaker for light cutting of carbon steel and alloy steel** Can be used at low depth of cuts 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 chipbreaker for light cutting of carbon steel and alloy steel** Superior chip control at small depth of cuts. 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	
		C 	**Alternative chipbreaker for light cutting of carbon steel and alloy steel** Suitable for light cutting. The curved edge allows smooth chip discharge.	Carbon Steel • Alloy Steel   CNMG120408-C	
		MJ 	**Alternative chip breaker for light cutting of difficult-to-cut materials** Ideal for heat-resistant alloy and titanium alloy. 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	

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Breaker Name and Cross Section
	CNMG_LM A101	DNMG_LM A108	SNMG_LM A115	TNMG_LM A122	VNMG_LM A128	WNMG_LM A132		LM
	CNMG_LK A101	DNMG_LK A108	SNMG_LK A115	TNMG_LK A122	VNMG_LK A129	WNMG_LK A133		LK
	CNMG_LS A101	DNMG_LS A108		TNMG_LS A122	VNMG_LS A129	WNMG_LS A133		LS
	CNMG_SH A101	DNMG_SH A108	SNMG_SH A115	TNMG_SH A122	VNMG_SH A129	WNMG_SH A133		SH
	CNMG_SA A101	DNMG_SA A109	SNMG_SA A116	TNMG_SA A122	VNMG_SA A129	WNMG_SA A133		SA
	CNMG_SW A101	DNMX_SW A109		TNMX_SW A123		WNMG_SW A133		SW
	CNMG_SY A101	DNMG_SY A109	SNMG_SY A116	TNMG_SY A123		WNMG_SY A133		SY
	CNMG_C A101	DNMG_C A109	SNMG_C A116	TNMG_C A123		WNMG_C A133		C
	CNMG_MJ A101	DNMG_MJ A109		TNMG_MJ A123	VNMG_MJ A129	WNMG_MJ A133		MJ(M)

CLASSIFICATION

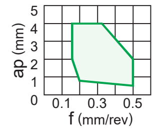
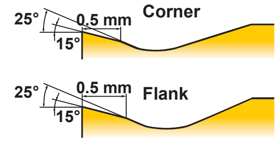
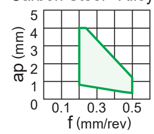
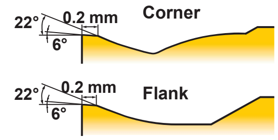
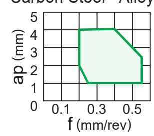
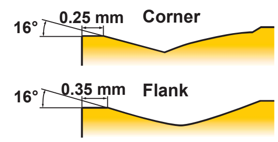
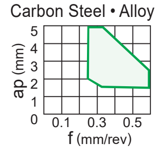
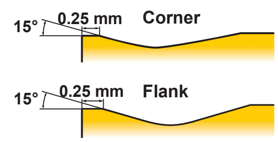
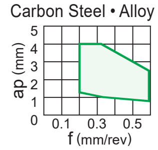
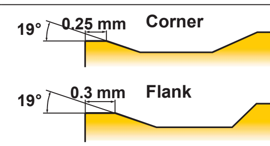
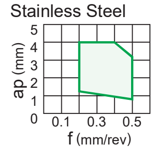
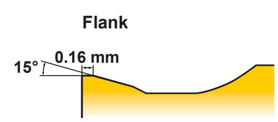
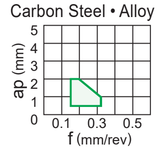
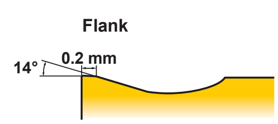
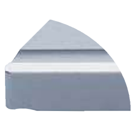
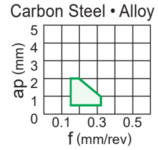
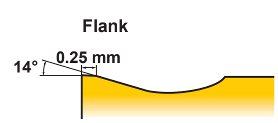
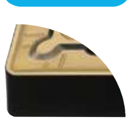
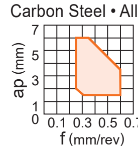
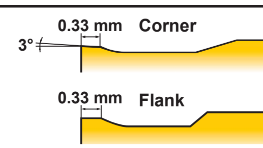
NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features		Cross Section Geometry	
Light Cutting	G	**MJ** 	**Alternative chip breaker for light cutting of difficult-to-cut materials** Double sided chipbreaker, Single sided chipbreaker (D type, V type). The sharp edge produces a good surface finish. Ideal for heat-resistant alloy and titanium alloy. The curved edge allows smooth chip discharge.	Difficult-to-Cut Materials 	 CNGG120408-MJ	
Light Cutting	M	**R/L-1G** 	**Alternative chipbreaker for light cutting of carbon steel and alloy steel** Parallel chipbreaker controls chip flow. Suitable for finish-light cutting. Precision chipbreaker.	Carbon Steel • Alloy Steel 	 SNMG120408R-1G	
Light Cutting	G	**R/L-K** 	**Chipbreaker for Light cutting** Parallel chipbreaker. Excellent chip control at low to medium feed rates.	Carbon Steel • Alloy Steel 	 TNGG160404R-K	
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 	 CNMG120408-MP	
Medium Cutting	M	**MM** 	**First recommendation for medium cutting of stainless steel** Optimized land geometry by simulation analysis technology controls the plastic deformation of the corner and achieves the long tool life.	Stainless Steel 	 CNMG120408-MM	
Medium Cutting	M	**MK** 	**First recommendation for medium cutting of cast iron** Optimum balance between sharpness and high edge strength for general use.	Cast Iron 	 CNMG120408-MK	
Medium Cutting	M	**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 	 CNMG120408-MS	
Medium Cutting	M	**MS** 	**Alternative chipbreaker for medium cutting of stainless steel, mild 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 	 CNMG120408-MS	
Medium Cutting	M	**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 	 CNMG120408-GK	

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Breaker Name and Cross Section
	CNGG_MJ A102	DNGM_MJ A109			VNGM_MJ A129			MJ(G)
			SNMG_R/L-1G A116	TNMG_R/L-1G A123				R/L-1G
				TNGG_R/L-K A123				R/L-K
	CNMG_MP A102	DNMG_MP A109	SNMG_MP A116	TNMG_MP A123	VNMG_MP A129	WNMG_MP A134		MP
	CNMG_MM A102	DNMG_MM A110	SNMG_MM A116	TNMG_MM A123	VNMG_MM A129	WNMG_MM A134		MM
	CNMG_MK A102	DNMG_MK A110	SNMG_MK A117	TNMG_MK A123	VNMG_MK A129	WNMG_MK A134		MK
	CNMG_MS A102	DNMG_MS A110	SNMG_MS A117	TNMG_MS A124	VNMG_MS A130	WNMG_MS A134		MS
	CNMG_MS A103	DNMG_MS A110	SNMG_MS A117	TNMG_MS A124	VNMG_MS A130	WNMG_MS A134		MS
	CNMG_GK A103	DNMG_GK A110	SNMG_GK A117	TNMG_GK A124	VNMG_GK A130	WNMG_GK A135		GK

CLASSIFICATION

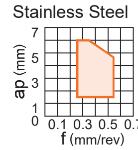
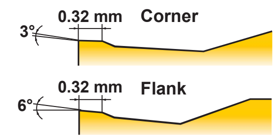
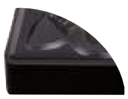
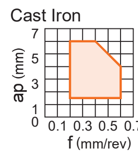
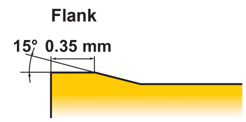
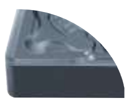
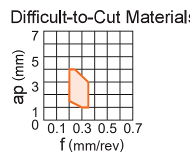
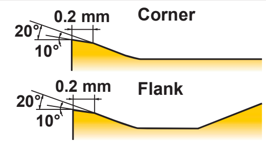
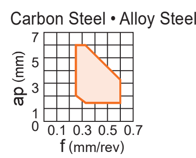
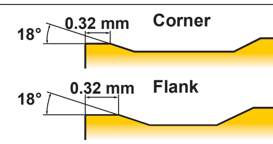
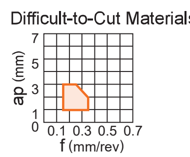
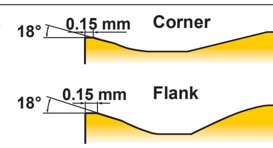
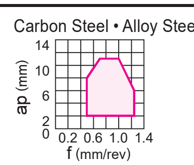
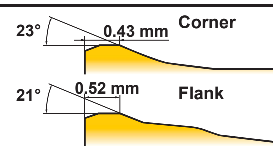
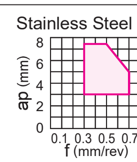
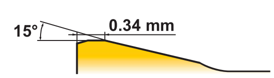
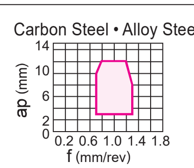
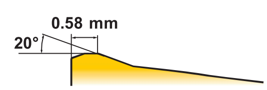
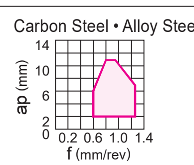
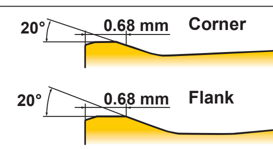
NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features		Cross Section Geometry	
Medium Cutting	M	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 	 CNMG120408-GM	
Medium Cutting	M	MA 	**First recommendation for medium cutting of carbon steel and alloy steel** Ideal for general cutting applications. Positive land provides sharp cutting action.	Carbon Steel • Alloy Steel 	 CNMG120408-MA	
Medium Cutting	M	MH 	**Alternative chipbreaker 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 	 CNMG120408-MH	
Medium Cutting	M	Standard 	**Alternative chipbreaker 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 	 CNMG120408	
Medium Cutting	M	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 	 CNMG120408-MW	
Medium Cutting	M	R/L-ES 	**Alternative chipbreaker for medium cutting of stainless steel** Good balance of edge strength and sharpness. Right- or left-hand breaker for unidirectional chip control.	Stainless Steel 	 TNMG160404R-ES	
Medium Cutting	M	R/L-2G 	**Alternative chipbreaker 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 chipbreaker.	Carbon Steel • Alloy Steel 	 TNMG160404R-2G	
Medium Cutting	G	R/L 	**Medium cutting** Parallel chipbreaker. Good chip control for medium feed rates.	Carbon Steel • Alloy Steel 	 TNGG160408R	
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 	 CNMG120408-RP	

Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Breaker Name and Cross Section
CNMG_GM A103	DNMG_GM A111	SNMG_GM A117	TNMG_GM A124	VNMG_GM A130	WNMG_GM A135		GM
CNMG_MA A103	DNMG_MA A111	SNMG_MA A117	TNMG_MA A124	VNMG_MA A130	WNMG_MA A135		MA
CNMG_MH A103	DNMG_MH A111	SNMG_MH A117	TNMG_MH A124	VNMG_MH A130	WNMG_MH A135		MH
CNMG A104	DNMG A111	SNMG A118	TNMG A125	VNMG A130	WNMG A135	RNMG A114	Standard
CNMG_MW A104	DNMX_MW A111		TNMX_MW A125		WNMG_MW A135		MW
			TNMG_R/L-ES A125				R/L-ES
			TNMG_R/L-2G A125				R/L-2G
	DNGG_R/L A111	SNGG_R/L A118	TNGG_R/L A125	VNGG_R/L A131			R/L
CNMG_RP A104	DNMG_RP A112	SNMG_RP A118	TNMG_RP A126		WNMG_RP A135		RP

CLASSIFICATION

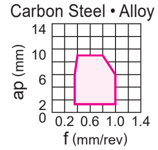
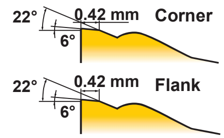
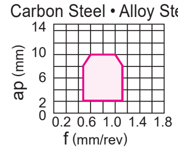
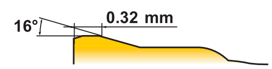
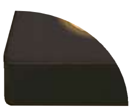
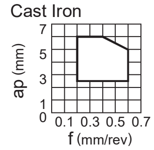
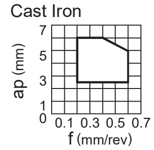
NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
Rough Cutting	M	**RM** 	**First recommendation for rough cutting of stainless steel** Excellent fracture resistance at interrupted cutting due to the optimum land angle and honing geometry.	  CNMG120408-RM	
		RK 	**For rough cutting of carbon steel, alloy steel and First recommendation for rough cutting cast iron** Seating surface and wide land 3 or more times that of conventional products and provide high cutting stability for interrupted machining and scale removal.	  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.	  CNMG120408-RS	
		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.	  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.	  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 chipbreaker for good chip control.	  CNMM190616-HX	
		HL 	**First recommendation for heavy cutting of stainless steel** **Alternative chipbreaker for heavy cutting of carbon steel and alloy steel** Low resistance due to narrow flat land. Achieves high chip breaking ability.	  CNMM190616-HL	
		HR 	**Alternative chipbreaker 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.	  CNMM250924-HR	
		HV 	**Alternative chipbreaker 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 chipbreaker prevents chip jamming.	  SNMM190616-HV	

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Breaker Name and Cross Section
	CNMG_RM A104	DNMG_RM A112	SNMG_RM A118	TNMG_RM A126		WNMG_RM A135		RM
	CNMG_RK A105	DNMG_RK A112	SNMG_RK A119	TNMG_RK A126		WNMG_RK A136		RK
	CNMG_RS A105	DNMG_RS A112	SNMG_RS A119	TNMG_RS A126		WNMG_RS A136		RS
	CNMG_GH A105	DNMG_GH A112	SNMG_GH A119	TNMG_GH A126		WNMG_GH A136		GH
	CNMG_GJ A105	DNMG_GJ A112				WNMG_GJ A136		GJ
	CNMM_HX A105		SNMM_HX A119					HX
	CNMM_HL A105	DNMM_HL A113	SNMM_HL A119	TNMM_HL A127				HL
	CNMM_HR A106		SNMM_HR A119					HR
	CNMM_HV A106		SNMM_HV A119					HV

CLASSIFICATION

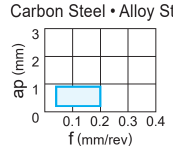
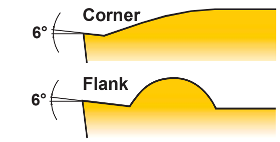
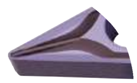
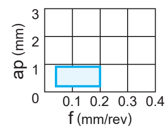
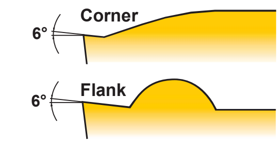
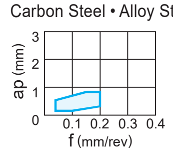
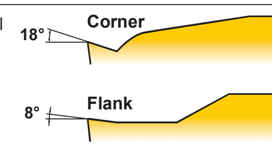
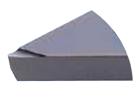
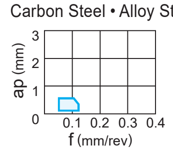
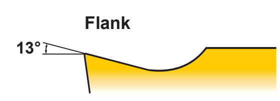
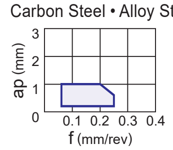
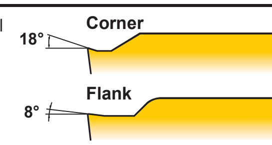
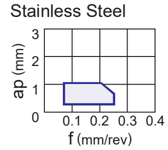
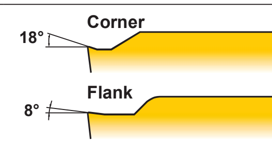
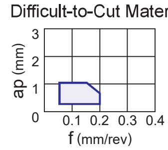
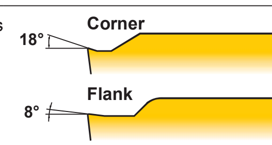
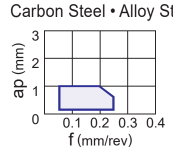
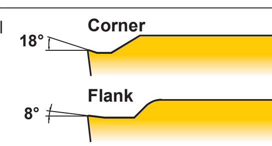
NEGATIVE INSERTS WITH HOLE

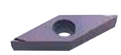
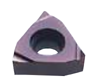
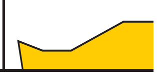
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Heavy Cutting	M	**HZ** 	**Alternative chipbreaker for heavy cutting of carbon steel and alloy steel** Covers the lower end of the heavy cutting region. Low cutting resistance due to positive land and curved edge. Teardrop dots improve chip control without increasing cutting resistance.	Carbon Steel • Alloy Steel   CNMM190616-HZ
Heavy Cutting	M	**HM** 	**Alternative chipbreaker 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   CNMM190616-HM
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
For Cast Iron	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

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Breaker Name and Cross Section
	CNMM_HZ A106	DNMM_HZ A113	SNMM_HZ A120	TNMM_HZ A127				HZ
	CNMM_HM A106		SNMM_HM A120					HM
	CNMA A106	DNMA A113	SNMA A120	TNMA A127	VNMA A131	WNMA A136		Flat Top(M)
		DNGA A113	SNGA A120	TNGA A127	VNGA A131			Flat Top(G)

CLASSIFICATION

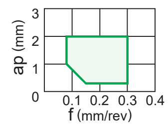
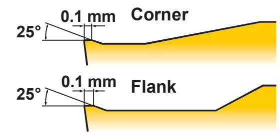
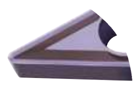
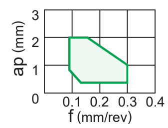
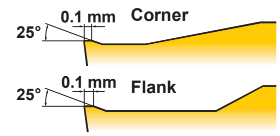
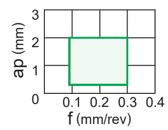
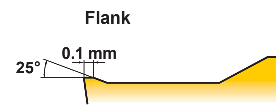
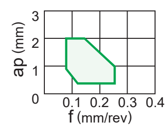
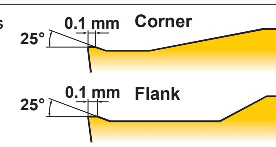
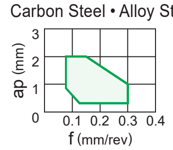
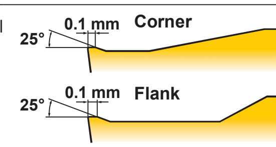
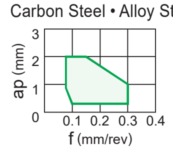
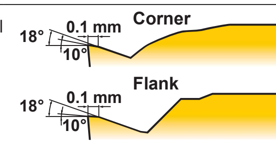
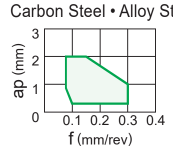
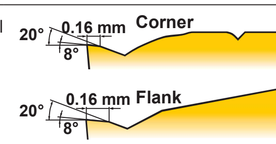
5° POSITIVE INSERTS WITH HOLE

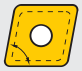
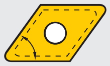
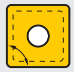
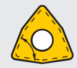
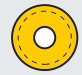
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M	FP 	**First recommendation for finishing carbon steel, alloy steel and mild steel** Breaker protrusion at the corner tip controls chips even at small depth of cut. Maintains the edge strength at the corner and prevents sudden fractures. Carbon Steel • Alloy Steel 	 VBMT110304-FP
Finish Cutting	M	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 	 VBMT110304-FM
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 	 VBMT110304-FV
Finish Cutting	G	R/L-F 	**Finishing** Lead chipbreaker controls chip flow. Sharp cutting edge gives a good surface finish. Carbon Steel • Alloy Steel 	 VBGT110304R-F
Light Cutting	M	LP 	**First recommendation for light cutting of carbon steel and alloy 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
Light Cutting	M	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
Light Cutting	M	NEW 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
Light Cutting	M	SV 	**Alternative chipbreaker 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

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Breaker Name and Cross Section
					VBMT_FP  A167			FP 
					VBMT_FM  A167			FM 
					VBMT_FV  A167			FV 
					VBGT_R/L-F  A167	WBGT_R/L-F  A175		R/L-F 
					VBMT_LP  A167			LP 
					VBMT_LM  A167			LM 
					VBMT_LS NEW  A168			NEW LS 
					VBMT_SV  A168			SV 

CLASSIFICATION

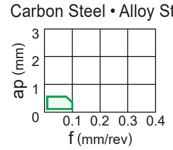
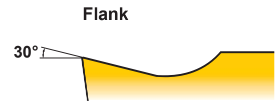
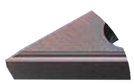
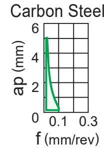
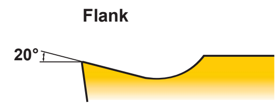
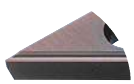
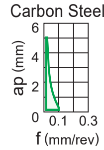
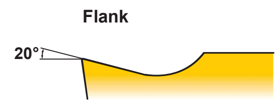
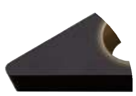
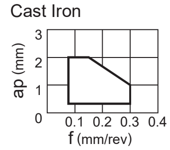
5° POSITIVE INSERTS WITH HOLE

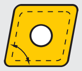
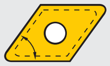
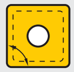
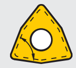
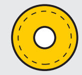
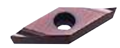
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
Medium Cutting	M	MP 	**First recommendation for medium cutting of carbon steel, alloy steel and mild steel** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depth 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 depth 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	
		NEW 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 depth of cut.	Difficult-to-Cut Materials   VBMT160404-MS	
		Standard 	**Alternative chipbreaker 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	
		MV 	**Alternative chipbreaker 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   VBMT160404-MV	
		R/L-MV 	**Alternative chipbreaker 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   WBMTL30204R-MV	

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 	Breaker Name and Cross Section
					VBMT_MP  **A168**			**MP** 
					VBMT_MM  **A168**			**MM** 
					VBMT_MK  **A168**			**MK** 
					VBMT_MS NEW  **A168**			NEW **MS** 
					VBMT  **A168**			**Standard** 
					VBMT_MV  **A169**			**MV** 
						WBMT_R/L-MV  **A175**		**R/L-MV** 

CLASSIFICATION

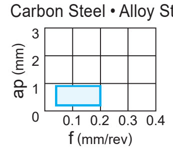
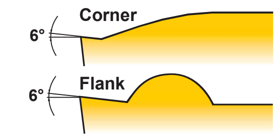
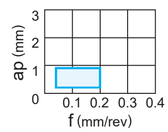
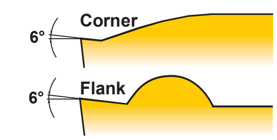
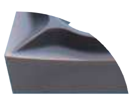
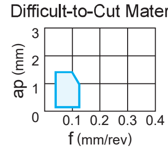
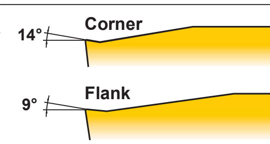
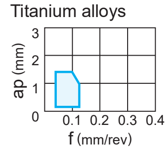
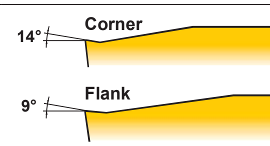
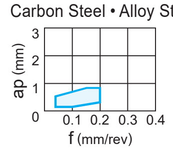
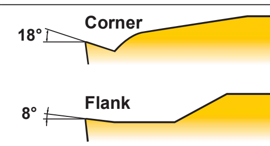
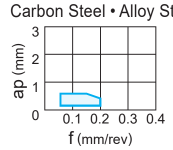
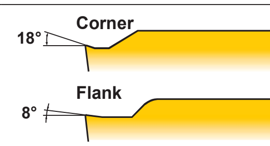
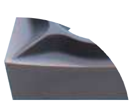
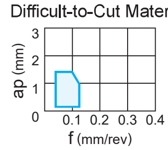
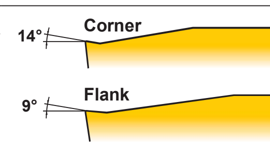
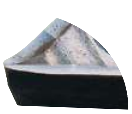
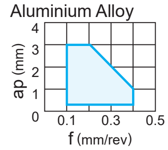
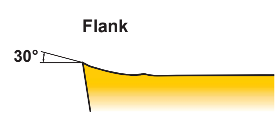
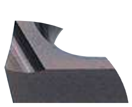
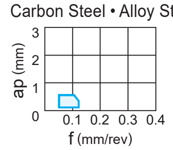
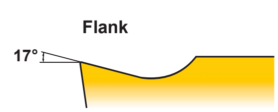
5° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	E	**R/L-SR** 	**Chipbreaker for Medium cutting of automatic lathe machining** A wide lead chipbreaker. Insert designed for low resistance chip control.	Carbon Steel • Alloy Steel   VBET1103V3R-SR
Medium Cutting	E	**R/L-SN** 	**Chipbreaker for Medium cutting of automatic lathe machining** A parallel chipbreaker. Excellent chip control for low to medium feed rates.	Carbon Steel • Alloy Steel   VBET1103V3R-SN
Medium Cutting	E	**R/LW-SN** 	**Chipbreaker for Medium cutting of automatic lathe machining** A parallel chipbreaker. Excellent chip control for low to medium feed rates. The wiper produces good cutting surface.	Carbon Steel • Alloy Steel   VBET1103V3RW-SN
For Cast Iron	M	**Flat Top** 	**Chipbreaker for Heavy cutting of cast iron** Flat top. Most effective for unstable machining due to its high edge strength.	Cast Iron   VBMW160408

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Breaker Name and Cross Section
								
					VBET_R/L-SR  **A169**			**R/L-SR** 
					VBET_R/L-SN  **A169**			**R/L-SN** 
					VBET_R/LW-SN  **A169**			**R/LW-SN** 
					VBMW  **A169**			**Flat Top** 

CLASSIFICATION

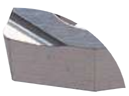
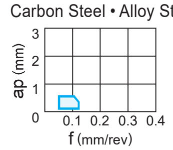
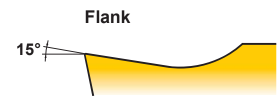
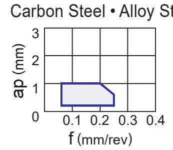
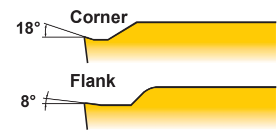
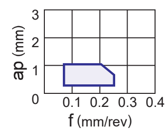
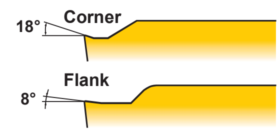
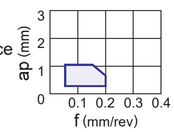
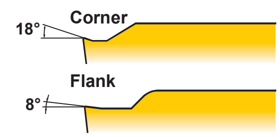
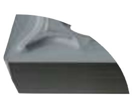
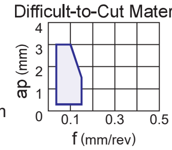
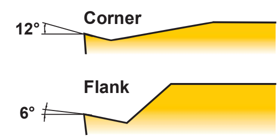
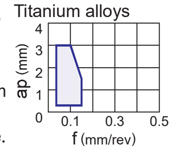
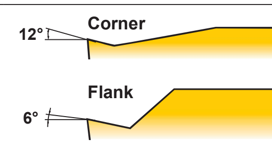
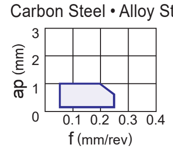
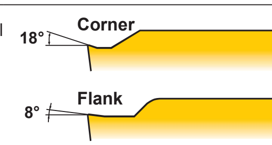
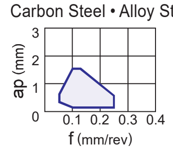
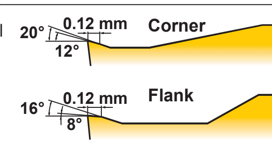
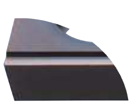
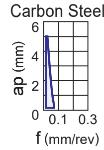
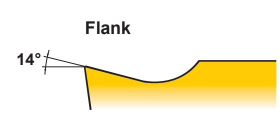
7° POSITIVE INSERTS WITH HOLE

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	NEW **FS** 	**First recommendation for finishing difficult-to-cut materials** Ideal for heat-resistant alloy, titanium alloy and Cobalt chromium alloy. The sharp edge produces a good surface finish. The curved edge allows smooth chip discharge. Difficult-to-Cut Materials 	 CCGT09T302M-FS	
		NEW **FS-P** 	**First recommendation for finishing titanium alloys** Ideal for Cobalt chromium alloy and Copper alloy. 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 chipbreaker 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 chipbreaker 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 chipbreaker for finishing difficult-to-cut materials** Ideal for heat-resistant alloy and titanium alloy. The sharp edge produces a good surface finish. The curved edge allows smooth chip discharge. Difficult-to-Cut Materials 	 CCGT09T302-FJ	
		AZ 	**Chipbreaker for 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 	**Chipbreaker for finishing** Lead chipbreaker controls chip flow. Sharp cutting edge gives a good surface finish. Carbon Steel • Alloy Steel 	 CCGT03S102L-F	

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Rhombic 25°	Round	Breaker Name and Cross Section
	CCMT_FP A140	DCMT_FP A149	SCMT_FP A157	TCMT_FP A160	VCMT_FP A170				FP
	CCMT_FM A140	DCMT_FM A149	SCMT_FM A157	TCMT_FM A160	VCMT_FM A170				FM
	CCGT_FS NEW A140	DCGT_FS NEW A149							NEW FS
	CCGT_FS-P NEW A140	DCGT_FS-P NEW A149							NEW FS-P
	CCMT_FV A140	DCMT_FV A149	SCMT_FV A157	TCMT_FV A160	VCMT_FV A170				FV
							XCMT_SVX A178		SVX
	CCGT_FJ A140								FJ
	CCGT_AZ A141	DCGT_AZ A149		TCGT_AZ A160	VCGT_AZ A170			RCGT_AZ A156	AZ
	CCGT_L-F CCGH_R/L-F A141	DCGT_R/L-F A150		TCGT_R/L-F A160	VCGT_R/L-F A170				R/L-F

CLASSIFICATION

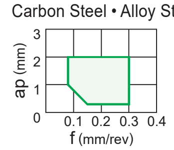
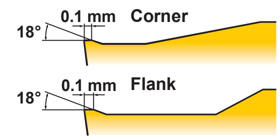
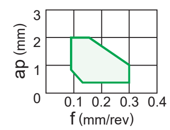
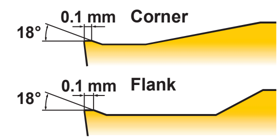
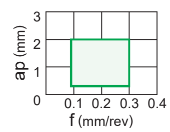
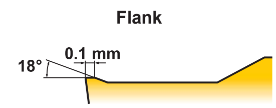
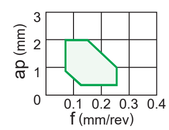
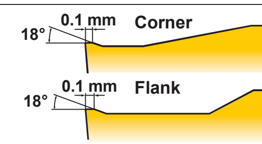
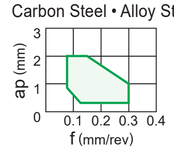
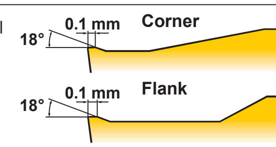
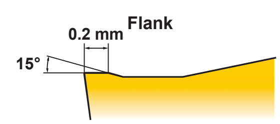
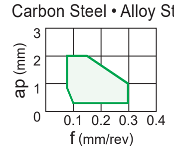
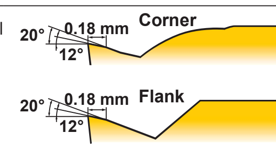
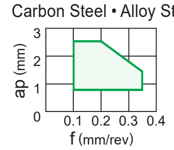
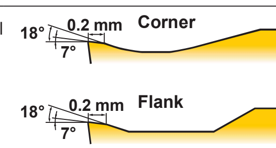
7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features		Cross Section Geometry
Finish Cutting	G	R/L 	**Chipbreaker for finishing** Lead chipbreaker. Excellent chip control at low feed rates.	Carbon Steel • Alloy Steel 	 WCGT020104R
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 	 CCMT09T308-LP
	M	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 	 CCMT09T308-LM
	M	NEW 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 	 CCMT09T308-LS
	G	NEW LS 	**First recommendation for light cutting of difficult-to-cut materials** Ideal for heat-resistant alloy, titanium alloy and Cobalt chromium alloy. Parallel cutting edge. Achieves stable chip control in a wide range of areas from low to medium depth of cuts.	Difficult-to-Cut Materials 	 CCGT09T304M-LS
	G	NEW LS-P 	**First recommendation for light cutting of titanium alloys** Ideal for Cobalt chromium alloy and Copper alloy. Parallel cutting edge. Achieves stable chip control in a wide range of areas from low to medium depth of cuts. Lapping of the top surface gives a mirror finish for improved welding resistance.	Titanium alloys 	 CCGT09T304M-LS-P
	M	SV 	**Alternative chipbreaker 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 	 CCMH060204-SV
	M	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 	 CCMT09T304-SW
	G	R/L-SS 	**Chipbreaker for light cutting of automatic lathe machining** A parallel chipbreaker. Excellent chip control at low feed rates.	Carbon Steel • Alloy Steel 	 CCGT09T302R-SS

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Rhombic 25°	Round	Breaker Name and Cross Section
						WCGT_R/L A176			R/L
	CCMT_LP A141	DCMT_LP A150	SCMT_LP A157	TCMT_LP A161	VCMT_LP A170				LP
	CCMT_LM A142	DCMT_LM A150	SCMT_LM A157	TCMT_LM A161	VCMT_LM A170				LM
	CCMT_LS NEW A142	DCMT_LS NEW A150		TCMT_LS NEW A161	VCMT_LS NEW A171				NEW LS(M)
	CCGT_LS NEW A142	DCGT_LS NEW A150			VCGT_LS NEW A171				NEW LS(G)
	CCGT_LS-P NEW A142	DCGT_LS-P NEW A150			VCGT_LS-P NEW A171				NEW LS-P
	CCMH_SV A142	DCMT_SV A151			VCMT_SV A171				SV
	CCMT_SW A142								SW
	CCGT_R/L-SS A143	DCGT_R/L-SS A151							R/L-SS

CLASSIFICATION

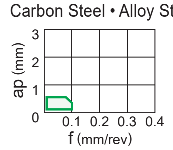
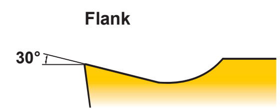
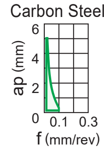
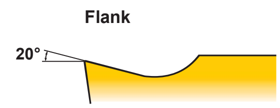
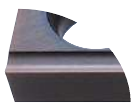
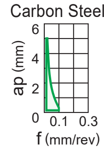
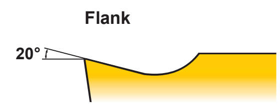
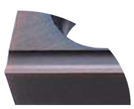
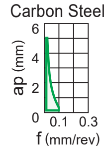
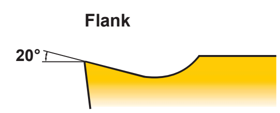
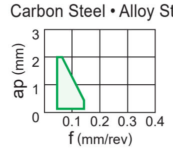
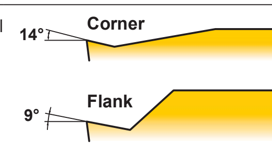
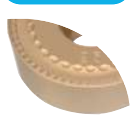
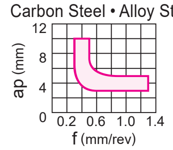
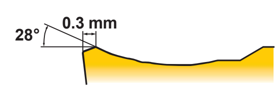
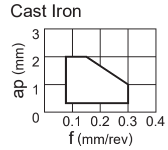
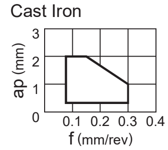
7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M	MP 	**First recommendation for medium cutting of carbon steel, 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 depth of cut.	Carbon Steel • Alloy Steel   CCMT09T308-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 depth 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
		NEW 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 depth of cut.	Difficult-to-Cut Materials   CCMT09T308-MS
		Standard 	**Alternative chipbreaker 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  RCMX1204M0
		MV 	**Alternative chipbreaker 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

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Rhombic 25°	Round	Breaker Name and Cross Section
	CCMT_MP A143	DCMT_MP A151	SCMT_MP A157	TCMT_MP A161	VCMT_MP A171				MP
	CCMT_MM A143	DCMT_MM A151	SCMT_MM A157	TCMT_MM A161	VCMT_MM A171				MM
	CCMT_MK A143	DCMT_MK A151	SCMT_MK A158	TCMT_MK A161	VCMT_MK A171				MK
	CCMT_MS NEW A144	DCMT_MS NEW A152	SCMT_MS NEW A158	TCMT_MS NEW A161	VCMT_MS NEW A171				NEW MS
	CCMT A144	DCMT A152	SCMT A158	TCMT A162	VCMT A172	WCMT A176		RCMT A156	Standard
								RCMX A156	
	CCMH_MV A144	DCMT_MV A152			VCMT_MV A172				MV
	CCMT_MW A144								MW

CLASSIFICATION

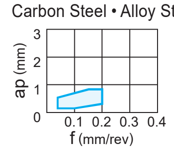
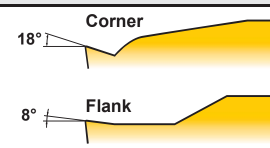
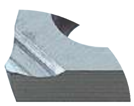
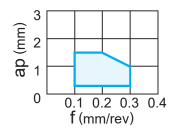
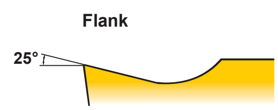
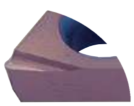
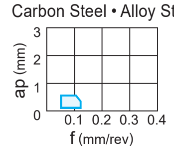
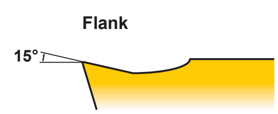
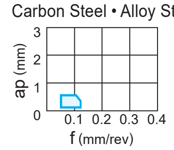
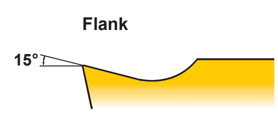
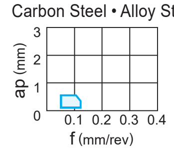
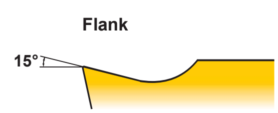
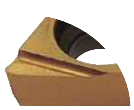
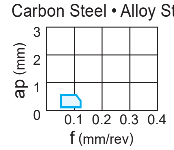
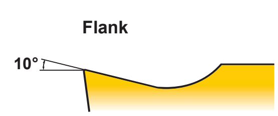
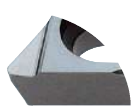
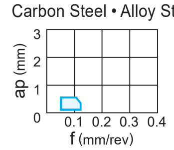
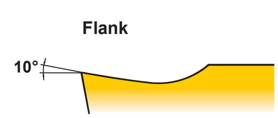
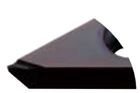
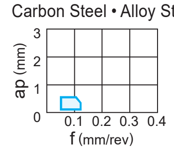
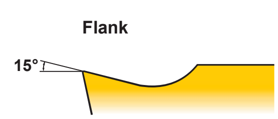
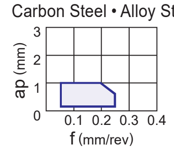
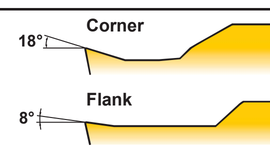
7° POSITIVE INSERTS WITH HOLE

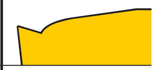
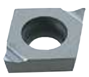
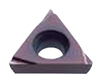
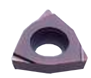
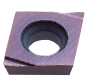
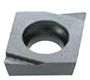
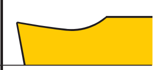
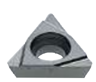
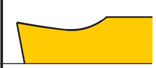
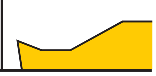
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	E	**R/L-SR** 	**Chipbreaker for medium cutting of automatic lathe machining** A wide lead chipbreaker. Insert designed for low resistance chip control.	Carbon Steel • Alloy Steel   CCET09T3V3R-SR
Medium Cutting	G	**R/L-SN** 	**Chipbreaker for medium cutting of automatic lathe machining** A parallel chipbreaker. Excellent chip control at low to medium feed rates.	Carbon Steel • Alloy Steel   CCGT09T3V3R-SN
Medium Cutting	E	**R/L-SN** 	**Chipbreaker for medium cutting of automatic lathe machining** A parallel chipbreaker. Excellent chip control at low to medium feed rates. Suitable for precise machining with E class tolerance.	Carbon Steel • Alloy Steel   CCET09T3V3R-SN
Medium Cutting	E	**R/LW-SN** 	**Chipbreaker for medium cutting of automatic lathe machining** A parallel chipbreaker. Excellent chip control at low to medium feed rates. The wiper produces a good surface finish.	Carbon Steel • Alloy Steel   CCET09T3V3RW-SN
Medium Cutting	G	**SMG** 	**Chipbreaker for medium cutting of automatic lathe machining** 3D moulded chipbreaker 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   CCGT09T304M-SMG
Heavy Cutting	M	**RR** 	**Chipbreaker for heavy cutting of carbon steel and alloy steel** A wide groove chipbreaker prevents chips from jamming at large depths of cut. Small dimples improve chip control at small depths of cut.	Carbon Steel • Alloy Steel   RCMX2006M0-RR
For Cast Iron	M	**Flat Top** 	**Chipbreaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to its high edge strength.	Cast Iron   CCMW09T308
For Cast Iron	G	**Flat Top** 	**Chipbreaker 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   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 A145	DCET_R/L-SR A152							R/L-SR
	CCGT_R/L-SN A145	DCGT_R/L-SN A153							R/L-SN(G)
	CCET_R/L-SN A146	DCET_R/L-SN A153							R/L-SN(E)
	CCET_R/LW-SN A146	DCET_R/LW-SN A154							R/LW-SN
	CCGT_SMG A146	DCGT_SMG A154							SMG
								RCMX_RR A156	RR
	CCMW A147	DCMW A154	SCMW A158	TCMW A162	VCMW A172				Flat Top(M)
	CCGW A147	DCGW A154							Flat Top(G)

CLASSIFICATION

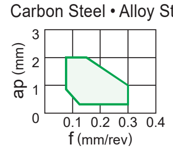
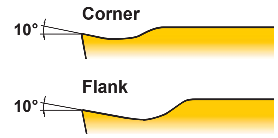
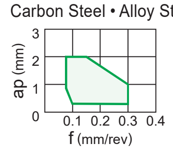
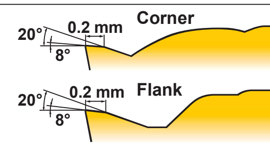
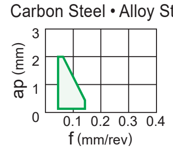
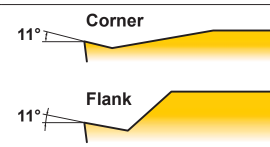
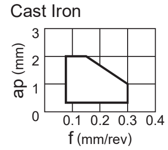
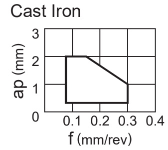
11° POSITIVE INSERTS WITH HOLE

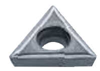
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M	**FV** 	**First recommendation for finishing carbon steel, alloy steel, mild steel and stainless steel** Suitable for low depths of cut and low feed rates. Sharp cutting edge and low resistance design achieves excellent cutting performance. Carbon Steel • Alloy Steel 	 CPMH090304-FV
	G	**Standard** 	**Chipbreaker for finishing** Lead chipbreaker controls chip flow. Good chip control for low to medium feed rates. Aluminium Alloy 	 CPGT090304
	G	**R/L-FS** 	**Chipbreaker for finishing carbon steel, alloy steel, stainless steel, cast iron and aluminium alloy** Small wide lead chipbreaker. Sharp cutting edge gives a good surface finish. Carbon Steel • Alloy Steel 	 TPGH090204R-FS
	M	**R/L-F** 	**Chipbreaker for finishing** Lead chipbreaker controls chip flow. Sharp cutting edge gives a good surface finish. Carbon Steel • Alloy Steel 	 CPMH090304R-F
	G	**R/L-F** 	**Chipbreaker for finishing** Lead chipbreaker controls chip flow. Sharp cutting edge gives a good surface finish. Carbon Steel • Alloy Steel 	 CPGT090304R-F
	G	**R/L** 	**Chipbreaker for finishing** Lead chipbreaker controls chip flow. Good chip control for low to medium feed rates. Carbon Steel • Alloy Steel 	 TPGX090204R
	M	**L** 	**Chipbreaker for finishing** Lead chipbreaker controls chip flow. Good chip control for low to medium feed rates. Carbon Steel • Alloy Steel 	 TPMX090204L
	E	**SRF** 	**Chipbreaker for finishing** Lead chipbreaker controls chip flow. Sharp cutting edge gives a good surface finish. Carbon Steel • Alloy Steel 	 VPET080201R-SRF
Light Cutting	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 	 CPMH090304-SV

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Breaker Name and Cross Section
	CPMH_FV  A148			TPMH_FV  A164				FV 
	CPGT  A148							Standard 
				TPGH_R/L-FS  A164		WPGT_R/L-FS  A177		R/L-FS 
	CPMH_R/L-F  A148							R/L-F(M) 
	CPGT_R/L-F  A148							R/L-F(G) 
				TPGX_R/L  A165				R/L 
				TPMX_L  A165				L 
					VPET_R/L-SRF  A174			SRF 
	CPMH_SV  A148			TPMH_SV  A165				SV 

CLASSIFICATION

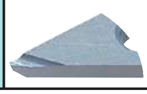
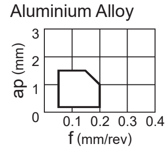
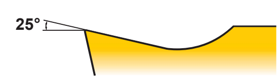
11° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
Medium Cutting	M	**Standard** 	**Alternative chipbreaker for medium cutting of carbon steel, alloy steel and stainless steel** Standard, general purpose chipbreaker. 		
Medium Cutting	M	**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. 		
Medium Cutting	G	**SMG** 	**Chipbreaker for medium cutting of automatic lathe machining** 3D moulded chipbreaker provides good chip control. G class insert gives sharp cutting action, allowing high precision machining. Breaker geometry appropriate for copying and back turning. 		
For Cast Iron	M	**Flat Top** 	**Chipbreaker for Heavy cutting of cast iron** Flat top. Most effective for unstable machining due to its high edge strength. 		
For Cast Iron	G	**Flat Top** 	**Chipbreaker 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. 		

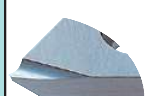
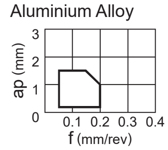
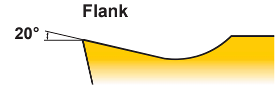
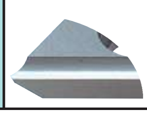
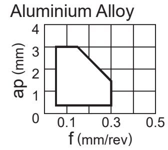
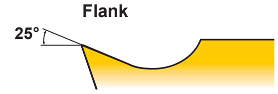
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Breaker Name and Cross Section
	CPMX  A148		**SPMT**  A159	**TPMX**  A165				**Standard**
	CPMH_MV  A148			**TPMH_MV**  A165		**WPMT_MV**  A177		**MV**
					VPGT_SMG  A174			**SMG**
			SPMW  A159					**Flat Top(M)**
			SPGX  A159	**TPGX**  A166				**Flat Top(G)**

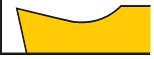
CLASSIFICATION

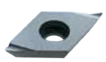
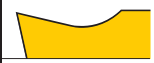
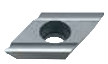
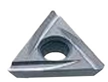
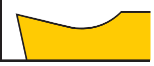
15° POSITIVE INSERTS WITH HOLE

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

20° POSITIVE INSERTS WITH HOLE

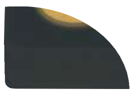
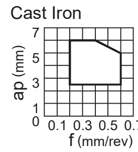
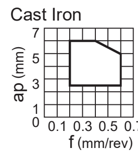
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
For Aluminium Alloy	G	**R/L-F** 	**Chipbreaker for aluminium alloy cutting** Lead chipbreaker. Sharp cutting edge gives a good surface finish. Aluminium Alloy 	 DEGX150402R-F	
		R/L 	**Chipbreaker for aluminium alloy cutting** A parallel chipbreaker. 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  A173			R/L 

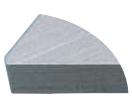
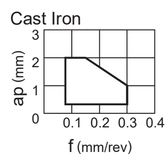
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Breaker Name and Cross Section
		DEGX_R/L-F  A155						R/L-F 
		DEGX_R/L  A155		TEGX_R/L  A163				R/L 

CLASSIFICATION

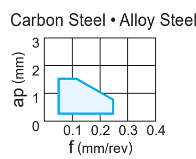
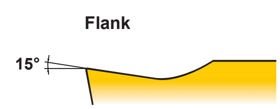
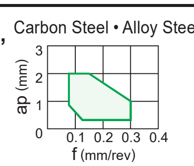
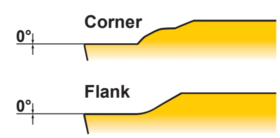
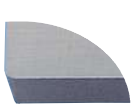
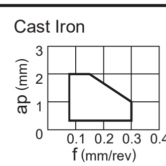
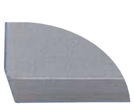
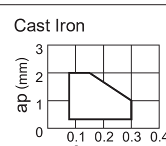
NEGATIVE INSERTS WITHOUT HOLE

Application	Tolerance	Breaker Name and Picture	Features		Cross Section Geometry
For Cast Iron	M	**Flat Top** 	**Chipbreaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping.		 SNMN120408
For Cast Iron	G	**Flat Top** 	**Chipbreaker 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.		 SNGN120408

7° POSITIVE INSERTS WITHOUT HOLE

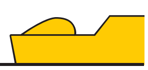
Application	Tolerance	Breaker Name and Picture	Features		Cross Section Geometry
For Cast Iron	G	**Flat Top** 	**Chipbreaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping. Can be used on workpieces requiring close tolerances due to G class insert tolerance.		 TNGN160408

11° POSITIVE INSERTS WITHOUT HOLE

Application	Tolerance	Breaker Name and Picture	Features		Cross Section Geometry
Finish Cutting	G	**R/L** 	**Chipbreaker for finishing** A parallel chipbreaker. Good chip control for low to medium feed rates.		 SPGR090304R
Light to Medium Cutting	M	**Standard** 	**Chipbreaker for light to medium cutting of carbon steel, alloy steel and stainless steel** Standard, general purpose chipbreaker.		 SPMR090308
For Cast Iron	M	**Flat Top** 	**Chipbreaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping.		 SPMN090308
For Cast Iron	G	**Flat Top** 	**Chipbreaker 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.		 SPGN090308

	Rhombic 80°	Square 90°	Triangular 60°	Breaker Name and Cross Section
	CNMN  ⮊ A137	SNMN  ⮊ A138	TNMN  ⮊ A139	Flat Top(M) 
		SNGN  ⮊ A138	TNGN  ⮊ A139	Flat Top(G) 

	Rhombic 80°	Square 90°	Triangular 60°	Breaker Name and Cross Section
			TCGN  ⮊ A181	Flat Top 

	Rhombic 80°	Square 90°	Triangular 60°	Breaker Name and Cross Section
		SPGR_R  ⮊ A180	TPGR_R/L  ⮊ A182	R/L 
		SPMR  ⮊ A180	TPMR  ⮊ A182	Standard 
		SPMN  ⮊ A180	TPMN  ⮊ A182	Flat Top(M) 
		SPGN  ⮊ A180	TPGN  ⮊ A182	Flat Top(G) 

SPECIAL PURPOSE INSERTS

Application	Tolerance	Tool Holder Type	Inserts
Special	G	TL Type	RTG  ⮊ A179

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

Breker : **Std** : Standard **Flat** : Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P									
Mild Steel (ASTM A36, AISI 1010)	≤180HB	●	F	1	FY	VP25N	285—450	0.09—0.23	0.20—0.80
		●	F	2	FY	NX2525	270—385	0.09—0.23	0.20—0.80
		●	F	3	FS	NX2525	270—385	0.09—0.23	0.20—0.70
		●	L	1	SY	VP25N	260—410	0.16—0.33	0.50—1.20
		●	L	2	SY	NX2525	245—350	0.16—0.33	0.50—1.20
		◐	F	1	FY	MP3025	275—425	0.09—0.23	0.20—0.80
		◐	F	2	FY	NX3035	260—370	0.09—0.23	0.20—0.80
		◐	F	3	FS	NX2525	270—385	0.09—0.23	0.20—0.70
		◐	L	1	SY	MP3025	255—385	0.16—0.33	0.50—1.20
		◐	L	2	SY	NX3035	240—340	0.16—0.33	0.50—1.20
		✤	F	1	FY	UE6020	285—465	0.09—0.23	0.20—0.80
		✤	F	2	FS	UE6020	285—465	0.09—0.23	0.20—0.70
		✤	L	1	SY	UE6020	260—425	0.16—0.33	0.50—1.20
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180—280HB	●	F	1	FP	NX2525	210—300	0.08—0.25	0.10—1.00
		●	F	2	FH	AP25N	220—345	0.08—0.20	0.20—1.00
		●	F	3	FH	NX2525	210—300	0.08—0.20	0.20—1.00
		●	F	4	R/L-F	MP3025	215—330	0.05—0.15	0.10—0.50
		●	F	5	PK	NX2525	200—285	0.10—0.30	0.20—1.00
		●	L	1	LP	MC6015	210—360	0.10—0.40	0.30—2.00
		●	L	2	LP	UE6105	225—410	0.10—0.40	0.30—2.00
		●	L	3	SH	UE6105	225—410	0.10—0.40	0.30—2.00
		●	L	4	LP	MP3025	195—300	0.10—0.40	0.30—2.00
		●	L	5	SH	AP25N	200—315	0.10—0.40	0.30—2.00
		●	L	6	SH	NX2525	190—275	0.10—0.40	0.30—2.00
		●	L	7	SA	UE6105	225—410	0.10—0.40	0.30—2.00
		●	L	8	SA	NX2525	190—275	0.10—0.40	0.30—2.00
		●	L	9	SW	UE6105	225—410	0.10—0.50	0.30—2.50
		●	L	10	SW	MP3025	195—300	0.10—0.50	0.30—2.50
		●	L	11	SW	NX2525	190—275	0.10—0.50	0.30—2.50
		●	L	12	R/L-K	MP3025	195—300	0.08—0.20	0.30—1.20
		●	M	1	MP	MC6015	195—330	0.16—0.50	0.30—4.00
		●	M	2	MP	UE6105	205—375	0.16—0.50	0.30—4.00
		●	M	3	MP	MP3025	180—275	0.16—0.50	0.30—4.00
		●	M	4	MA	UE6105	205—375	0.20—0.50	0.30—4.00
		●	M	5	MH	UE6105	205—375	0.20—0.55	1.00—4.00
		●	M	6	Std	UE6105	205—375	0.25—0.60	1.50—5.00
		●	M	7	Std	MP3025	180—275	0.25—0.60	1.50—5.00
		●	M	8	Std	NX2525	175—250	0.25—0.60	1.50—5.00
		●	M	9	Std	UTi20T	90—130	0.25—0.60	1.50—5.00
		●	M	10	MW	UE6105	205—375	0.20—0.60	0.90—4.00
		●	M	11	R/L	MP3025	180—275	0.15—0.32	0.40—2.00
		●	R	1	RP	MC6015	185—310	0.25—0.60	1.50—6.00
		●	R	2	RP	UE6105	190—355	0.25—0.60	1.50—6.00
		●	R	3	GH	UE6105	190—355	0.25—0.60	1.50—6.00
		●	H	1	HX	MC6025	165—265	0.50—1.26	3.00—11.00
		●	H	2	HX	UE6110	165—280	0.50—1.26	3.00—11.00
		●	H	3	HV	MC6025	135—220	0.70—1.30	4.00—12.00

Cutting Conditions : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting
Cutting Area : **F** : Finish Cutting **L** : Light Cutting **M** : Medium Cutting **R** : Rough Cutting **H** : Heavy Cutting

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P									
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB	●	**H**	4	**HV**	**UE6110**	135—230	0.70—1.30	4.00—12.00
		●	**H**	5	**HZ**	**MC6025**	165—265	0.40—1.20	2.00—10.00
		●	**H**	6	**HZ**	**UE6110**	165—280	0.40—1.20	2.00—10.00
		●	**H**	7	**HL**	**MC6025**	165—265	0.40—1.00	1.50—8.00
		●	**H**	8	**HM**	**MC6025**	165—265	0.50—1.10	2.00—10.00
		◐	**F**	1	**FP**	**MP3025**	215—330	0.08—0.25	0.10—1.00
		◐	**F**	2	**FH**	**MP3025**	215—330	0.08—0.20	0.20—1.00
		◐	**F**	3	**FH**	**NX3035**	200—285	0.08—0.20	0.20—1.00
		◐	**F**	4	**FH**	**UE6110**	230—395	0.08—0.20	0.20—1.00
		◐	**L**	1	**LP**	**MC6015**	210—360	0.10—0.40	0.30—2.00
		◐	**L**	2	**SH**	**MC6015**	210—360	0.10—0.40	0.30—2.00
		◐	**L**	3	**SA**	**MC6015**	210—360	0.10—0.40	0.30—2.00
		◐	**L**	4	**LP**	**UE6110**	210—360	0.10—0.40	0.30—2.00
		◐	**L**	5	**SH**	**UE6110**	210—360	0.10—0.40	0.30—2.00
		◐	**L**	6	**SA**	**UE6110**	210—360	0.10—0.40	0.30—2.00
		◐	**L**	7	**LP**	**MP3025**	195—300	0.10—0.40	0.30—2.00
		◐	**L**	8	**SH**	**NX3035**	185—260	0.10—0.40	0.30—2.00
		◐	**L**	9	**SA**	**NX3035**	185—260	0.10—0.40	0.30—2.00
		◐	**L**	10	**SW**	**MC6015**	210—360	0.10—0.50	0.30—2.50
		◐	**L**	11	**SW**	**UE6110**	210—360	0.10—0.50	0.30—2.50
		◐	**L**	12	**SW**	**NX3035**	185—260	0.10—0.50	0.30—2.50
		◐	**M**	1	**MP**	**MC6015**	195—330	0.16—0.50	0.30—4.00
		◐	**M**	2	**MA**	**MC6015**	195—330	0.20—0.50	0.30—4.00
		◐	**M**	3	**MH**	**MC6015**	195—330	0.20—0.55	1.00—4.00
		◐	**M**	4	**Std**	**MC6015**	195—330	0.25—0.60	1.50—5.00
		◐	**M**	5	**MP**	**UE6110**	195—330	0.16—0.50	0.30—4.00
		◐	**M**	6	**MA**	**UE6110**	195—330	0.20—0.50	0.30—4.00
		◐	**M**	7	**MA**	**NX3035**	170—240	0.20—0.50	0.30—4.00
		◐	**M**	8	**MH**	**UE6110**	195—330	0.20—0.55	1.00—4.00
		◐	**M**	9	**Std**	**UE6110**	195—330	0.25—0.60	1.50—5.00
		◐	**M**	10	**Std**	**NX3035**	170—240	0.25—0.60	1.50—5.00
		◐	**M**	11	**MW**	**MC6015**	195—330	0.20—0.60	0.90—4.00
		◐	**M**	12	**MW**	**UE6110**	195—330	0.20—0.60	0.90—4.00
		◐	**R**	1	**RP**	**MC6015**	185—310	0.25—0.60	1.50—6.00
		◐	**R**	2	**RP**	**UE6110**	185—310	0.25—0.60	1.50—6.00
		◐	**R**	3	**GH**	**UE6110**	185—310	0.25—0.60	1.50—6.00
		◐	**H**	1	**HX**	**MC6025**	165—265	0.50—1.26	3.00—11.00
		◐	**H**	2	**HX**	**UE6020**	155—255	0.50—1.26	3.00—11.00
		◐	**H**	3	**HV**	**MC6025**	135—220	0.70—1.30	4.00—12.00
		◐	**H**	4	**HV**	**UE6020**	125—210	0.70—1.30	4.00—12.00
		◐	**H**	5	**HZ**	**MC6025**	165—265	0.40—1.20	2.00—10.00
		◐	**H**	6	**HL**	**MC6025**	165—265	0.40—1.00	1.50—8.00
		◐	**H**	7	**HM**	**MC6025**	165—265	0.50—1.10	2.00—10.00
		◐	**H**	8	**HR**	**MC6025**	135—220	0.70—1.30	3.00—12.00
		◐	**H**	9	**HZ**	**UE6110**	165—280	0.40—1.20	2.00—10.00
		◐	**H**	10	**HAS**	**UE6020**	155—255	0.40—1.10	2.00—9.00
		✣	**F**	1	**FP**	**MC6025**	230—375	0.08—0.25	0.10—1.00

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

Breker : **Std** : Standard **Flat** : Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P									
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB	✤	**F**	2	**FP**	**MC6015**	230—395	0.08—0.25	0.10—1.00
		✤	**F**	3	**FH**	**UE6110**	230—395	0.08—0.20	0.20—1.00
		✤	**F**	4	**FH**	**UE6020**	220—360	0.08—0.20	0.20—1.00
		✤	**L**	1	**LP**	**MC6025**	210—345	0.10—0.40	0.30—2.00
		✤	**L**	2	**LP**	**MC6035**	185—260	0.10—0.40	0.30—2.00
		✤	**L**	3	**SH**	**MC6025**	210—345	0.10—0.40	0.30—2.00
		✤	**L**	4	**SA**	**MC6025**	210—345	0.10—0.40	0.30—2.00
		✤	**L**	5	**SH**	**UE6020**	200—330	0.10—0.40	0.30—2.00
		✤	**L**	6	**SA**	**UE6020**	200—330	0.10—0.40	0.30—2.00
		✤	**M**	1	**MP**	**MC6025**	195—315	0.16—0.50	0.30—4.00
		✤	**M**	2	**MP**	**MC6035**	170—240	0.16—0.50	0.30—4.00
		✤	**M**	3	**MP**	**UE6020**	185—300	0.16—0.50	0.30—4.00
		✤	**M**	4	**MA**	**MC6025**	195—315	0.20—0.50	0.30—4.00
		✤	**M**	5	**MA**	**MC6035**	170—240	0.20—0.50	0.30—4.00
		✤	**M**	6	**MA**	**UE6020**	185—300	0.20—0.50	0.30—4.00
		✤	**M**	7	**MH**	**MC6025**	195—315	0.20—0.55	1.00—4.00
		✤	**M**	8	**MH**	**MC6035**	170—240	0.20—0.55	1.00—4.00
		✤	**M**	9	**MH**	**UE6020**	185—300	0.20—0.55	1.00—4.00
		✤	**M**	10	**Std**	**MC6025**	195—315	0.25—0.60	1.50—5.00
		✤	**M**	11	**Std**	**MC6035**	170—240	0.25—0.60	1.50—5.00
		✤	**M**	12	**Std**	**UE6020**	185—300	0.25—0.60	1.50—5.00
		✤	**M**	13	**MW**	**MC6025**	195—315	0.20—0.60	0.90—4.00
		✤	**M**	14	**MW**	**UE6020**	185—300	0.20—0.60	0.90—4.00
		✤	**R**	1	**RP**	**MC6025**	185—295	0.25—0.60	1.50—6.00
		✤	**R**	2	**RP**	**MC6035**	160—225	0.25—0.60	1.50—6.00
		✤	**R**	3	**GH**	**UE6020**	175—285	0.25—0.60	1.50—6.00
		✤	**H**	1	**HX**	**MC6035**	140—200	0.50—1.26	3.00—11.00
		✤	**H**	2	**HX**	**UH6400**	140—195	0.50—1.26	3.00—11.00
		✤	**H**	3	**HV**	**MC6035**	115—165	0.70—1.30	4.00—12.00
		✤	**H**	4	**HV**	**UH6400**	115—160	0.70—1.30	4.00—12.00
		✤	**H**	5	**HZ**	**UE6020**	155—255	0.40—1.20	2.00—10.00
		✤	**H**	6	**HZ**	**MC6035**	140—200	0.40—1.20	2.00—10.00
		✤	**H**	7	**HZ**	**UH6400**	140—195	0.40—1.20	2.00—10.00
		✤	**H**	8	**HL**	**MC6035**	140—200	0.40—1.00	1.50—8.00
		✤	**H**	9	**HM**	**MC6035**	140—200	0.50—1.10	2.00—10.00
		✤	**H**	10	**HR**	**MC6035**	115—165	0.70—1.30	3.00—12.00
		✤	**H**	11	**HAS**	**UH6400**	140—195	0.40—1.10	2.00—9.00

Cutting Conditions : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting
Cutting Area : **F** : Finish Cutting **L** : Light Cutting **M** : Medium Cutting **R** : Rough Cutting **H** : Heavy Cutting

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M									
Austenitic Stainless Steel (AISI 304, AISI 316)	≤200HB	●	**L**	1	**LM**	**MC7015**	180—285	0.10—0.30	0.30—2.00
		●	**L**	2	**SH**	**US735**	95—185	0.10—0.40	0.30—2.00
		●	**L**	3	**SH**	**NX2525**	65—135	0.10—0.40	0.30—2.00
		●	**L**	4	**SW**	**US7020**	110—275	0.10—0.50	0.30—2.50
		●	**M**	1	**MM**	**MC7015**	165—260	0.15—0.45	0.70—5.00
		●	**M**	2	**GM**	**MC7015**	165—260	0.16—0.50	0.50—4.00
		●	**M**	3	**MS**	**US7020**	100—250	0.16—0.50	0.50—4.00
		●	**M**	4	**MA**	**US7020**	100—250	0.20—0.50	0.30—4.00
		●	**M**	5	**MH**	**US7020**	100—250	0.20—0.55	1.00—4.00
		●	**M**	6	**MW**	**US7020**	100—250	0.20—0.60	0.90—4.00
		●	**R**	1	**RM**	**MC7015**	155—245	0.25—0.55	1.50—6.00
		●	**R**	2	**GH**	**US7020**	95—235	0.25—0.60	1.50—6.00
		●	**H**	1	**HL**	**US735**	75—140	0.40—1.00	1.50—8.00
		●	**H**	2	**HL**	**US735**	75—140	0.40—1.00	1.50—8.00
		●	**H**	3	**GH**	**US7020**	95—235	0.25—0.60	1.50—6.00
		◐	**L**	1	**LM**	**MC7025**	165—220	0.10—0.30	0.30—2.00
		◐	**L**	2	**SH**	**US735**	95—185	0.10—0.40	0.30—2.00
		◐	**M**	1	**MM**	**MC7025**	150—200	0.15—0.45	0.70—5.00
		◐	**M**	2	**GM**	**MC7025**	150—200	0.16—0.50	0.50—4.00
		◐	**M**	3	**MA**	**MC7025**	150—200	0.20—0.50	0.30—4.00
		◐	**M**	4	**MS**	**US735**	90—170	0.16—0.50	0.50—4.00
		◐	**M**	5	**MA**	**US735**	90—170	0.20—0.50	0.30—4.00
		◐	**R**	1	**RM**	**MC7025**	140—190	0.25—0.55	1.50—6.00
		◐	**R**	2	**GH**	**US735**	85—160	0.25—0.60	1.50—6.00
		◐	**H**	1	**HL**	**US735**	75—140	0.40—1.00	1.50—8.00
		◐	**H**	2	**HM**	**US735**	75—140	0.50—1.10	2.00—10.00
		✤	**L**	1	**LM**	**MP7035**	95—155	0.10—0.30	0.30—2.00
		✤	**L**	2	**SH**	**US735**	95—185	0.10—0.40	0.30—2.00
		✤	**M**	1	**MM**	**MP7035**	90—145	0.15—0.45	0.70—5.00
		✤	**M**	2	**GM**	**MP7035**	90—145	0.16—0.50	0.50—4.00
		✤	**M**	3	**MA**	**MP7035**	90—145	0.20—0.50	0.30—4.00
		✤	**M**	4	**MS**	**US735**	90—170	0.16—0.50	0.50—4.00
		✤	**M**	5	**MS**	**VP15TF**	80—135	0.16—0.50	0.50—4.00
		✤	**M**	6	**MS**	**UP20M**	100—150	0.16—0.50	0.50—4.00
		✤	**M**	7	**MS**	**UTi20T**	80—115	0.16—0.50	0.50—4.00
		✤	**M**	8	**MA**	**VP15TF**	80—135	0.20—0.50	0.30—4.00
		✤	**M**	9	**Std**	**VP15TF**	80—135	0.25—0.60	1.50—5.00
		✤	**R**	1	**RM**	**MP7035**	85—135	0.25—0.55	1.50—6.00
		✤	**R**	2	**GH**	**US735**	85—160	0.25—0.60	1.50—6.00
		✤	**H**	1	**HL**	**US735**	75—140	0.40—1.00	1.50—8.00
		✤	**H**	2	**HM**	**US735**	75—140	0.50—1.10	2.00—10.00

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

Breker : **Std** : Standard **Flat** : Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M									
Austenitic Stainless Steel (AISI 304LN, AISI 316LN)	>200HB	●	**L**	1	**LM**	**MC7015**	150—240	0.10—0.30	0.30—2.00
		●	**L**	2	**SH**	**US735**	80—155	0.10—0.40	0.30—2.00
		●	**L**	3	**SH**	**NX2525**	55—115	0.10—0.40	0.30—2.00
		●	**L**	4	**SW**	**US7020**	90—230	0.10—0.50	0.30—2.50
		●	**M**	1	**MM**	**MC7015**	135—215	0.15—0.45	0.70—5.00
		●	**M**	2	**GM**	**MC7015**	135—215	0.16—0.50	0.50—4.00
		●	**M**	3	**MS**	**US7020**	80—210	0.16—0.50	0.50—4.00
		●	**M**	4	**MA**	**US7020**	80—210	0.20—0.50	0.30—4.00
		●	**M**	5	**MH**	**US7020**	80—210	0.20—0.55	1.00—4.00
		●	**M**	6	**MW**	**US7020**	80—210	0.20—0.60	0.90—4.00
		●	**R**	1	**RM**	**MC7015**	130—205	0.25—0.55	1.50—6.00
		●	**R**	2	**GH**	**US7020**	75—195	0.25—0.60	1.50—6.00
		●	**H**	1	**HL**	**US735**	60—120	0.40—1.00	1.50—8.00
		●	**H**	2	**HM**	**US735**	60—120	0.50—1.10	2.00—10.00
		◐	**L**	1	**LM**	**MC7025**	135—180	0.10—0.30	0.30—2.00
		◐	**L**	2	**SH**	**US735**	80—155	0.10—0.40	0.30—2.00
		◐	**M**	1	**MM**	**MC7025**	125—165	0.15—0.45	0.70—5.00
		◐	**M**	2	**GM**	**MC7025**	125—165	0.16—0.50	0.50—4.00
		◐	**M**	3	**MA**	**MC7025**	125—165	0.20—0.50	0.30—4.00
		◐	**M**	4	**MS**	**US735**	75—140	0.16—0.50	0.50—4.00
		◐	**M**	5	**MA**	**US735**	75—140	0.20—0.50	0.30—4.00
		◐	**R**	1	**RM**	**MC7025**	115—155	0.25—0.55	1.50—6.00
		◐	**R**	2	**GH**	**US735**	70—135	0.25—0.60	1.50—6.00
		◐	**H**	1	**HL**	**US735**	60—120	0.40—1.00	1.50—8.00
		◐	**H**	2	**HM**	**US735**	60—120	0.50—1.10	2.00—10.00
		✤	**L**	1	**LM**	**MP7035**	80—130	0.10—0.30	0.30—2.00
		✤	**L**	2	**SH**	**US735**	80—155	0.10—0.40	0.30—2.00
		✤	**M**	1	**MM**	**MP7035**	75—120	0.15—0.45	0.70—5.00
		✤	**M**	2	**GM**	**MP7035**	75—120	0.16—0.50	0.50—4.00
		✤	**M**	3	**MA**	**MP7035**	75—120	0.20—0.50	0.30—4.00
		✤	**M**	4	**MS**	**US735**	75—140	0.16—0.50	0.50—4.00
		✤	**M**	5	**MS**	**VP15TF**	65—110	0.16—0.50	0.50—4.00
		✤	**M**	6	**MS**	**UP20M**	80—125	0.16—0.50	0.50—4.00
		✤	**M**	7	**MS**	**UTi20T**	65—95	0.16—0.50	0.50—4.00
		✤	**M**	8	**MA**	**VP15TF**	65—110	0.20—0.50	0.30—4.00
		✤	**M**	9	**Std**	**VP15TF**	65—110	0.25—0.60	1.50—5.00
		✤	**R**	1	**RM**	**MP7035**	70—115	0.25—0.55	1.50—6.00
		✤	**R**	2	**GH**	**US735**	70—135	0.25—0.60	1.50—6.00
		✤	**H**	1	**HL**	**US735**	60—120	0.40—1.00	1.50—8.00
		✤	**H**	2	**HM**	**US735**	60—120	0.50—1.10	2.00—10.00
Two-phase Stainless Steel (AISI 329)	≤280HB	●	**L**	1	**LM**	**MC7015**	120—190	0.10—0.30	0.30—2.00
		●	**L**	2	**SH**	**US735**	65—125	0.10—0.40	0.30—2.00
		●	**L**	3	**SH**	**NX2525**	40—90	0.10—0.40	0.30—2.00
		●	**L**	4	**SW**	**US7020**	70—185	0.10—0.50	0.30—2.50
		●	**M**	1	**MM**	**MC7015**	110—175	0.15—0.45	0.70—5.00
		●	**M**	2	**GM**	**MC7015**	110—175	0.16—0.50	0.50—4.00
		●	**M**	3	**MS**	**US7020**	65—170	0.16—0.50	0.50—4.00

CUTTING CONDITIONS : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting
CUTTING AREA : **F** : Finish Cutting **L** : Light Cutting **M** : Medium Cutting **R** : Rough Cutting **H** : Heavy Cutting

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M									
Two-phase Stainless Steel (AISI 329)	≤280HB	●	**M**	4	**MA**	**US7020**	65—170	0.20—0.50	0.30—4.00
		●	**M**	5	**MH**	**US7020**	65—170	0.20—0.55	1.00—4.00
		●	**M**	6	**MW**	**US7020**	65—170	0.20—0.60	0.90—4.00
		●	**R**	1	**RM**	**MC7015**	105—165	0.25—0.55	1.50—6.00
		●	**R**	2	**GH**	**US7020**	60—160	0.25—0.60	1.50—6.00
		●	**H**	1	**HL**	**US735**	50—95	0.40—1.00	1.50—8.00
		●	**H**	2	**HM**	**US735**	50—95	0.50—1.10	2.00—10.00
			L	1	**LM**	**MC7025**	110—145	0.10—0.30	0.30—2.00
			L	2	**SH**	**US735**	65—125	0.10—0.40	0.30—2.00
			M	1	**MM**	**MC7025**	100—135	0.15—0.45	0.70—5.00
			M	2	**GM**	**MC7025**	100—135	0.16—0.50	0.50—4.00
			M	3	**MA**	**MC7025**	100—135	0.20—0.50	0.30—4.00
			M	4	**MS**	**US735**	60—115	0.16—0.50	0.50—4.00
			M	5	**MA**	**US735**	60—115	0.20—0.50	0.30—4.00
			R	1	**RM**	**MC7025**	95—125	0.25—0.55	1.50—6.00
			R	2	**GH**	**US735**	55—105	0.25—0.60	1.50—6.00
			H	1	**HL**	**US735**	50—95	0.40—1.00	1.50—8.00
			H	2	**HM**	**US735**	50—95	0.50—1.10	2.00—10.00
			L	1	**LM**	**MP7035**	65—105	0.10—0.30	0.30—2.00
			L	2	**SH**	**US735**	65—125	0.10—0.40	0.30—2.00
			M	1	**MM**	**MP7035**	60—95	0.15—0.45	0.70—5.00
			M	2	**GM**	**MP7035**	60—95	0.16—0.50	0.50—4.00
			M	3	**MA**	**MP7035**	60—95	0.20—0.50	0.30—4.00
			M	4	**MS**	**US735**	60—115	0.16—0.50	0.50—4.00
			M	5	**MS**	**VP15TF**	50—90	0.16—0.50	0.50—4.00
			M	6	**MS**	**UP20M**	65—100	0.16—0.50	0.50—4.00
			M	7	**MS**	**UTi20T**	50—75	0.16—0.50	0.50—4.00
			M	8	**MA**	**VP15TF**	50—90	0.20—0.50	0.30—4.00
			M	9	**Std**	**VP15TF**	50—90	0.25—0.60	1.50—5.00
			R	1	**RM**	**MP7035**	55—90	0.25—0.55	1.50—6.00
			R	2	**GH**	**US735**	55—105	0.25—0.60	1.50—6.00
			H	1	**HL**	**US735**	50—95	0.40—1.00	1.50—8.00
			H	2	**HM**	**US735**	50—95	0.50—1.10	2.00—10.00
Ferritic and Martensitic Stainless Steel (AISI 410, AISI 430)	≤200HB	●	**L**	1	**LM**	**MC7015**	180—285	0.10—0.30	0.30—2.00
		●	**L**	2	**SH**	**US735**	95—185	0.10—0.40	0.30—2.00
		●	**L**	3	**SH**	**NX2525**	65—135	0.10—0.40	0.30—2.00
		●	**L**	4	**SW**	**US7020**	110—275	0.10—0.50	0.30—2.50
		●	**M**	1	**MM**	**MC7015**	165—260	0.15—0.45	0.70—5.00
		●	**M**	2	**GM**	**MC7015**	165—260	0.16—0.50	0.50—4.00
		●	**M**	3	**MS**	**US7020**	100—250	0.16—0.50	0.50—4.00
		●	**M**	4	**MA**	**US7020**	100—250	0.20—0.50	0.30—4.00
		●	**M**	5	**MH**	**US7020**	100—250	0.20—0.55	1.00—4.00
		●	**M**	6	**MW**	**US7020**	100—250	0.20—0.60	0.90—4.00
		●	**R**	1	**RM**	**MC7015**	155—245	0.25—0.55	1.50—6.00
		●	**R**	2	**GH**	**US7020**	95—235	0.25—0.60	1.50—6.00
		●	**H**	1	**HL**	**US735**	75—140	0.40—1.00	1.50—8.00
		●	**H**	2	**HM**	**US735**	75—140	0.50—1.10	2.00—10.00

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

Breker : **Std** : Standard **Flat** : Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M									
Ferritic and Martensitic Stainless Steel (AISI 410, AISI 430)	≤200HB	◐	**L**	1	**LM**	**MC7025**	165—220	0.10—0.30	0.30—2.00
		◐	**L**	2	**SH**	**US735**	95—185	0.10—0.40	0.30—2.00
		◐	**M**	1	**MM**	**MC7025**	150—200	0.15—0.45	0.70—5.00
		◐	**M**	2	**GM**	**MC7025**	150—200	0.16—0.50	0.50—4.00
		◐	**M**	3	**MA**	**MC7025**	150—200	0.20—0.50	0.30—4.00
		◐	**M**	4	**MA**	**US735**	90—170	0.20—0.50	0.30—4.00
		◐	**M**	5	**MS**	**US735**	90—170	0.16—0.50	0.50—4.00
		◐	**R**	1	**RM**	**MC7025**	140—190	0.25—0.55	1.50—6.00
		◐	**R**	2	**GH**	**US735**	85—160	0.25—0.60	1.50—6.00
		◐	**H**	1	**HL**	**US735**	75—140	0.40—1.00	1.50—8.00
		◐	**H**	2	**HM**	**US735**	75—140	0.50—1.10	2.00—10.00
		✣	**L**	1	**LM**	**MP7035**	95—155	0.10—0.30	0.30—2.00
		✣	**L**	2	**SH**	**US735**	95—185	0.10—0.40	0.30—2.00
		✣	**M**	1	**MM**	**MP7035**	90—145	0.15—0.45	0.70—5.00
		✣	**M**	2	**GM**	**MP7035**	90—145	0.16—0.50	0.50—4.00
		✣	**M**	3	**MA**	**MP7035**	90—145	0.20—0.50	0.30—4.00
		✣	**M**	4	**MS**	**US735**	90—170	0.16—0.50	0.50—4.00
		✣	**M**	5	**MS**	**VP15TF**	80—135	0.16—0.50	0.50—4.00
		✣	**M**	6	**MS**	**UP20M**	100—150	0.16—0.50	0.50—4.00
		✣	**M**	7	**MS**	**UTi20T**	80—115	0.16—0.50	0.50—4.00
		✣	**M**	8	**MA**	**VP15TF**	80—135	0.20—0.50	0.30—4.00
		✣	**M**	9	**Std**	**VP15TF**	80—135	0.25—0.60	1.50—5.00
		✣	**R**	1	**RM**	**MP7035**	85—135	0.25—0.55	1.50—6.00
		✣	**R**	2	**GH**	**US735**	85—160	0.25—0.60	1.50—6.00
		✣	**H**	1	**HL**	**US735**	75—140	0.40—1.00	1.50—8.00
		✣	**H**	2	**HM**	**US735**	75—140	0.50—1.10	2.00—10.00

CUTTING CONDITIONS : ● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
CUTTING AREA : **F** : Finish Cutting **L** : Light Cutting **M** : Medium Cutting **R** : Rough Cutting **H** : Heavy Cutting

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M									
Ferritic and Martensitic Stainless Steel (AISI 431, AISI 420)	>200HB	●	**L**	1	**LM**	**MC7015**	150—240	0.10—0.30	0.30—2.00
		●	**L**	2	**SH**	**US735**	80—155	0.10—0.40	0.30—2.00
		●	**L**	3	**SH**	**NX2525**	55—115	0.10—0.40	0.30—2.00
		●	**L**	4	**SW**	**US7020**	90—230	0.10—0.50	0.30—2.50
		●	**M**	1	**MM**	**MC7015**	135—215	0.15—0.45	0.70—5.00
		●	**M**	2	**GM**	**MC7015**	135—215	0.16—0.50	0.50—4.00
		●	**M**	3	**MS**	**US7020**	80—210	0.16—0.50	0.50—4.00
		●	**M**	4	**MA**	**US7020**	80—210	0.20—0.50	0.30—4.00
		●	**M**	5	**MH**	**US7020**	80—210	0.20—0.55	1.00—4.00
		●	**M**	6	**MW**	**US7020**	80—210	0.20—0.60	0.90—4.00
		●	**R**	1	**RM**	**MC7015**	130—205	0.25—0.55	1.50—6.00
		●	**R**	2	**GH**	**US7020**	75—195	0.25—0.60	1.50—6.00
		●	**H**	1	**HL**	**US735**	60—120	0.40—1.00	1.50—8.00
		●	**H**	2	**HM**	**US735**	60—120	0.50—1.10	2.00—10.00
		◐	**L**	1	**LM**	**MC7025**	135—180	0.10—0.30	0.30—2.00
		◐	**L**	2	**SH**	**US735**	80—155	0.10—0.40	0.30—2.00
		◐	**M**	1	**MM**	**MC7025**	125—165	0.15—0.45	0.70—5.00
		◐	**M**	2	**MA**	**MC7025**	125—165	0.20—0.50	0.30—4.00
		◐	**M**	3	**MA**	**US735**	75—140	0.20—0.50	0.30—4.00
		◐	**M**	4	**MS**	**US735**	75—140	0.16—0.50	0.50—4.00
		◐	**R**	1	**RM**	**MC7025**	115—155	0.25—0.55	1.50—6.00
		◐	**R**	2	**GH**	**US735**	70—135	0.25—0.60	1.50—6.00
		◐	**H**	1	**HL**	**US735**	60—120	0.40—1.00	1.50—8.00
		◐	**H**	2	**HM**	**US735**	60—120	0.50—1.10	2.00—10.00
		✤	**L**	1	**LM**	**MP7035**	80—130	0.10—0.30	0.30—2.00
		✤	**L**	2	**SH**	**US735**	80—155	0.10—0.40	0.30—2.00
		✤	**M**	1	**MM**	**MP7035**	75—120	0.15—0.45	0.70—5.00
		✤	**M**	2	**GM**	**MP7035**	75—120	0.16—0.50	0.50—4.00
		✤	**M**	3	**MA**	**MP7035**	75—120	0.20—0.50	0.30—4.00
		✤	**M**	4	**MS**	**US735**	75—140	0.16—0.50	0.50—4.00
		✤	**M**	5	**MS**	**VP15TF**	65—110	0.16—0.50	0.50—4.00
		✤	**M**	6	**MS**	**UP20M**	80—125	0.16—0.50	0.50—4.00
		✤	**M**	7	**MS**	**UTi20T**	65—95	0.16—0.50	0.50—4.00
		✤	**M**	8	**MA**	**VP15TF**	65—110	0.20—0.50	0.30—4.00
		✤	**M**	9	**Std**	**VP15TF**	65—110	0.25—0.60	1.50—5.00
		✤	**R**	1	**RM**	**MP7035**	70—115	0.25—0.55	1.50—6.00
		✤	**R**	2	**GH**	**US735**	70—135	0.25—0.60	1.50—6.00
		✤	**H**	1	**HL**	**US735**	60—120	0.40—1.00	1.50—8.00
		✤	**H**	2	**HM**	**US735**	60—120	0.50—1.10	2.00—10.00
Hardened Stainless Steel (AISI 630, AISI 631)	<450HB	●	**L**	1	**LM**	**MC7015**	100—160	0.10—0.30	0.30—2.00
		●	**L**	2	**LS(M)**	**MP9005**	125—175	0.10—0.25	0.20—0.80
		●	**L**	3	**SH**	**US735**	55—100	0.10—0.40	0.30—2.00
		●	**L**	4	**SH**	**NX2525**	35—75	0.10—0.40	0.30—2.00
		●	**L**	5	**SW**	**US7020**	60—150	0.10—0.50	0.30—2.50
		●	**M**	1	**MM**	**MC7015**	90—145	0.15—0.45	0.70—5.00
		●	**M**	2	**GM**	**MC7015**	90—145	0.16—0.50	0.50—4.00
		●	**M**	3	**MS**	**US7020**	55—140	0.16—0.50	0.50—4.00

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

Breker : **Std** : Standard **Flat** : Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M									
Hardened Stainless Steel (AISI 630, AISI 631)	<450HB	●	**M**	4	**MA**	**US7020**	55—140	0.20—0.50	0.30—4.00
		●	**M**	5	**MS**	**MP9005**	115—160	0.16—0.50	0.50—4.00
		●	**M**	6	**MH**	**US7020**	55—140	0.20—0.55	1.00—4.00
		●	**M**	7	**MW**	**US7020**	55—140	0.20—0.60	0.90—4.00
		●	**R**	1	**RM**	**MC7015**	85—135	0.25—0.55	1.50—6.00
		●	**R**	2	**GH**	**US7020**	50—130	0.25—0.60	1.50—6.00
		●	**H**	1	**HL**	**US735**	40—80	0.40—1.00	1.50—8.00
		●	**H**	2	**HM**	**US735**	40—80	0.50—1.10	2.00—10.00
		◐	**L**	1	**LM**	**MC7025**	90—120	0.10—0.30	0.30—2.00
		◐	**L**	2	**SH**	**US735**	55—100	0.10—0.40	0.30—2.00
		◐	**L**	3	**LS(M)**	**MP9015**	120—165	0.10—0.25	0.20—0.80
		◐	**M**	1	**MM**	**MC7025**	80—110	0.15—0.45	0.70—5.00
		◐	**M**	2	**GM**	**MC7025**	80—110	0.16—0.50	0.50—4.00
		◐	**M**	3	**MA**	**MC7025**	80—110	0.20—0.50	0.30—4.00
		◐	**M**	4	**MS**	**US735**	50—95	0.16—0.50	0.50—4.00
		◐	**M**	5	**MA**	**US735**	50—95	0.20—0.50	0.30—4.00
		◐	**M**	6	**MS**	**MP9015**	110—150	0.16—0.50	0.50—4.00
		◐	**R**	1	**RM**	**MC7025**	75—105	0.25—0.55	1.50—6.00
		◐	**R**	2	**GH**	**US735**	45—90	0.25—0.60	1.50—6.00
		◐	**R**	3	**RS**	**MP9015**	100—140	0.20—0.35	1.00—4.00
		◐	**H**	1	**HL**	**US735**	40—80	0.40—1.00	1.50—8.00
		◐	**H**	2	**HM**	**US735**	40—80	0.50—1.10	2.00—10.00
		✤	**L**	1	**LM**	**MP7035**	55—85	0.10—0.30	0.30—2.00
		✤	**L**	2	**SH**	**US735**	55—100	0.10—0.40	0.30—2.00
		✤	**L**	3	**LS(M)**	**MP9025**	80—95	0.10—0.25	0.20—0.80
		✤	**M**	1	**MM**	**MP7035**	50—80	0.15—0.45	0.70—5.00
		✤	**M**	2	**GM**	**MP7035**	50—80	0.16—0.50	0.50—4.00
		✤	**M**	3	**MA**	**MP7035**	50—80	0.20—0.50	0.30—4.00
		✤	**M**	4	**MS**	**US735**	50—95	0.16—0.50	0.50—4.00
		✤	**M**	5	**MS**	**VP15TF**	40—75	0.16—0.50	0.50—4.00
		✤	**M**	6	**MS**	**UP20M**	55—80	0.16—0.50	0.50—4.00
		✤	**M**	7	**MS**	**UTi20T**	40—60	0.16—0.50	0.50—4.00
		✤	**M**	8	**MA**	**VP15TF**	40—75	0.20—0.50	0.30—4.00
		✤	**M**	9	**Std**	**VP15TF**	40—75	0.25—0.60	1.50—5.00
		✤	**M**	1	**MS**	**MP9025**	75—90	0.16—0.50	0.50—4.00
		✤	**R**	1	**RM**	**MP7035**	45—75	0.25—0.55	1.50—6.00
		✤	**R**	2	**GH**	**US735**	45—90	0.25—0.60	1.50—6.00
		✤	**R**	3	**RS**	**MP9025**	70—85	0.20—0.35	1.00—4.00
		✤	**H**	1	**HL**	**US735**	40—80	0.40—1.00	1.50—8.00
		✤	**H**	2	**HM**	**US735**	40—80	0.50—1.10	2.00—10.00

CUTTING CONDITIONS : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting
CUTTING AREA : **F** : Finish Cutting **L** : Light Cutting **M** : Medium Cutting **R** : Rough Cutting **H** : Heavy Cutting

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
K									
Gray Cast Iron (FC300)	≤350MPa	●	L	1	LK	MC5005	230—365	0.10—0.40	0.30—2.00
		●	L	2	MA	MC5005	210—335	0.20—0.50	0.30—4.00
		●	L	3	MA	UC5105	170—310	0.20—0.50	0.30—4.00
		●	M	1	MK	MC5005	210—335	0.20—0.55	1.00—4.00
		●	M	2	GK	MC5005	210—335	0.25—0.60	1.50—5.00
		●	M	3	Std	UC5105	170—310	0.25—0.60	1.50—5.00
		●	M	4	Std	NX2525	155—210	0.25—0.60	1.50—5.00
		●	M	5	MW	MC5005	210—335	0.20—0.60	0.90—4.00
		●	R	1	RK	MC5005	195—315	0.25—0.60	1.50—6.00
		●	R	2	Flat	MC5005	195—315	0.20—0.60	2.50—6.00
		●	R	3	GH	UC5105	160—290	0.25—0.60	1.50—6.00
		●	R	4	Flat	UC5105	160—290	0.20—0.60	2.50—6.00
		●	R	5	Flat	HTi10	95—140	0.20—0.60	2.50—6.00
		●	R	6	Flat	HTi05T	105—185	0.20—0.60	2.50—6.00
		●	H	1	Flat	MC5005	195—315	0.20—0.60	2.50—6.00
		●	H	2	Flat	UC5105	160—290	0.20—0.60	2.50—6.00
		◐	L	1	LK	MC5015	205—335	0.10—0.40	0.30—2.00
		◐	L	2	MA	MC5015	190—305	0.20—0.50	0.30—4.00
		◐	L	3	MA	UC5115	165—300	0.20—0.50	0.30—4.00
		◐	L	4	SW	MC5015	205—335	0.10—0.50	0.30—2.50
		◐	L	5	SW	UC5115	180—330	0.10—0.50	0.30—2.50
		◐	M	1	MK	MC5015	190—305	0.20—0.55	1.00—4.00
		◐	M	2	GK	MC5015	190—305	0.25—0.60	1.50—5.00
		◐	M	3	Std	UC5115	165—300	0.25—0.60	1.50—5.00
		◐	M	4	Std	HTi10	105—150	0.25—0.60	1.50—5.00
		◐	M	5	MH	UC5115	165—300	0.20—0.55	1.00—4.00
		◐	M	6	MP	UC5115	165—300	0.16—0.50	0.30—4.00
		◐	M	7	MW	MC5015	190—305	0.20—0.60	0.90—4.00
		◐	M	8	MW	UC5115	165—300	0.20—0.60	0.90—4.00
		◐	R	1	RK	MC5015	180—285	0.25—0.60	1.50—6.00
		◐	R	2	Flat	MC5015	180—285	0.20—0.60	2.50—6.00
		◐	R	3	GH	UC5115	155—285	0.25—0.60	1.50—6.00
		◐	R	4	Flat	UC5115	155—285	0.20—0.60	2.50—6.00
		◐	H	1	Flat	MC5015	180—285	0.20—0.60	2.50—6.00
		◐	H	2	Flat	UC5115	155—285	0.20—0.60	2.50—6.00
		✣	L	1	LK	MC5015	205—335	0.10—0.40	0.30—2.00
		✣	L	2	MA	MC5015	190—305	0.20—0.50	0.30—4.00
		✣	L	3	MA	UC5115	165—300	0.20—0.50	0.30—4.00
		✣	M	1	MK	MC5015	190—305	0.20—0.55	1.00—4.00
		✣	M	2	GK	MC5015	190—305	0.25—0.60	1.50—5.00
		✣	M	3	Std	UC5115	165—300	0.25—0.60	1.50—5.00
		✣	M	4	Std	UTi20T	85—120	0.25—0.60	1.50—5.00
		✣	R	1	RK	MC5015	180—285	0.25—0.60	1.50—6.00
		✣	R	2	Flat	MC5015	180—285	0.20—0.60	2.50—6.00
		✣	R	3	GH	UC5115	155—285	0.25—0.60	1.50—6.00
		✣	R	4	Flat	UC5115	155—285	0.20—0.60	2.50—6.00
		✣	R	5	Flat	UTi20T	80—110	0.20—0.60	2.50—6.00
		✣	H	1	Flat	MC5015	180—285	0.20—0.60	2.50—6.00
		✣	H	2	Flat	UC5115	155—285	0.20—0.60	2.50—6.00

A

TURNING INSERTS

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

Breker : **Std** : Standard **Flat** : Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
K									
Ductile Cast Iron (FCD450)	≤450MPa	●	**L**	1	**LK**	**MC5005**	215—350	0.10—0.40	0.30—2.00
		●	**L**	2	**MA**	**MC5005**	195—315	0.20—0.50	0.30—4.00
		●	**L**	3	**MA**	**UC5105**	160—290	0.20—0.50	0.30—4.00
		●	**M**	1	**MK**	**MC5005**	195—315	0.20—0.55	1.00—4.00
		●	**M**	2	**GK**	**MC5005**	195—315	0.25—0.60	1.50—5.00
		●	**M**	3	**Std**	**UC5105**	160—290	0.25—0.60	1.50—5.00
		●	**M**	4	**Std**	**NX2525**	145—195	0.25—0.60	1.50—5.00
		●	**R**	1	**RK**	**MC5005**	185—300	0.25—0.60	1.50—6.00
		●	**R**	2	**Flat**	**MC5005**	185—300	0.20—0.60	2.50—6.00
		●	**R**	3	**GH**	**UC5105**	150—275	0.25—0.60	1.50—6.00
		●	**R**	4	**Flat**	**UC5105**	150—275	0.20—0.60	2.50—6.00
		●	**R**	5	**Flat**	**HTi10**	90—135	0.20—0.60	2.50—6.00
		●	**R**	6	**Flat**	**HTi05T**	100—175	0.20—0.60	2.50—6.00
		●	**H**	1	**Flat**	**MC5005**	185—300	0.20—0.60	2.50—6.00
		●	**H**	2	**Flat**	**UC5105**	150—275	0.20—0.60	2.50—6.00
		◐	**L**	1	**LK**	**MC5015**	195—315	0.10—0.40	0.30—2.00
		◐	**L**	2	**MA**	**MC5015**	180—285	0.20—0.50	0.30—4.00
		◐	**L**	3	**MA**	**UC5115**	155—285	0.20—0.50	0.30—4.00
		◐	**L**	4	**SW**	**MC5015**	195—315	0.10—0.50	0.30—2.50
		◐	**L**	5	**SW**	**UC5115**	170—310	0.10—0.50	0.30—2.50
		◐	**M**	1	**MK**	**MC5015**	180—285	0.20—0.55	1.00—4.00
		◐	**M**	2	**GK**	**MC5015**	180—285	0.25—0.60	1.50—5.00
		◐	**M**	3	**Std**	**UC5115**	155—285	0.25—0.60	1.50—5.00
		◐	**M**	4	**Std**	**HTi10**	95—140	0.25—0.60	1.50—5.00
		◐	**M**	5	**MP**	**UC5115**	155—285	0.16—0.50	0.30—4.00
		◐	**R**	1	**RK**	**MC5015**	170—275	0.25—0.60	1.50—6.00
		◐	**R**	2	**Flat**	**MC5015**	170—275	0.20—0.60	2.50—6.00
		◐	**R**	3	**GH**	**UC5115**	145—270	0.25—0.60	1.50—6.00
		◐	**R**	4	**Flat**	**UC5115**	145—270	0.20—0.60	2.50—6.00
		◐	**H**	1	**Flat**	**MC5015**	170—275	0.20—0.60	2.50—6.00
		◐	**H**	2	**Flat**	**UC5115**	145—270	0.20—0.60	2.50—6.00
		✤	**L**	1	**LK**	**MC5015**	195—315	0.10—0.40	0.30—2.00
		✤	**L**	2	**MA**	**MC5015**	180—285	0.20—0.50	0.30—4.00
		✤	**L**	3	**MA**	**UC5115**	155—285	0.20—0.50	0.30—4.00
		✤	**M**	1	**MK**	**MC5015**	180—285	0.20—0.55	1.00—4.00
		✤	**M**	2	**GK**	**MC5015**	180—285	0.25—0.60	1.50—5.00
		✤	**M**	3	**Std**	**UC5115**	155—285	0.25—0.60	1.50—5.00
		✤	**M**	4	**Std**	**UTi20T**	80—110	0.25—0.60	1.50—5.00
		✤	**R**	1	**RK**	**MC5015**	170—275	0.25—0.60	1.50—6.00
		✤	**R**	2	**Flat**	**MC5015**	170—275	0.20—0.60	2.50—6.00
		✤	**R**	3	**GH**	**UC5115**	145—270	0.25—0.60	1.50—6.00
		✤	**R**	4	**Flat**	**UC5115**	145—270	0.20—0.60	2.50—6.00
		✤	**R**	5	**Flat**	**UTi20T**	75—105	0.20—0.60	2.50—6.00
		✤	**H**	1	**Flat**	**MC5015**	170—275	0.20—0.60	2.50—6.00
		✤	**H**	2	**Flat**	**UC5115**	145—270	0.20—0.60	2.50—6.00

CUTTING CONDITIONS : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting
CUTTING AREA : **F** : Finish Cutting **L** : Light Cutting **M** : Medium Cutting **R** : Rough Cutting **H** : Heavy Cutting

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
K									
Ductile Cast Iron (FCD700)	≤800MPa	●	**L**	1	**LK**	**MC5005**	195—310	0.10—0.40	0.30—2.00
		●	**L**	2	**MA**	**MC5005**	175—280	0.20—0.50	0.30—4.00
		●	**L**	3	**MA**	**UC5105**	140—260	0.20—0.50	0.30—4.00
		●	**M**	1	**MK**	**MC5005**	175—280	0.20—0.55	1.00—4.00
		●	**M**	2	**GK**	**MC5005**	175—280	0.25—0.60	1.50—5.00
		●	**M**	3	**Std**	**UC5105**	140—260	0.25—0.60	1.50—5.00
		●	**M**	4	**Std**	**NX2525**	130—175	0.25—0.60	1.50—5.00
		●	**R**	1	**RK**	**MC5005**	165—270	0.25—0.60	1.50—6.00
		●	**R**	2	**Flat**	**MC5005**	165—270	0.20—0.60	2.50—6.00
		●	**R**	3	**GH**	**UC5105**	135—250	0.25—0.60	1.50—6.00
		●	**R**	4	**Flat**	**UC5105**	135—250	0.20—0.60	2.50—6.00
		●	**R**	5	**Flat**	**HTi10**	80—120	0.20—0.60	2.50—6.00
		●	**R**	6	**Flat**	**HTi05T**	90—155	0.20—0.60	2.50—6.00
		●	**H**	1	**Flat**	**MC5005**	165—270	0.20—0.60	2.50—6.00
		●	**H**	2	**Flat**	**UC5105**	135—250	0.20—0.60	2.50—6.00
		◐	**L**	1	**LK**	**MC5015**	175—285	0.10—0.40	0.30—2.00
		◐	**L**	2	**MA**	**MC5015**	160—255	0.20—0.50	0.30—4.00
		◐	**L**	3	**MA**	**UC5115**	140—255	0.20—0.50	0.30—4.00
		◐	**L**	4	**SW**	**MC5015**	175—285	0.10—0.50	0.30—2.50
		◐	**L**	5	**SW**	**UC5115**	150—280	0.10—0.50	0.30—2.50
		◐	**M**	1	**MK**	**MC5015**	160—255	0.20—0.55	1.00—4.00
		◐	**M**	2	**GK**	**MC5015**	160—255	0.25—0.60	1.50—5.00
		◐	**M**	3	**Std**	**UC5115**	140—255	0.25—0.60	1.50—5.00
		◐	**M**	4	**Std**	**HTi10**	85—125	0.25—0.60	1.50—5.00
		◐	**M**	5	**MP**	**UC5115**	140—255	0.16—0.50	0.30—4.00
		◐	**R**	1	**RK**	**MC5015**	150—245	0.25—0.60	1.50—6.00
		◐	**R**	2	**Flat**	**MC5015**	150—245	0.20—0.60	2.50—6.00
		◐	**R**	3	**GH**	**UC5115**	130—240	0.25—0.60	1.50—6.00
		◐	**R**	4	**Flat**	**UC5115**	130—240	0.20—0.60	2.50—6.00
		◐	**H**	1	**Flat**	**MC5015**	150—245	0.20—0.60	2.50—6.00
		◐	**H**	2	**Flat**	**UC5115**	130—240	0.20—0.60	2.50—6.00
		✤	**L**	1	**LK**	**MC5015**	175—285	0.10—0.40	0.30—2.00
		✤	**L**	2	**MA**	**MC5015**	160—255	0.20—0.50	0.30—4.00
		✤	**L**	3	**MA**	**UC5115**	140—255	0.20—0.50	0.30—4.00
		✤	**M**	1	**MK**	**MC5015**	160—255	0.20—0.55	1.00—4.00
		✤	**M**	2	**GK**	**MC5015**	160—255	0.25—0.60	1.50—5.00
		✤	**M**	3	**Std**	**UC5115**	140—255	0.25—0.60	1.50—5.00
		✤	**M**	4	**Std**	**UTi20T**	70—100	0.25—0.60	1.50—5.00
		✤	**R**	1	**RK**	**MC5015**	150—245	0.25—0.60	1.50—6.00
		✤	**R**	2	**Flat**	**MC5015**	150—245	0.20—0.60	2.50—6.00
		✤	**R**	3	**GH**	**UC5115**	130—240	0.25—0.60	1.50—6.00
		✤	**R**	4	**Flat**	**UC5115**	130—240	0.20—0.60	2.50—6.00
		✤	**R**	5	**Flat**	**UTi20T**	65—95	0.20—0.60	2.50—6.00
		✤	**H**	1	**Flat**	**MC5015**	150—245	0.20—0.60	2.50—6.00
		✤	**H**	2	**Flat**	**UC5115**	130—240	0.20—0.60	2.50—6.00

RECOMMENDED CUTTING CONDITIONS

■ NEGATIVE INSERTS

Breker : **Std** : Standard **Flat** : Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
S									
Titanium Alloy (Ti-6Al-4V)	–	●	**F**	1	**LS(M)**	**MT9015**	40—85	0.10—0.25	0.20—0.80
		●	**F**	2	**FJ**	**RT9010**	45—95	0.07—0.20	0.10—1.00
		●	**L**	1	**LS(M)**	**MT9015**	40—85	0.10—0.25	0.20—0.80
		●	**L**	2	**MJ(M)**	**RT9010**	40—85	0.07—0.25	0.40—1.50
		●	**M**	1	**MS**	**MT9015**	40—80	0.10—0.25	0.50—4.00
		●	**M**	2	**MS**	**RT9010**	40—80	0.10—0.25	0.50—4.00
		●	**R**	1	**RS**	**MT9015**	35—75	0.20—0.35	1.00—4.00
		●	**R**	2	**GJ**	**RT9010**	35—75	0.16—0.35	1.00—3.00
		◐	**F**	1	**LS(M)**	**MT9015**	40—85	0.10—0.25	0.20—0.80
		◐	**F**	2	**FJ**	**RT9010**	45—95	0.07—0.20	0.10—1.00
		◐	**L**	1	**LS(M)**	**MT9015**	40—85	0.10—0.25	0.20—0.80
		◐	**L**	2	**MJ(M)**	**RT9010**	40—85	0.07—0.25	0.40—1.50
		◐	**L**	3	**MJ(G)**	**RT9010**	40—85	0.07—0.25	0.40—1.50
		◐	**M**	1	**MS**	**MT9015**	40—80	0.10—0.25	0.50—4.00
		◐	**M**	2	**MS**	**RT9010**	40—80	0.10—0.25	0.50—4.00
		◐	**R**	1	**RS**	**MT9015**	35—75	0.20—0.35	1.00—4.00
		◐	**R**	2	**GJ**	**RT9010**	35—75	0.16—0.35	1.00—3.00
		✤	**F**	1	**FJ**	**RT9010**	45—95	0.07—0.20	0.10—1.00
		✤	**L**	1	**MJ(M)**	**RT9010**	40—85	0.07—0.25	0.40—1.50
		✤	**L**	2	**MJ(G)**	**RT9010**	40—85	0.07—0.25	0.40—1.50
		✤	**M**	1	**MS**	**RT9010**	40—80	0.10—0.25	0.50—4.00
		✤	**R**	1	**GJ**	**RT9010**	35—75	0.16—0.35	1.00—3.00

CUTTING CONDITIONS : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting
CUTTING AREA : **F** : Finish Cutting **L** : Light Cutting **M** : Medium Cutting **R** : Rough Cutting **H** : Heavy Cutting

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
S									
Heat Resistant Alloy (Inconel718)	–	●	**F**	1	**LS(M)**	**MP9005**	30—110	0.10—0.25	0.20—0.80
		●	**F**	2	**FJ**	**VP10RT**	30—60	0.07—0.20	0.10—1.00
		●	**L**	1	**LS(M)**	**MP9005**	30—110	0.10—0.25	0.20—0.80
		●	**L**	2	**MJ(M)**	**MP9005**	30—110	0.07—0.25	0.40—1.50
		●	**L**	3	**MJ(M)**	**VP05RT**	30—65	0.07—0.25	0.40—1.50
		●	**L**	4	**MJ(M)**	**US905**	55—110	0.07—0.25	0.40—1.50
		●	**L**	5	**MJ(G)**	**VP10RT**	25—55	0.07—0.25	0.40—1.50
		●	**M**	1	**MS**	**MP9005**	30—100	0.10—0.25	0.50—4.00
		●	**M**	2	**MS**	**VP05RT**	30—60	0.10—0.25	0.50—4.00
		●	**M**	3	**MS**	**US905**	50—100	0.10—0.25	0.50—4.00
		●	**R**	1	**RS**	**MP9015**	20—75	0.20—0.35	1.00—4.00
		●	**R**	2	**GJ**	**VP10RT**	20—45	0.16—0.35	1.00—3.00
		●	**R**	3	**GJ**	**US905**	45—95	0.16—0.35	1.00—3.00
		◐	**F**	1	**LS(M)**	**MP9015**	25—85	0.10—0.25	0.20—0.80
		◐	**F**	2	**FJ**	**VP10RT**	30—60	0.07—0.20	0.10—1.00
		◐	**L**	1	**LS(M)**	**MP9015**	25—85	0.10—0.25	0.20—0.80
		◐	**L**	2	**MJ(M)**	**MP9015**	25—85	0.07—0.25	0.40—1.50
		◐	**L**	3	**MJ(M)**	**VP10RT**	25—55	0.07—0.25	0.40—1.50
		◐	**M**	1	**MS**	**MP9015**	25—80	0.10—0.25	0.50—4.00
		◐	**M**	2	**MA**	**MP9015**	25—80	0.10—0.30	0.50—3.00
		◐	**M**	3	**MS**	**VP10RT**	25—50	0.10—0.25	0.50—4.00
		◐	**R**	1	**RS**	**MP9015**	20—75	0.20—0.35	1.00—4.00
		◐	**R**	2	**GJ**	**VP10RT**	20—45	0.16—0.35	1.00—3.00
		✤	**F**	1	**FJ**	**VP15TF**	20—40	0.07—0.20	0.10—1.00
		✤	**L**	1	**LS(M)**	**MP9025**	20—30	0.10—0.25	0.20—0.80
		✤	**L**	2	**MJ(G)**	**VP15TF**	20—35	0.07—0.25	0.40—1.50
		✤	**M**	1	**MS**	**MP9025**	20—30	0.10—0.25	0.50—4.00
		✤	**M**	2	**MA**	**MP9025**	20—30	0.10—0.30	0.50—3.00
		✤	**M**	3	**MS**	**VP15TF**	20—35	0.10—0.25	0.50—4.00
		✤	**R**	1	**RS**	**MP9025**	15—25	0.20—0.35	1.00—4.00
		✤	**R**	2	**GJ**	**VP15TF**	15—30	0.16—0.35	1.00—3.00

RECOMMENDED CUTTING CONDITIONS

7° POSITIVE INSERT TYPE

Breker : **Std** : Standard **Flat** : Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P									
Mild Steel (ASTM A36, AISI 1010)	≤180HB	●	F	1	FP	NX2525	225—320	0.04—0.20	0.20—0.90
		●	F	2	FV	NX2525	225—320	0.04—0.20	0.20—0.90
		●	F	3	R/L-F	MP3025	230—355	0.05—0.12	0.10—0.50
		●	L	1	LP	NX2525	225—320	0.06—0.25	0.20—1.00
		●	L	2	Std	UE6110	210—355	0.08—0.30	0.30—2.00
		●	L	3	MV	MP3025	190—295	0.08—0.30	0.30—2.00
		●	L	4	Std	MP3025	190—295	0.08—0.30	0.30—2.00
		●	M	1	MP	NX2525	185—270	0.08—0.30	0.30—2.00
		◐	F	1	FP	MC6015	250—425	0.04—0.20	0.20—0.90
		◐	F	2	FP	UE6110	250—425	0.04—0.20	0.20—0.90
		◐	F	3	FP	MP3025	230—355	0.04—0.20	0.20—0.90
		◐	F	4	FV	MP3025	230—355	0.04—0.20	0.20—0.90
		◐	F	5	FV	NX3035	220—310	0.04—0.20	0.20—0.90
		◐	L	1	LP	MC6015	250—425	0.06—0.25	0.20—1.00
		◐	L	2	LP	UE6110	250—425	0.06—0.25	0.20—1.00
		◐	L	3	LP	MP3025	230—355	0.06—0.25	0.20—1.00
		◐	L	4	Std	UE6110	210—355	0.08—0.30	0.30—2.00
		◐	L	5	SW	MC6015	250—425	0.06—0.24	0.20—1.50
		◐	L	6	SW	MP3025	230—355	0.06—0.24	0.20—1.50
		◐	M	1	MP	MC6015	210—355	0.08—0.30	0.30—2.00
		◐	M	2	MP	UE6110	210—355	0.08—0.30	0.30—2.00
		◐	M	3	MP	MP3025	190—295	0.08—0.30	0.30—2.00
		◐	M	4	MW	MC6015	210—355	0.10—0.35	0.80—2.50
		✤	F	1	FP	MC6025	250—405	0.04—0.20	0.20—0.90
		✤	F	2	FV	UE6020	235—385	0.04—0.20	0.20—0.90
		✤	L	1	LP	MC6025	250—405	0.06—0.25	0.20—1.00
		✤	L	2	SV	MC6025	250—405	0.06—0.25	0.20—1.00
		✤	L	3	Std	UE6020	195—320	0.08—0.30	0.30—2.00
		✤	L	4	SW	MC6025	250—405	0.06—0.24	0.20—1.50
		✤	M	1	MP	MC6025	210—340	0.08—0.30	0.30—2.00
		✤	M	2	MW	MC6025	210—340	0.10—0.35	0.80—2.50
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB	●	F	1	FP	NX2525	165—240	0.04—0.20	0.20—0.90
		●	F	2	FV	NX2525	165—240	0.04—0.20	0.20—0.90
		●	F	3	R/L-F	MP3025	170—260	0.05—0.12	0.10—0.50
		●	L	1	LP	NX2525	165—240	0.06—0.25	0.20—1.00
		●	L	2	Std	UE6110	155—260	0.08—0.30	0.30—2.00
		●	L	3	MV	MP3025	140—220	0.08—0.30	0.30—2.00
		●	L	4	Std	MP3025	140—220	0.08—0.30	0.30—2.00
		●	L	5	SV	MP3025	170—260	0.06—0.25	0.20—1.00
		●	L	6	SW	MP3025	170—260	0.06—0.24	0.20—1.50
		●	M	1	MP	NX2525	140—200	0.08—0.30	0.30—2.00
		●	M	2	MW	MP3025	140—220	0.10—0.35	0.80—2.50
		◐	F	1	FP	MC6015	185—315	0.04—0.20	0.20—0.90
		◐	F	2	FP	UE6110	185—315	0.04—0.20	0.20—0.90
		◐	F	3	FP	MP3025	170—260	0.04—0.20	0.20—0.90
		◐	F	4	FV	MP3025	170—260	0.04—0.20	0.20—0.90
		◐	F	5	FV	NX3035	160—230	0.04—0.20	0.20—0.90

CUTTING CONDITIONS : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting
CUTTING AREA : **F** : Finish Cutting **L** : Light Cutting **M** : Medium Cutting **R** : Rough Cutting **H** : Heavy Cutting

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P									
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180–280HB		**L**	1	**LP**	**MC6015**	185—315	0.06—0.25	0.20—1.00
			L	2	**LP**	**UE6110**	185—315	0.06—0.25	0.20—1.00
			L	3	**LP**	**MP3025**	170—260	0.06—0.25	0.20—1.00
			L	4	**Std**	**UE6110**	155—260	0.08—0.30	0.30—2.00
			L	5	**SW**	**MC6015**	185—315	0.06—0.24	0.20—1.50
			L	6	**SW**	**MP3025**	170—260	0.06—0.24	0.20—1.50
			M	1	**MP**	**MC6015**	155—260	0.08—0.30	0.30—2.00
			M	2	**MP**	**UE6110**	155—260	0.08—0.30	0.30—2.00
			M	3	**MP**	**MP3025**	140—220	0.08—0.30	0.30—2.00
			M	4	**MW**	**MC6015**	155—260	0.10—0.35	0.80—2.50
			F	1	**FP**	**MC6025**	185—300	0.04—0.20	0.20—0.90
			F	2	**FV**	**UE6020**	175—285	0.04—0.20	0.20—0.90
			L	1	**LP**	**MC6025**	185—300	0.06—0.25	0.20—1.00
			L	2	**SV**	**MC6025**	185—300	0.06—0.25	0.20—1.00
			L	3	**Std**	**UE6020**	145—240	0.08—0.30	0.30—2.00
			L	4	**SW**	**MC6025**	185—300	0.06—0.24	0.20—1.50
			M	1	**MP**	**MC6025**	155—250	0.08—0.30	0.30—2.00
			M	2	**MW**	**MC6025**	155—250	0.10—0.35	0.80—2.50
Carbon Steel • Alloy Steel (AISI 4340)	280–350HB		**M**	1	**MP**	**NX2525**	95—140	0.08—0.30	0.30—2.00
			M	1	**MP**	**MC6015**	110—185	0.08—0.30	0.30—2.00
			M	2	**MP**	**UE6110**	110—185	0.08—0.30	0.30—2.00
			M	3	**MP**	**MP3025**	100—155	0.08—0.30	0.30—2.00
			M	1	**MP**	**MC6025**	110—175	0.08—0.30	0.30—2.00

RECOMMENDED CUTTING CONDITIONS

7° POSITIVE INSERT TYPE

Breker : **Std** : Standard **Flat** : Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M									
Austenitic Stainless Steel (AISI 304, AISI 316)	≤200HB	●	**F**	1	**FM**	**VP15TF**	75—125	0.04—0.20	0.20—0.90
		●	**F**	2	**Std**	**US735**	70—135	0.08—0.30	0.30—2.00
		●	**L**	1	**LM**	**MC7025**	140—190	0.06—0.25	0.20—1.00
		●	**L**	2	**Std**	**US735**	70—135	0.08—0.30	0.30—2.00
		●	**M**	1	**MM**	**MC7025**	120—160	0.08—0.30	0.30—2.00
		◐	**F**	1	**FM**	**VP15TF**	75—125	0.04—0.20	0.20—0.90
		◐	**F**	2	**Std**	**US735**	70—135	0.08—0.30	0.30—2.00
		◐	**L**	1	**LM**	**MC7025**	140—190	0.06—0.25	0.20—1.00
		◐	**L**	2	**Std**	**US735**	70—135	0.08—0.30	0.30—2.00
		◐	**M**	1	**MM**	**MC7025**	120—160	0.08—0.30	0.30—2.00
		✤	**F**	1	**FM**	**VP15TF**	75—125	0.04—0.20	0.20—0.90
		✤	**F**	2	**Std**	**US735**	70—135	0.08—0.30	0.30—2.00
		✤	**L**	1	**LM**	**MP7035**	85—135	0.06—0.25	0.20—1.00
		✤	**L**	2	**LM**	**VP15TF**	75—125	0.06—0.25	0.20—1.00
		✤	**L**	3	**Std**	**US735**	70—135	0.08—0.30	0.30—2.00
		✤	**M**	1	**MM**	**MP7035**	70—115	0.08—0.30	0.30—2.00
		✤	**M**	2	**MM**	**VP15TF**	60—105	0.08—0.30	0.30—2.00
Austenitic Stainless Steel (AISI 304LN, AISI 316LN)	>200HB	●	**F**	1	**FM**	**VP15TF**	60—105	0.04—0.20	0.20—0.90
		●	**F**	2	**Std**	**US735**	60—110	0.08—0.30	0.30—2.00
		●	**L**	1	**LM**	**MC7025**	120—160	0.06—0.25	0.20—1.00
		●	**L**	2	**Std**	**US735**	60—110	0.08—0.30	0.30—2.00
		●	**M**	1	**MM**	**MC7025**	100—130	0.08—0.30	0.30—2.00
		◐	**F**	1	**FM**	**VP15TF**	60—105	0.04—0.20	0.20—0.90
		◐	**F**	2	**Std**	**US735**	60—110	0.08—0.30	0.30—2.00
		◐	**L**	1	**LM**	**MC7025**	120—160	0.06—0.25	0.20—1.00
		◐	**L**	2	**Std**	**US735**	60—110	0.08—0.30	0.30—2.00
		◐	**M**	1	**MM**	**MC7025**	100—130	0.08—0.30	0.30—2.00
		✤	**F**	1	**FM**	**VP15TF**	60—105	0.04—0.20	0.20—0.90
		✤	**F**	2	**Std**	**US735**	60—110	0.08—0.30	0.30—2.00
		✤	**L**	1	**LM**	**MP7035**	70—115	0.06—0.25	0.20—1.00
		✤	**L**	2	**LM**	**VP15TF**	60—105	0.06—0.25	0.20—1.00
		✤	**L**	3	**Std**	**US735**	60—110	0.08—0.30	0.30—2.00
		✤	**M**	1	**MM**	**MP7035**	60—95	0.08—0.30	0.30—2.00
		✤	**M**	2	**MM**	**VP15TF**	50—90	0.08—0.30	0.30—2.00
Two-phase Stainless Steel (AISI 329)	≤280HB	●	**F**	1	**FM**	**VP15TF**	50—85	0.04—0.20	0.20—0.90
		●	**F**	2	**Std**	**US735**	45—90	0.08—0.30	0.30—2.00
		●	**L**	1	**LM**	**MC7025**	95—130	0.06—0.25	0.20—1.00
		●	**L**	2	**Std**	**US735**	45—90	0.08—0.30	0.30—2.00
		●	**M**	1	**MM**	**MC7025**	80—105	0.08—0.30	0.30—2.00
		◐	**F**	1	**FM**	**VP15TF**	50—85	0.04—0.20	0.20—0.90
		◐	**F**	2	**Std**	**US735**	45—90	0.08—0.30	0.30—2.00
		◐	**L**	1	**LM**	**MC7025**	95—130	0.06—0.25	0.20—1.00
		◐	**L**	2	**Std**	**US735**	45—90	0.08—0.30	0.30—2.00
		◐	**M**	1	**MM**	**MC7025**	80—105	0.08—0.30	0.30—2.00
		✤	**F**	1	**FM**	**VP15TF**	50—85	0.04—0.20	0.20—0.90
		✤	**F**	2	**Std**	**US735**	45—90	0.08—0.30	0.30—2.00
		✤	**L**	1	**LM**	**MP7035**	55—90	0.06—0.25	0.20—1.00

CUTTING CONDITIONS : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting
CUTTING AREA : **F** : Finish Cutting **L** : Light Cutting **M** : Medium Cutting **R** : Rough Cutting **H** : Heavy Cutting

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M									
Two-phase Stainless Steel (AISI 329)	≤280HB	✣	**L**	2	**LM**	**VP15TF**	50—85	0.06—0.25	0.20—1.00
		✣	**L**	3	**Std**	**US735**	45—90	0.08—0.30	0.30—2.00
		✣	**M**	1	**MM**	**MP7035**	45—75	0.08—0.30	0.30—2.00
		✣	**M**	2	**MM**	**VP15TF**	40—70	0.08—0.30	0.30—2.00
Ferritic and Martensitic Stainless Steel (AISI 410, AISI 430)	≤200HB	●	**F**	1	**FM**	**VP15TF**	75—125	0.04—0.20	0.20—0.90
		●	**F**	2	**Std**	**US735**	70—135	0.08—0.30	0.30—2.00
		●	**L**	1	**LM**	**MC7025**	140—190	0.06—0.25	0.20—1.00
		●	**L**	2	**Std**	**US735**	70—135	0.08—0.30	0.30—2.00
		●	**M**	1	**MM**	**MC7025**	120—160	0.08—0.30	0.30—2.00
		◐	**F**	1	**FM**	**VP15TF**	75—125	0.04—0.20	0.20—0.90
		◐	**F**	2	**Std**	**US735**	70—135	0.08—0.30	0.30—2.00
		◐	**L**	1	**LM**	**MC7025**	140—190	0.06—0.25	0.20—1.00
		◐	**L**	2	**Std**	**US735**	70—135	0.08—0.30	0.30—2.00
		◐	**M**	1	**MM**	**MC7025**	120—160	0.08—0.30	0.30—2.00
		✣	**F**	1	**FM**	**VP15TF**	75—125	0.04—0.20	0.20—0.90
		✣	**F**	2	**Std**	**US735**	70—135	0.08—0.30	0.30—2.00
		✣	**L**	1	**LM**	**MP7035**	85—135	0.06—0.25	0.20—1.00
		✣	**L**	2	**LM**	**VP15TF**	75—125	0.06—0.25	0.20—1.00
		✣	**L**	3	**Std**	**US735**	70—135	0.08—0.30	0.30—2.00
		✣	**M**	1	**MM**	**MP7035**	70—115	0.08—0.30	0.30—2.00
		✣	**M**	2	**MM**	**VP15TF**	60—105	0.08—0.30	0.30—2.00
Ferritic and Martensitic Stainless Steel (AISI 431, AISI 420)	>200HB	●	**F**	1	**FM**	**VP15TF**	60—105	0.04—0.20	0.20—0.90
		●	**F**	2	**Std**	**US735**	60—110	0.08—0.30	0.30—2.00
		●	**L**	1	**LM**	**MC7025**	120—160	0.06—0.25	0.20—1.00
		●	**L**	2	**Std**	**US735**	60—110	0.08—0.30	0.30—2.00
		●	**M**	1	**MM**	**MC7025**	100—130	0.08—0.30	0.30—2.00
		◐	**F**	1	**FM**	**VP15TF**	60—105	0.04—0.20	0.20—0.90
		◐	**F**	2	**Std**	**US735**	60—110	0.08—0.30	0.30—2.00
		◐	**L**	1	**LM**	**MC7025**	120—160	0.06—0.25	0.20—1.00
		◐	**L**	2	**Std**	**US735**	60—110	0.08—0.30	0.30—2.00
		◐	**M**	1	**MM**	**MC7025**	100—130	0.08—0.30	0.30—2.00
		✣	**F**	1	**FM**	**VP15TF**	60—105	0.04—0.20	0.20—0.90
		✣	**F**	2	**Std**	**US735**	60—110	0.08—0.30	0.30—2.00
		✣	**L**	1	**LM**	**MP7035**	70—115	0.06—0.25	0.20—1.00
		✣	**L**	2	**LM**	**VP15TF**	60—105	0.06—0.25	0.20—1.00
		✣	**L**	3	**Std**	**US735**	60—110	0.08—0.30	0.30—2.00
		✣	**M**	1	**MM**	**MP7035**	60—95	0.08—0.30	0.30—2.00
		✣	**M**	2	**MM**	**VP15TF**	50—90	0.08—0.30	0.30—2.00
Hardened Stainless Steel (AISI 630, AISI 631)	<450HB	●	**F**	1	**FM**	**VP15TF**	40—70	0.04—0.20	0.20—0.90
		●	**F**	2	**Std**	**US735**	40—75	0.08—0.30	0.30—2.00
		●	**L**	1	**LM**	**MC7025**	80—105	0.06—0.25	0.20—1.00
		●	**L**	2	**LS(M)**	**MP9015**	105—140	0.06—0.20	0.20—1.00
		●	**L**	3	**Std**	**US735**	40—75	0.08—0.30	0.30—2.00
		●	**M**	1	**MM**	**MC7025**	65—85	0.08—0.30	0.30—2.00
		●	**M**	2	**MS**	**MP9015**	85—120	0.08—0.25	0.30—2.00
		◐	**F**	1	**FM**	**VP15TF**	40—70	0.04—0.20	0.20—0.90
		◐	**F**	2	**Std**	**US735**	40—75	0.08—0.30	0.30—2.00

RECOMMENDED CUTTING CONDITIONS

■7° POSITIVE INSERT TYPE

Breker : **Std** : Standard **Flat** : Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M									
Hardened Stainless Steel (AISI 630, AISI 631)	<450HB	◐	**L**	1	**LM**	**MC7025**	80—105	0.06—0.25	0.20—1.00
		◐	**L**	2	**LS(M)**	**MP9015**	105—140	0.06—0.20	0.20—1.00
		◐	**L**	3	**Std**	**US735**	40—75	0.08—0.30	0.30—2.00
		◐	**M**	1	**MM**	**MC7025**	65—85	0.08—0.30	0.30—2.00
		◐	**M**	2	**MS**	**MP9015**	85—120	0.08—0.25	0.30—2.00
		✤	**F**	1	**FM**	**VP15TF**	40—70	0.04—0.20	0.20—0.90
		✤	**F**	2	**Std**	**US735**	40—75	0.08—0.30	0.30—2.00
		✤	**L**	1	**LM**	**MP7035**	45—75	0.06—0.25	0.20—1.00
		✤	**L**	2	**LM**	**VP15TF**	40—70	0.06—0.25	0.20—1.00
		✤	**L**	3	**Std**	**US735**	40—75	0.08—0.30	0.30—2.00
		✤	**M**	1	**MM**	**MP7035**	40—60	0.08—0.30	0.30—2.00
		✤	**M**	2	**MM**	**VP15TF**	35—60	0.08—0.30	0.30—2.00

CUTTING CONDITIONS : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting
CUTTING AREA : **F** : Finish Cutting **L** : Light Cutting **M** : Medium Cutting **R** : Rough Cutting **H** : Heavy Cutting

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
K									
Gray Cast Iron (FC300)	≤350MPa	●	F	1	MK	MC5005	165—265	0.08—0.30	0.30—2.00
		●	L	1	MK	MC5005	165—265	0.08—0.30	0.30—2.00
		●	M	1	Flat	MC5005	165—265	0.08—0.30	0.30—2.00
		◐	F	1	MK	MC5015	150—240	0.08—0.30	0.30—2.00
		◐	F	2	Std	UC5115	130—240	0.08—0.30	0.30—2.00
		◐	L	1	MK	MC5015	150—240	0.08—0.30	0.30—2.00
		◐	L	2	Std	UC5115	130—240	0.08—0.30	0.30—2.00
		◐	M	1	Flat	MC5015	150—240	0.08—0.30	0.30—2.00
		◐	M	2	Flat	UC5115	130—240	0.08—0.30	0.30—2.00
		✣	F	1	MK	MC5015	150—240	0.08—0.30	0.30—2.00
		✣	F	2	Std	UC5115	130—240	0.08—0.30	0.30—2.00
		✣	L	1	MK	MC5015	150—240	0.08—0.30	0.30—2.00
		✣	L	2	Std	UC5115	130—240	0.08—0.30	0.30—2.00
		✣	M	1	Flat	MC5015	150—240	0.08—0.30	0.30—2.00
		✣	M	2	Flat	UC5115	130—240	0.08—0.30	0.30—2.00
Ductile Cast Iron (FCD450)	≤450MPa	●	F	1	MK	MC5005	155—250	0.08—0.30	0.30—2.00
		●	L	1	MK	MC5005	155—250	0.08—0.30	0.30—2.00
		●	M	1	Flat	MC5005	155—250	0.08—0.30	0.30—2.00
		◐	F	1	MK	MC5015	140—230	0.08—0.30	0.30—2.00
		◐	F	2	Std	UC5115	125—225	0.08—0.30	0.30—2.00
		◐	L	1	MK	MC5015	140—230	0.08—0.30	0.30—2.00
		◐	L	2	Std	UC5115	125—225	0.08—0.30	0.30—2.00
		◐	M	1	Flat	MC5015	140—230	0.08—0.30	0.30—2.00
		◐	M	2	Flat	UC5115	125—225	0.08—0.30	0.30—2.00
		✣	F	1	MK	MC5015	140—230	0.08—0.30	0.30—2.00
		✣	F	2	Std	UC5115	125—225	0.08—0.30	0.30—2.00
		✣	L	1	MK	MC5015	140—230	0.08—0.30	0.30—2.00
		✣	L	2	Std	UC5115	125—225	0.08—0.30	0.30—2.00
		✣	M	1	Flat	MC5015	140—230	0.08—0.30	0.30—2.00
		✣	M	2	Flat	UC5115	125—225	0.08—0.30	0.30—2.00
Ductile Cast Iron (FCD700)	≤800MPa	●	F	1	MK	MC5005	140—225	0.08—0.30	0.30—2.00
		●	L	1	MK	MC5005	140—225	0.08—0.30	0.30—2.00
		●	M	1	Flat	MC5005	140—225	0.08—0.30	0.30—2.00
		◐	F	1	MK	MC5015	125—205	0.08—0.30	0.30—2.00
		◐	F	2	Std	UC5115	110—200	0.08—0.30	0.30—2.00
		◐	L	1	MK	MC5015	125—205	0.08—0.30	0.30—2.00
		◐	L	2	Std	UC5115	110—200	0.08—0.30	0.30—2.00
		◐	M	1	Flat	MC5015	125—205	0.08—0.30	0.30—2.00
		◐	M	2	Flat	UC5115	110—200	0.08—0.30	0.30—2.00
		✣	F	1	MK	MC5015	125—205	0.08—0.30	0.30—2.00
		✣	F	2	Std	UC5115	110—200	0.08—0.30	0.30—2.00
		✣	L	1	MK	MC5015	125—205	0.08—0.30	0.30—2.00
		✣	L	2	Std	UC5115	110—200	0.08—0.30	0.30—2.00
		✣	M	1	Flat	MC5015	125—205	0.08—0.30	0.30—2.00
		✣	M	2	Flat	UC5115	110—200	0.08—0.30	0.30—2.00

RECOMMENDED CUTTING CONDITIONS

■ 7° POSITIVE INSERT TYPE

Breker : **Std** : Standard **Flat** : Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
N									
Aluminium Alloy (A6061, A7075)	Si<5%	●	**F**	1	**AZ**	**HTi10**	300—700	0.10—0.40	0.20—3.00
		◐	**F**	1	**AZ**	**HTi10**	300—700	0.10—0.40	0.20—3.00
		✤	**F**	1	**AZ**	**HTi10**	300—700	0.10—0.40	0.20—3.00
Aluminium Alloy (AC4B)	5%≤Si≤10%	●	**F**	1	**AZ**	**HTi10**	300—700	0.10—0.40	0.20—3.00
		◐	**F**	1	**AZ**	**HTi10**	300—700	0.10—0.40	0.20—3.00
		✤	**F**	1	**AZ**	**HTi10**	300—700	0.10—0.40	0.20—3.00
Aluminium Alloy (ADC12, A390)	Si>10%	●	**F**	1	**AZ**	**HTi10**	300—700	0.10—0.40	0.20—3.00
		◐	**F**	1	**AZ**	**HTi10**	300—700	0.10—0.40	0.20—3.00
		✤	**F**	1	**AZ**	**HTi10**	300—700	0.10—0.40	0.20—3.00

CUTTING CONDITIONS : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting
CUTTING AREA : **F** : Finish Cutting **L** : Light Cutting **M** : Medium Cutting **R** : Rough Cutting **H** : Heavy Cutting

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
S									
Titanium Alloy (Ti-6Al-4V)	–	●	**F**	1	**FS-P**	**MT9005**	40—80	0.04—0.12	0.20—1.40
		●	**F**	2	**FJ**	**RT9010**	35—75	0.04—0.12	0.20—1.40
		●	**L**	1	**LS-P**	**MT9005**	40—80	0.04—0.15	0.30—3.00
		●	**L**	2	**LS(M)**	**MT9005**	40—80	0.06—0.20	0.20—1.00
		●	**M**	1	**MS**	**MT9005**	35—65	0.08—0.25	0.30—2.00
		◖	**F**	1	**FS-P**	**MT9005**	40—80	0.04—0.12	0.20—1.40
		◖	**F**	2	**FJ**	**RT9010**	35—75	0.04—0.12	0.20—1.40
		◖	**L**	1	**LS-P**	**MT9005**	40—80	0.04—0.15	0.30—3.00
		◖	**L**	2	**LS(M)**	**MT9005**	40—80	0.06—0.20	0.20—1.00
		◖	**M**	1	**MS**	**MT9005**	35—65	0.08—0.25	0.30—2.00
		✣	**F**	1	**FS-P**	**MT9005**	40—80	0.04—0.12	0.20—1.40
		✣	**F**	2	**FJ**	**RT9010**	35—75	0.04—0.12	0.20—1.40
		✣	**L**	1	**LS-P**	**MT9005**	40—80	0.04—0.15	0.30—3.00
		✣	**L**	2	**LS(M)**	**MT9005**	40—80	0.06—0.20	0.20—1.00
		✣	**M**	1	**MS**	**MT9005**	35—65	0.08—0.25	0.30—2.00
S									
Heat Resistant Alloy (Inconel718)	–	●	**F**	1	**FS**	**MP9005**	25—95	0.04—0.12	0.20—1.40
		●	**F**	2	**FJ**	**VP10RT**	20—45	0.04—0.12	0.20—1.40
		●	**L**	1	**LS(G)**	**MP9005**	25—95	0.04—0.15	0.30—3.00
		●	**L**	2	**LS(M)**	**MP9005**	25—95	0.06—0.20	0.20—1.00
		●	**M**	1	**MS**	**MP9005**	20—80	0.08—0.25	0.30—2.00
		◖	**F**	1	**FS**	**MP9015**	20—75	0.04—0.12	0.20—1.40
		◖	**F**	2	**FJ**	**VP10RT**	20—45	0.04—0.12	0.20—1.40
		◖	**L**	1	**LS(G)**	**MP9015**	20—75	0.04—0.15	0.30—3.00
		◖	**L**	2	**LS(M)**	**MP9015**	20—75	0.06—0.20	0.20—1.00
		◖	**M**	1	**MS**	**MP9015**	20—60	0.08—0.25	0.30—2.00
		✣	**F**	1	**FS**	**MP9015**	20—75	0.04—0.12	0.20—1.40
		✣	**F**	2	**FJ**	**VP10RT**	20—45	0.04—0.12	0.20—1.40
		✣	**L**	1	**LS(G)**	**MP9015**	20—75	0.04—0.15	0.30—3.00
		✣	**L**	2	**LS(M)**	**MP9015**	20—75	0.06—0.20	0.20—1.00
		✣	**M**	1	**MS**	**MP9015**	20—60	0.08—0.25	0.30—2.00

RECOMMENDED CUTTING CONDITIONS

11° POSITIVE INSERT TYPE

Breker : **Std** : Standard **Flat** : Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P									
Mild Steel (ASTM A36, AISI 1010)	≤180HB	●	**F**	1	**R-R/L**	**NX2525**	225—320	0.05—0.12	0.20—0.60
		●	**L**	1	**R-Std**	**NX2525**	185—270	0.08—0.30	0.30—2.00
		●	**M**	1	**R-Std**	**NX2525**	185—270	0.08—0.30	0.30—2.00
		◐	**F**	1	**R-R/L**	**NX2525**	225—320	0.05—0.12	0.20—0.60
		◐	**L**	1	**R-Std**	**UE6110**	210—355	0.08—0.30	0.30—2.00
		◐	**L**	2	**R-Std**	**MP3025**	190—295	0.08—0.30	0.30—2.00
		◐	**L**	3	**R-Std**	**NX3035**	180—255	0.08—0.30	0.30—2.00
		◐	**M**	1	**R-Std**	**UE6110**	210—355	0.08—0.30	0.30—2.00
		◐	**M**	2	**R-Std**	**MP3025**	190—295	0.08—0.30	0.30—2.00
		◐	**M**	3	**R-Std**	**NX3035**	180—255	0.08—0.30	0.30—2.00
		✤	**F**	1	**R-R/L**	**UTi20T**	115—165	0.05—0.12	0.20—0.60
		✤	**L**	1	**R-Std**	**UE6020**	195—320	0.08—0.30	0.30—2.00
		✤	**L**	2	**N-Flat**	**UE6020**	195—320	0.08—0.30	0.30—2.00
		✤	**L**	3	**N-Flat**	**UP20M**	105—160	0.08—0.30	0.30—2.00
		✤	**M**	1	**R-Std**	**UE6020**	195—320	0.08—0.30	0.30—2.00
		✤	**M**	2	**N-Flat**	**UE6020**	195—320	0.08—0.30	0.30—2.00
		✤	**M**	3	**N-Flat**	**UP20M**	105—160	0.08—0.30	0.30—2.00
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB	●	**F**	1	**R-R/L**	**NX2525**	165—240	0.05—0.12	0.20—0.60
		●	**L**	1	**R-Std**	**NX2525**	140—200	0.08—0.30	0.30—2.00
		●	**M**	1	**R-Std**	**NX2525**	140—200	0.08—0.30	0.30—2.00
		◐	**F**	1	**R-R/L**	**NX2525**	165—240	0.05—0.12	0.20—0.60
		◐	**L**	1	**R-Std**	**UE6110**	155—260	0.08—0.30	0.30—2.00
		◐	**L**	2	**R-Std**	**MP3025**	140—220	0.08—0.30	0.30—2.00
		◐	**L**	3	**R-Std**	**NX3035**	135—190	0.08—0.30	0.30—2.00
		◐	**M**	1	**R-Std**	**UE6110**	155—260	0.08—0.30	0.30—2.00
		◐	**M**	2	**R-Std**	**MP3025**	140—220	0.08—0.30	0.30—2.00
		◐	**M**	3	**R-Std**	**NX3035**	135—190	0.08—0.30	0.30—2.00
		✤	**F**	1	**R-R/L**	**UTi20T**	85—120	0.05—0.12	0.20—0.60
		✤	**L**	1	**R-Std**	**UE6020**	145—240	0.08—0.30	0.30—2.00
		✤	**L**	2	**N-Flat**	**UE6020**	145—240	0.08—0.30	0.30—2.00
		✤	**L**	3	**N-Flat**	**UP20M**	80—120	0.08—0.30	0.30—2.00
		✤	**M**	1	**R-Std**	**UE6020**	145—240	0.08—0.30	0.30—2.00
		✤	**M**	2	**N-Flat**	**UE6020**	145—240	0.08—0.30	0.30—2.00
		✤	**M**	3	**N-Flat**	**UP20M**	80—120	0.08—0.30	0.30—2.00

CUTTING CONDITIONS : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting
CUTTING AREA : **F** : Finish Cutting **L** : Light Cutting **M** : Medium Cutting **R** : Rough Cutting **H** : Heavy Cutting

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
K									
Gray Cast Iron (FC300)	≤350MPa	●	F	1	R-R/L	NX2525	145—200	0.05—0.12	0.20—0.60
		●	L	1	N-Flat	UC5105	135—245	0.08—0.30	0.30—2.00
		●	L	2	N-Flat	NX2525	120—165	0.08—0.30	0.30—2.00
		●	L	3	R-Std	NX2525	120—165	0.08—0.30	0.30—2.00
		●	M	1	N-Flat	UC5105	135—245	0.08—0.30	0.30—2.00
		●	M	2	N-Flat	NX2525	120—165	0.08—0.30	0.30—2.00
		●	M	3	R-Std	NX2525	120—165	0.08—0.30	0.30—2.00
		◕	F	1	R-R/L	NX2525	145—200	0.05—0.12	0.20—0.60
		◕	F	2	R-R/L	HTi10	100—140	0.05—0.12	0.20—0.60
		◕	L	1	N-Flat	UC5115	130—240	0.08—0.30	0.30—2.00
		◕	L	2	N-Flat	UE6110	125—200	0.08—0.30	0.30—2.00
		◕	M	1	N-Flat	UC5115	130—240	0.08—0.30	0.30—2.00
		◕	M	2	N-Flat	UE6110	125—200	0.08—0.30	0.30—2.00
		✤	F	1	R-R/L	UTi20T	80—115	0.05—0.12	0.20—0.60
		✤	L	1	N-Flat	VP15TF	115—160	0.08—0.30	0.30—2.00
		✤	M	1	N-Flat	VP15TF	115—160	0.08—0.30	0.30—2.00
Ductile Cast Iron (FCD450)	≤450MPa	●	F	1	R-R/L	NX2525	140—190	0.05—0.12	0.20—0.60
		●	L	1	N-Flat	UC5105	125—235	0.08—0.30	0.30—2.00
		●	L	2	N-Flat	NX2525	115—155	0.08—0.30	0.30—2.00
		●	L	3	R-Std	NX2525	115—155	0.08—0.30	0.30—2.00
		●	M	1	N-Flat	UC5105	125—235	0.08—0.30	0.30—2.00
		●	M	2	N-Flat	NX2525	115—155	0.08—0.30	0.30—2.00
		●	M	3	R-Std	NX2525	115—155	0.08—0.30	0.30—2.00
		◕	F	1	R-R/L	NX2525	140—190	0.05—0.12	0.20—0.60
		◕	F	2	R-R/L	HTi10	95—135	0.05—0.12	0.20—0.60
		◕	L	1	N-Flat	UC5115	125—225	0.08—0.30	0.30—2.00
		◕	L	2	N-Flat	UE6110	120—190	0.08—0.30	0.30—2.00
		◕	M	1	N-Flat	UC5115	125—225	0.08—0.30	0.30—2.00
		◕	M	2	N-Flat	UE6110	120—190	0.08—0.30	0.30—2.00
		✤	F	1	R-R/L	UTi20T	75—105	0.05—0.12	0.20—0.60
		✤	L	1	N-Flat	VP15TF	110—150	0.08—0.30	0.30—2.00
		✤	M	1	N-Flat	VP15TF	110—150	0.08—0.30	0.30—2.00
Ductile Cast Iron (FCD700)	≤800MPa	●	F	1	R-R/L	NX2525	125—170	0.05—0.12	0.20—0.60
		●	L	1	N-Flat	UC5105	115—210	0.08—0.30	0.30—2.00
		●	L	2	N-Flat	NX2525	105—140	0.08—0.30	0.30—2.00
		●	L	3	R-Std	NX2525	105—140	0.08—0.30	0.30—2.00
		●	M	1	N-Flat	UC5105	115—210	0.08—0.30	0.30—2.00
		●	M	2	N-Flat	NX2525	105—140	0.08—0.30	0.30—2.00
		●	M	3	R-Std	NX2525	105—140	0.08—0.30	0.30—2.00
		◕	F	1	R-R/L	NX2525	125—170	0.05—0.12	0.20—0.60
		◕	F	2	R-R/L	HTi10	85—120	0.05—0.12	0.20—0.60
		◕	L	1	N-Flat	UC5115	110—200	0.08—0.30	0.30—2.00
		◕	L	2	N-Flat	UE6110	105—170	0.08—0.30	0.30—2.00
		◕	M	1	N-Flat	UC5115	110—200	0.08—0.30	0.30—2.00
		◕	M	2	N-Flat	UE6110	105—170	0.08—0.30	0.30—2.00
		✤	F	1	R-R/L	UTi20T	65—95	0.05—0.12	0.20—0.60
		✤	L	1	N-Flat	VP15TF	95—135	0.08—0.30	0.30—2.00
		✤	M	1	N-Flat	VP15TF	95—135	0.08—0.30	0.30—2.00

80° CN TYPE INSERTS WITH HOLE

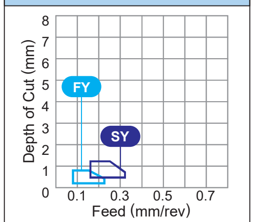
CNMG 12 04 02- FP
Size Thickness Corner Radius Chip Breaker
＊Please refer to page A002.

A
TURNING INSERTS
NEG
WITH HOLE
C
D
R
S
T
V
W

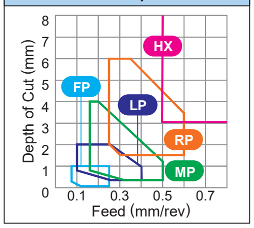
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---

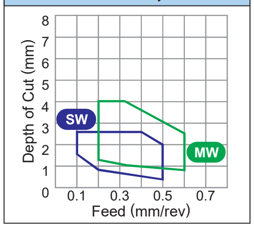
P Mild Steel



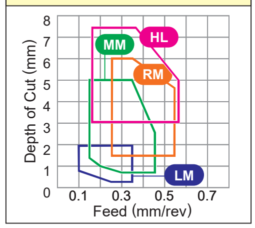
P Carbon Steel · Alloy Steel (180−280HB)



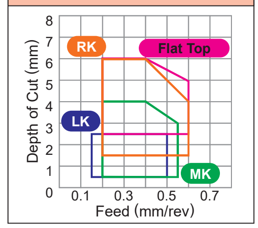
P Carbon Steel · Alloy Steel (Wiper)



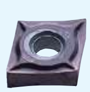
M Stainless Steel (≤200HB)



K Cast Iron (≤350MPa)



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

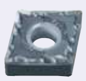
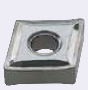
Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
	M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
	K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
	N	Non-ferrous Metal																																		◐			
	S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✣	●	◐	✣									◐	◐	◐	
FP  Finish Cutting	CNMG120402-FP	0.2				●	●																						●		●								C008 C009 E013 E036 E041 H006 −008
	CNMG120404-FP	0.4				●	●																						●		●								
	CNMG120408-FP	0.8				●	●																						●		●								
	NEW CNMG120412-FP	1.2				●	●																						●		●								
FH  Finish Cutting	CNMG120402-FH	0.2		●	▲																								●	●	●								C008 C009 E013 E036 E041 H006 −008
	CNMG120404-FH	0.4		●	▲																								●		●	●							
	CNMG120408-FH	0.8		●																									●		●	●							
	CNMG120412-FH	1.2																											●			●							
FS  Finish Cutting	CNMG120404-FS	0.4			▲																								●										C008 C009 E013 E036 E041 H006 −008
	CNMG120408-FS	0.8																											●										
FY  Finish Cutting	CNMG120404-FY	0.4			▲																								●	●	●		●						C008 C009 E013 E036 E041 H006 −008
	CNMG120408-FY	0.8			▲																								●		●		●						
FJ  Finish Cutting	CNGG1204V5-FJ	0.05																								●											●		C008 C009 E013 E036 E041 H006 −008
	CNGG120401-FJ	0.1																								●											●		
	CNGG120402-FJ	0.2																								●											●		
	CNGG120404-FJ	0.4																								●	●										●		
	CNGG120408-FJ	0.8																								●	●										●		
PK  Finish Cutting	CNGG120404-PK	0.4																											●										C008 C009 E013 E036 E041 H006 −008
LP  Light Cutting	CNMG120404-LP	0.4	●	●		●	●	●																							●								C008 C009 E013 E036 E041 H006 −008
	CNMG120408-LP	0.8	●	●		●	●	●																							●								
	CNMG120412-LP	1.2	●	●		●	●	●																							●								

● = NEW (highlighted)

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

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

Work Material			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015
Work 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																										Cermet		Coated Cermet			Carbide					Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	
LM  Light Cutting	**CNMG120404-LM**	0.4									●	●	●																										C008 C009 E013 E036 E041 H006 —008
	CNMG120408-LM	0.8									●	●	●																										
	CNMG120412-LM	1.2									●	●	●																										
LK  Light Cutting	**CNMG120404-LK**	0.4															●	●																					C008 C009 E013 E036 E041 H006 —008
	CNMG120408-LK	0.8															●	●			●																		
	CNMG120412-LK	1.2															●	●			●																		
LS  Light Cutting	NEW **CNMG090304-LS**	0.4																				●	●																C008 C009 E013 E036 E041 H006 —008
	NEW **CNMG090308-LS**	0.8																				●	●																
	NEW **CNMG120402-LS**	0.2																				●	●															●	
	CNMG120404-LS	0.4																				●	●	●														●	
	CNMG120408-LS	0.8																				●	●	●														●	
SH  Light Cutting	**CNMG09T304-SH**	0.4		●											●																								C008 C009 E013 E036 E041 H006 —008
	CNMG09T308-SH	0.8		●																																			
	CNMG120404-SH	0.4	●	●	▲	●	●								●					●									●	●		●							
	CNMG120408-SH	0.8	●	●	▲	●	●								●					●									●	●		●							
	CNMG120412-SH	1.2	●	●	▲	●	●																																
SA  Light Cutting	**CNMG120404-SA**	0.4	●	●	▲	●	●																						●	●									C008 C009 E013 E036 E041 H006 —008
	CNMG120408-SA	0.8	●	●	▲	●	●																						●	●									
	CNMG120412-SA	1.2	●	●	▲	●	●																							●									
* **SW**  Light Cutting (Wiper)	**CNMG120404-SW**	0.4	●	●		●								▲			●	●		●									●	●	●								C008 C009 E013 E036 E041 H006 —008
	CNMG120408-SW	0.8	●	●		●								▲			●	●		●									●	●	●								
	CNMG120412-SW	1.2	●	●		●								▲															●	●	●								
SY  Light Cutting	**CNMG120404-SY**	0.4			▲																								●		●		●						C008 C009 E013 E036 E041 H006 —008
	CNMG120408-SY	0.8			▲																								●		●		●						
C  Light Cutting	**CNMG120404-C**	0.4																											▲	▲									C008 C009 E013 E036 E041 H006 —008
	CNMG120408-C	0.8																											▲	▲									
MJ  Light Cutting	**CNMG120404-MJ**	0.4														●						●	●		●	●											●		C008 C009 E013 E036 E041 H006 —008
	CNMG120408-MJ	0.8														●						●	●		●	●											●		
	CNMG120412-MJ	1.2														●						●	●		●	●													
	CNMG120416-MJ	1.6														●						●	●		●	●													

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

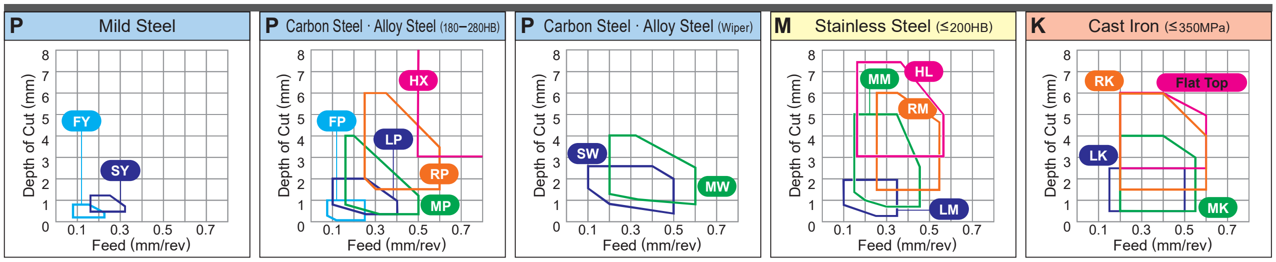
● = NEW

80° CN TYPE INSERTS WITH HOLE

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

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---



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

			Coated																										Cermet		Coated Cermet			Carbide					
Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
Work Material	P	Steel	●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤					
	M	Stainless Steel									●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤					
	K	Cast Iron															●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐			
	N	Non-ferrous Metal																																		◐			
	S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✤	●	◐	✤									◐	◐	◐	
MJ	CNGG120404-MJ	0.4																								●	●									●	●		C008 C009 E013 E036 E041 H006 —008
Light Cutting	CNGG120408-MJ	0.8																								●	●									●	●		
MP	CNMG120404-MP	0.4	●	●	▲	●	●	●												●											●								C008 C009 E013 E036 E041 H006 —008
	CNMG120408-MP	0.8	●	●	▲	●	●	●												●											●								
	CNMG120412-MP	1.2	●	●	▲	●	●	●												●											●								
	CNMG120416-MP	1.6	●	●	▲	●	●	●												●																			
	CNMG160608-MP	0.8	●	●	▲		●													●																			
	CNMG160612-MP	1.2	●	●	▲		●													●																			
Medium Cutting	CNMG160616-MP	1.6	●	●	▲		●													●																			
MM	CNMG120408-MM	0.8									●	●	●																										C008 C009 E013 E036 E041 H006 —008
	CNMG120412-MM	1.2									●	●	●																										
	CNMG120416-MM	1.6									●	●	●																										
	CNMG160608-MM	0.8									●	●	●																										
	CNMG160612-MM	1.2									●	●	●																										
	CNMG160616-MM	1.6									●	●	●																										
	CNMG190608-MM	0.8									●	●	●																										
	CNMG190612-MM	1.2									●	●	●																										
Medium Cutting	CNMG190616-MM	1.6									●	●	●																										
MK	CNMG120404-MK	0.4															●	●																					C008 C009 E013 E036 E041 H006 —008
	CNMG120408-MK	0.8															●	●																					
	CNMG120412-MK	1.2															●	●																					
	CNMG120416-MK	1.6															●	●																					
	CNMG160608-MK	0.8															●	●																					
	CNMG160612-MK	1.2															●	●																					
	CNMG160616-MK	1.6															●	●																					
	CNMG190612-MK	1.2															●	●																					
Medium Cutting	CNMG190616-MK	1.6															●	●																					
* MS	NEW CNMG090304-MS	0.4																				●	●																C008 C009 E013 E036 E041 H006 —008
	NEW CNMG090308-MS	0.8																				●	●																
	CNMG120404-MS	0.4																				●	●	●														●	
	CNMG120408-MS	0.8																				●	●	●														●	
Medium Cutting	CNMG120412-MS	1.2																				●	●	●														●	

* 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)

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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015
P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣				
M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣				
K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐		
N	Non-ferrous Metal																																		◐		
S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✣	●	◐	✣									◐	◐	◐

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 NEW	MP9005	MP9015	MP9025 NEW	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
* MS 	CNMG160612-MS	1.2																				●	●															●	C008 C009 E013 E036 E041 H006 —008
Medium Cutting	CNMG160616-MS	1.6																				●	●															●	
MS 	CNMG090304-MS	0.4													●																								C008 C009 E013 E036 E041 H006 —008
	CNMG090308-MS	0.8		●											●																								
	CNMG09T304-MS	0.4													●																			●					
	CNMG09T308-MS	0.8		●											●																								
	CNMG120404-MS	0.4		●	▲									▲	●	●									●	●	●	●								●	●		
	CNMG120408-MS	0.8		●	▲									▲	●	●									●	●	●	●						●		●	●		
	CNMG120412-MS	1.2		●										▲	●	●									●	●	●										●		
	CNMG160608-MS	0.8													●																								
	CNMG160612-MS	1.2													●																								
	CNMG190612-MS	1.2													●																								
Medium Cutting	CNMG190616-MS	1.6													●																								
GK 	CNMG120404-GK	0.4															●	●																					C008 C009 E013 E036 E041 H006 —008
	CNMG120408-GK	0.8															●	●			●																		
Medium Cutting	CNMG120412-GK	1.2															●	●			●																		
GM 	CNMG120404-GM	0.4									●	●	●																										C008 C009 E013 E036 E041 H006 —008
	CNMG120408-GM	0.8									●	●	●																										
Medium Cutting	CNMG120412-GM	1.2									●	●	●																										
MA 	CNMG120404-MA	0.4	●	●	▲	●	●					●	●	▲	●		●	●	●	●			●	●			●			●									C008 C009 E013 E036 E041 H006 —008
	CNMG120408-MA	0.8	●	●	▲	●	●	●				●	●	▲	●		●	●	●	●	●		●	●			●			●									
	CNMG120412-MA	1.2	●	●	▲	●	●	●				●	●	▲	●		●	●	●	●	●		●	●			●			●									
	CNMG120416-MA	1.6	●	●	▲									▲	●					●			●																
	CNMG160608-MA	0.8	●	●	▲	●	●	●							●					●																			
	CNMG160612-MA	1.2	●	●	▲	●	●	●						▲	●					●																			
	CNMG160616-MA	1.6	●	●		●	●	●							●					●																			
	CNMG190612-MA	1.2	●	●	▲	●	●	●						▲	●				●	●																			
Medium Cutting	CNMG190616-MA	1.6		●	▲	●	●	●							●					●																			
MH 	CNMG120404-MH	0.4	●	●	▲									▲																									C008 C009 E013 E036 E041 H006 —008
	CNMG120408-MH	0.8	●	●	▲	●	●	●						▲						●																			
	CNMG120412-MH	1.2	●	●	▲	●	●	●						▲						●																			
	CNMG120416-MH	1.6	●	●	▲															●																			
	CNMG160608-MH	0.8	●	●																●																			
	CNMG160612-MH	1.2	●	●	▲	●	●	●						▲						●																			
	CNMG160616-MH	1.6	●	●																●																			
	CNMG190612-MH	1.2	●	●	▲	●	●	●						▲						●																			
Medium Cutting	CNMG190616-MH	1.6	●	●	▲																																		

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

● = NEW

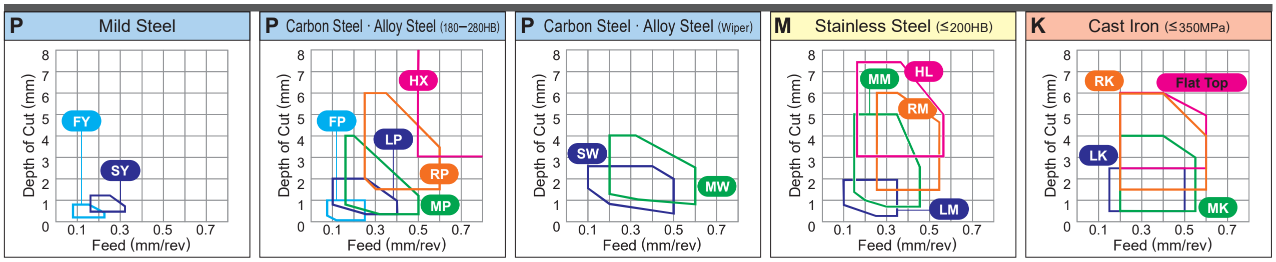
CHIP BREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° CN TYPE INSERTS WITH HOLE

CNMG 09 03 08
Size Thickness Corner Radius
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---



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

			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
Work 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																										Cermet		Coated Cermet			Carbide					
Standard	CNMG090308	0.8		●																																			
	CNMG09T304	0.4		●		●	●																						●										
	CNMG09T308	0.8		●		●	●																						●										
	CNMG120404	0.4	●	●	▲	●	●												●	●									●	●	●			●		●			
	CNMG120408	0.8	●	●	▲	●	●	●											●	●							●		●		●			●		●			C008 C009 E013 E036 E041 H006 −008
	CNMG120412	1.2	●	●	▲	●	●	●											●	●							●		●										
	CNMG120416	1.6	●	●		●	●												●	●																			
	CNMG160608	0.8	●	●	▲	●	●	●																															
	CNMG160612	1.2	●	●	▲	●	●	●											●	●																			
	CNMG160616	1.6	●	●		●	●	●											●	●																			
	CNMG190608	0.8	●	●	▲	●	●	●																															
	CNMG190612	1.2	●	●	▲	●	●	●											●	●																			
Medium Cutting	CNMG190616	1.6	●	●	▲	●	●	●												●																			
* MW	CNMG120408-MW	0.8	●	●	▲	●	●							▲			●	●	●	●																			C008 C009 E013 E036 E041 H006 −008
 Medium Cutting (Wiper)	CNMG120412-MW	1.2	●	●	▲	●	●							▲			●	●	●	●																			
RP	CNMG120408-RP	0.8	●	●		●	●	●																															C008 C009 E013 E036 E041 H006 −008
	CNMG120412-RP	1.2	●	●		●	●	●																															
	CNMG120416-RP	1.6	●	●		●	●	●																															
	CNMG160612-RP	1.2	●	●		●	●	●																															
	CNMG160616-RP	1.6	●	●		●	●	●																															
	CNMG190612-RP	1.2	●	●		●	●	●																															
Rough Cutting	CNMG190616-RP	1.6	●	●		●	●	●																															
RM	CNMG120408-RM	0.8									●	●	●																										C008 C009 E013 E036 E041 H006 −008
	CNMG120412-RM	1.2									●	●	●																										
	CNMG120416-RM	1.6									●	●	●																										
	CNMG160612-RM	1.2									●	●	●																										
	CNMG160616-RM	1.6									●	●	●																										
	CNMG190612-RM	1.2									●	●	●																										
Rough Cutting	CNMG190616-RM	1.6									●	●	●																										

* 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)

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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P	Steel	●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤					
Work Material	M	Stainless Steel									●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤					
Work Material	K	Cast Iron															●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐			
Work Material	N	Non-ferrous Metal																																		◐			
Work Material	S	Heat-resistant Alloy, Titanium Alloy													●						●	◐	✤	●	◐	✤									◐	◐	◐	
RK	CNMG120408-RK	0.8															●	●			●																		C008 C009 E013 E036 E041 H006 —008
	CNMG120412-RK	1.2															●	●			●																		
	CNMG120416-RK	1.6															●	●																					
	CNMG160608-RK	0.8															●	●																					
	CNMG160612-RK	1.2															●	●																					
	CNMG160616-RK	1.6															●	●																					
	CNMG190612-RK	1.2															●	●																					
Rough Cutting	CNMG190616-RK	1.6															●	●																					
RS	CNMG120408-RS	0.8																					●	●														●	C008 C009 E013 E036 E041 H006 —008
	CNMG120412-RS	1.2																					●	●														●	
	CNMG120416-RS	1.6																					●	●														●	
	CNMG160612-RS	1.2																					●															●	
	CNMG160616-RS	1.6																					●															●	
	CNMG190612-RS	1.2																					●															●	
Rough Cutting	CNMG190616-RS	1.6																					●															●	
GH	CNMG120408-GH	0.8	●	●	▲									▲	●				●	●																			C008 C009 E013 E036 E041 H006 —008
	CNMG120412-GH	1.2	●	●	▲									▲	●				●	●																			
	CNMG120416-GH	1.6	●	●															●	●																			
	CNMG160612-GH	1.2	●	●	▲									▲	●				●	●																			
	CNMG160616-GH	1.6	●	●															●	●																			
	CNMG190612-GH	1.2	●	●	▲										●				●	●																			
Rough Cutting	CNMG190616-GH	1.6	●	●	▲									▲	●				●	●																			
GJ	CNMG120408-GJ	0.8														●										●	●										●		C008 C009 E013 E036 E041 H006 —008
	CNMG120412-GJ	1.2														●										●	●										●		
	CNMG120416-GJ	1.6														●										●	●										●		
	CNMG160612-GJ	1.2														●										●											●		
	CNMG190612-GJ	1.2														●										●											●		
Rough Cutting	CNMG190616-GJ	1.6														●										●											●		
HX	CNMM120408-HX	0.8					●	●																															C008 C009 E013 E036 E041 H006 —008
	CNMM120412-HX	1.2					●	●																															
	CNMM160612-HX	1.2					●	●																															
	CNMM160616-HX	1.6					●	●																															
	CNMM190612-HX	1.2		●	▲		●	●	●																														
	CNMM190616-HX	1.6		●	▲		●	●	●																														
	CNMM190624-HX	2.4		●	▲		●	●	●																														
Heavy Cutting	CNMM250924-HX	2.4		●	▲		●	●	●																														
HL	CNMM120408-HL	0.8					●	●							●																								C008 C009 E013 E036 E041 H006 —008
	CNMM120412-HL	1.2					●	●							●																								
	CNMM120416-HL	1.6						●							●																								
	CNMM160612-HL	1.2					●	●							●																								
	CNMM160616-HL	1.6					●	●							●																								
	CNMM190612-HL	1.2					●	●							●																								
	CNMM190616-HL	1.6					●	●							●																								
Heavy Cutting	CNMM190624-HL	2.4					●	●							●																								

● = NEW

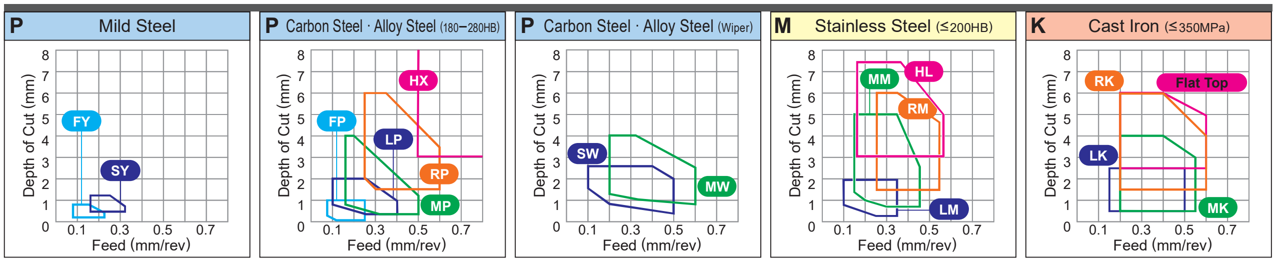
CHIP BREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° CN TYPE INSERTS WITH HOLE

CNMM 25 09 24- HR
Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---



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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015
		Coated																										Cermet		Coated Cermet			Carbide				
P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣				
M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣				
K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐		
N	Non-ferrous Metal																																		◐		
S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✣	●	◐	✣									◐	◐	◐

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
HR  Heavy Cutting	CNMM250924-HR	2.4					●	●																															–
HV  Heavy Cutting	CNMM190616-HV	1.6		●	▲		●	●	●																														C008 C009
	CNMM190624-HV	2.4		●	▲		●	●	●																														
	CNMM250924-HV	2.4		●	▲		●	●	●																														
HZ  Heavy Cutting	CNMM120408-HZ	0.8		●	▲		●	●																															C008 C009 E013 E036 E041 H006 —008
	CNMM120412-HZ	1.2		●	▲		●	●																															
	CNMM120416-HZ	1.6						●																															
	CNMM160612-HZ	1.2		●	▲																																		
	CNMM160616-HZ	1.6		●	▲																																		
	CNMM190612-HZ	1.2		●	▲				●																														
	CNMM190616-HZ	1.6		●	▲				●																														
HM  Heavy Cutting	CNMM160612-HM	1.2					●	●							●																								C008 C009 E013 E036 E041 H006 —008
	CNMM160616-HM	1.6					●	●							●																								
	CNMM190612-HM	1.2					●	●							●																								
	CNMM190616-HM	1.6					●	●							●																								
	CNMM190624-HM	2.4					●	●							●																								
	CNMM250924-HM	2.4					●	●																															
Flat Top 	CNMA120404	0.4															●	●	●	●															●	●			C008 C009 E013 E036 E041 H006 —008
	CNMA120408	0.8															●	●	●	●	● (NEW)														●	●			
	CNMA120412	1.2															●	●	●	●	● (NEW)																		
	CNMA120416	1.6															●	●	●	●																			
	CNMA160612	1.2															●	●	●	●																			
	CNMA160616	1.6															●	●	●	●																			
	CNMA190612	1.2															●	●	●	●																			
	CNMA190616	1.6															●	●	●	●																			
	CNMA190624	2.4															●	●																					

● = NEW

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

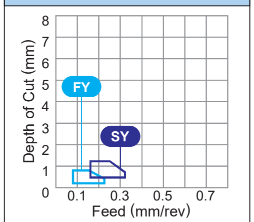
55° DN TYPE INSERTS WITH HOLE

DNMG 15 04 02- FP
Size · Thickness · Corner Radius · Chip Breaker
* Please refer to page A002.

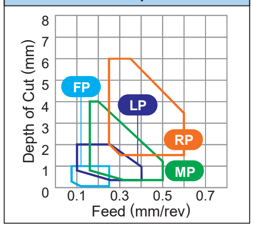
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting --- Light Cutting --- Medium Cutting --- Rough Cutting --- Heavy Cutting ---

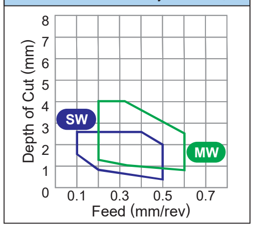
P Mild Steel



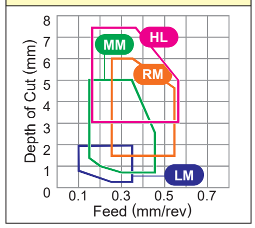
P Carbon Steel · Alloy Steel (180−280HB)



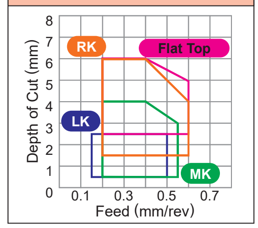
P Carbon Steel · Alloy Steel (Wiper)



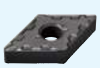
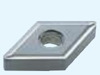
M Stainless Steel (≦200HB)



K Cast Iron (≦350MPa)



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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P Steel		●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤					
	M Stainless Steel										●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤					
	K Cast Iron																●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐			
	N Non-ferrous Metal																																			◐			
	S Heat-resistant Alloy, Titanium Alloy															●						●	◐	✤	●	◐	✤									◐	◐	◐	
FP  Finish Cutting	DNMG150402-FP	0.2				●	●																						●		●								C010 C011 E013 E036 —041 H009 —011
	DNMG150404-FP	0.4				●	●																						●		●								
	DNMG150408-FP	0.8				●	●																						●		●								
	NEW DNMG150412-FP	1.2				●	●																						●		●								
	DNMG150602-FP	0.2				●	●																						●		●								
	DNMG150604-FP	0.4				●	●																						●		●								
	DNMG150608-FP	0.8				●	●																						●		●								
	NEW DNMG150612-FP	1.2				●	●																						●		●								
FH  Finish Cutting	DNMG150402-FH	0.2		●	▲																								●	●	●								C010 C011 E013 E036 —041 H009 —011
	DNMG150404-FH	0.4		●																									●	●	●	●							
	DNMG150408-FH	0.8		●																									●		●	●							
	DNMG150602-FH	0.2		●	▲																								●	●	●								
	DNMG150604-FH	0.4		●	▲																										●								
	DNMG150608-FH	0.8		●	▲																										●								
FS  Finish Cutting	DNMG150404-FS	0.4																											●										C010 C011 E013 E036 —041 H009 —011
	DNMG150408-FS	0.8			▲																								●										
FY  Finish Cutting	DNMG150404-FY	0.4			▲																								●	●	●		●						C010 C011 E013 E036 —041 H009 —011
	DNMG150408-FY	0.8			▲																								●		●		●						
	DNMG150604-FY	0.4																													●								
	DNMG150608-FY	0.8			▲																										●								
FJ  Finish Cutting	DNGG150404-FJ	0.4																								●	●										●		C010 C011 E013 E036 —041 H009 —011
	DNGG150408-FJ	0.8																								●	●										●		
PK  Finish Cutting	DNGG150404-PK	0.4																											●										C010 C011 E013 E036 —041 H009 —011

● = NEW

A
TURNING INSERTS
NEG
WITH HOLE
C
D
R
S
T
V
W

CHIP BREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

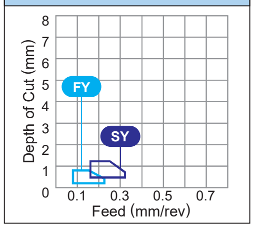
55° DN TYPE INSERTS WITH HOLE

DNMG 11 04 04- LP
Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

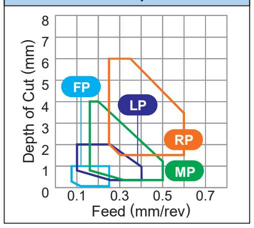
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---

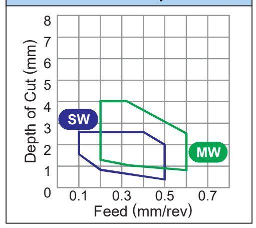
P Mild Steel



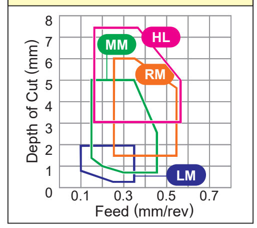
P Carbon Steel · Alloy Steel (180–280HB)



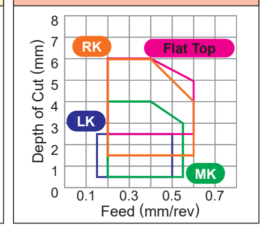
P Carbon Steel · Alloy Steel (Wiper)



M Stainless Steel (≤200HB)



K Cast Iron (≤350MPa)



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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
Work Material	P	Steel	●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤					
	M	Stainless Steel									●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤					
	K	Cast Iron															●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐			
	N	Non-ferrous Metal																																		◐			
	S	Heat-resistant Alloy, Titanium Alloy													●						●	◐	✤	●	◐	✤									◐	◐	◐	
			Coated																								Cermet		Coated Cermet			Carbide					
LP	DNMG110404-LP	0.4	●	●		●	●	●																						●								C010 C011 E013 E036 —041 H009 —011
	DNMG110408-LP	0.8	●	●		●	●	●																						●								
	DNMG150404-LP	0.4	●	●		●	●	●																						●								
	DNMG150408-LP	0.8	●	●		●	●	●																						●								
	DNMG150412-LP	1.2	●	●		●	●	●																						●								
	DNMG150604-LP	0.4	●	●		●	●	●																						●								
	DNMG150608-LP	0.8	●	●		●	●	●																						●								
Light Cutting	DNMG150612-LP	1.2	●	●		●	●	●																														
LM	DNMG110404-LM	0.4									●	●	●																									C010 C011 E013 E036 —041 H009 —011
	DNMG110408-LM	0.8									●	●	●																									
	DNMG150404-LM	0.4									●	●	●																									
	DNMG150408-LM	0.8									●	●	●																									
	DNMG150412-LM	1.2									●	●	●																									
	DNMG150604-LM	0.4									●	●	●																									
	DNMG150608-LM	0.8									●	●	●																									
Light Cutting	DNMG150612-LM	1.2									●	●	●																									
LK	DNMG110408-LK	0.8															●	●																				C010 C011 E013 E036 —041 H009 —011
	DNMG150404-LK	0.4															●	●			● (NEW)																	
	DNMG150408-LK	0.8															●	●																				
	DNMG150412-LK	1.2															●	●																				
	DNMG150604-LK	0.4															●	●																				
	DNMG150608-LK	0.8															●	●																				
Light Cutting	DNMG150612-LK	1.2															●	●																				
LS	NEW DNMG150402-LS	0.2																				● (NEW)	● (NEW)	● (NEW)														● (NEW)	C010 C011 E013 E036 —041 H009 —011
	DNMG150404-LS	0.4																				●	●	● (NEW)														●	
	DNMG150408-LS	0.8																				●	●	● (NEW)														●	
	DNMG150604-LS	0.4																				●	●	● (NEW)														●	
Light Cutting	DNMG150608-LS	0.8																				●	●	● (NEW)														●	
SH	DNMG110404-SH	0.4	●	●											●																							C010 C011 E013 E036 —041 H009 —011
	DNMG110408-SH	0.8	●	●											●																							
	DNMG150404-SH	0.4	●	●	▲	●	●								●					●									●	●		●							
	DNMG150408-SH	0.8	●	●	▲	●	●								●					●									●	●		●							
	DNMG150412-SH	1.2	●	●	▲	●	●								●					●									●			●							
	DNMG150604-SH	0.4	●	●																																		
	DNMG150608-SH	0.8	●	●																●																		
Light Cutting	DNMG150612-SH	1.2	●	●																●																		

● = NEW

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

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

Work Material			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015
	P	Steel	●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤				
	M	Stainless Steel									●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤				
	K	Cast Iron															●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐		
	N	Non-ferrous Metal																																		◐		
	S	Heat-resistant Alloy, Titanium Alloy													●							●	◐	✤	●	◐	✤									◐	◐	◐

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
SA	DNMG150404-SA	0.4	●	●	▲	●	●																						●	●									C010 C011 E013 E036 –041 H009 –011
	DNMG150408-SA	0.8	●	●	▲	●	●																						●	●									
	DNMG150412-SA	1.2	●	●	▲	●	●																							●									
	DNMG150604-SA	0.4	●	●	▲																									●									
	DNMG150608-SA	0.8	●	●	▲																									●									
Light Cutting	DNMG150612-SA	1.2	●	●	▲																									●									
* SW	DNMX110404-SW	0.4	●			●																																	C010 E013 E036 E038 E040 H009 H011
	DNMX110408-SW	0.8	●			●																																	
	DNMX150404-SW	0.4	●	●		●								▲															●	●	●								
	DNMX150408-SW	0.8	●	●		●								▲															●	●	●								
	DNMX150412-SW	1.2	●	●		●								▲															●	●									
	DNMX150604-SW	0.4	●	●		●								▲															●	●	●								
	DNMX150608-SW	0.8	●	●		●								▲															●	●	●								
Light Cutting (Wiper)	DNMX150612-SW	1.2	●	●		●								▲															●	●									
SY	DNMG150404-SY	0.4			▲																								●	●	●								C010 C011 E013 E036 –041 H009 –011
	DNMG150408-SY	0.8			▲																								●		●		●						
	DNMG150604-SY	0.4																													●								
Light Cutting	DNMG150608-SY	0.8			▲																										●								
C	DNMG150404-C	0.4																											▲	▲									C010 C011 E013 E036 –041 H009 –011
	DNMG150408-C	0.8																											▲	▲									
	DNMG150604-C	0.4																											▲	▲									
Light Cutting	DNMG150608-C	0.8																											▲	▲									
MJ	DNMG150404-MJ	0.4														●						●	●		●	●											●		C010 C011 E013 E036 –041 H009 –011
	DNMG150408-MJ	0.8														●						●	●		●	●											●		
	DNMG150412-MJ	1.2														●						●	●		●	●													
	DNMG150416-MJ	1.6														●						●	●		●	●													
	DNMG150604-MJ	0.4														●						●	●		●	●													
	DNMG150608-MJ	0.8														●						●	●		●	●													
	DNMG150612-MJ	1.2														●						●	●		●	●													
Light Cutting	DNMG150616-MJ	1.6														●						●	●		●	●													
MJ	DNGM150404-MJ	0.4																								●	●									●	●		C010 C011 E013 E036 –041 H009 –011
Light Cutting	DNGM150408-MJ	0.8																								●	●									●	●		
MP	DNMG150404-MP	0.4	●	●	▲	●	●	●												●											●								C010 C011 E013 E036 –041 H009 –011
	DNMG150408-MP	0.8	●	●	▲	●	●	●												●											●								
	DNMG150412-MP	1.2	●	●	▲	●	●	●												●											●								
	DNMG150416-MP	1.6	●	●	▲	●	●	●												●																			
	DNMG150604-MP	0.4	●	●	▲	●	●	●												●											●								
	DNMG150608-MP	0.8	●	●	▲	●	●	●												●											●								
	DNMG150612-MP	1.2	●	●	▲	●	●	●												●											●								
Medium Cutting	DNMG150616-MP	1.6	●	●	▲	●	●	●												●																			

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

● = NEW

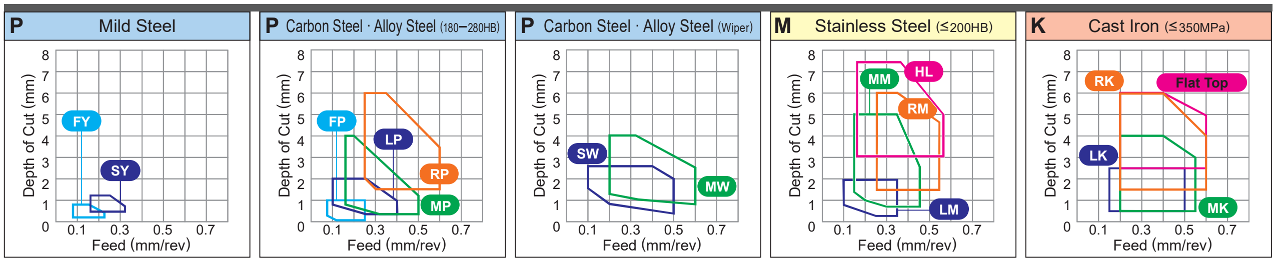
CHIP BREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

55° DN TYPE INSERTS WITH HOLE

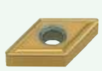
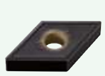
DNMG 15 04 08- MM
Size / Thickness / Corner Radius / Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---



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

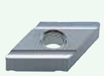
Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
Work Material	P	Steel	●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤					
	M	Stainless Steel									●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤					
	K	Cast Iron															●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐			
	N	Non-ferrous Metal																																		◐			
	S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✤	●	◐	✤									◐	◐	◐	
			Coated																										Cermet		Coated Cermet			Carbide					
MM  Medium Cutting	DNMG150408-MM	0.8									●	●	●																										C010 C011 E013 E036 —041 H009 —011
	DNMG150412-MM	1.2									●	●	●																										
	DNMG150608-MM	0.8									●	●	●																										
	DNMG150612-MM	1.2									●	●	●																										
MK  Medium Cutting	DNMG110408-MK	0.8															●	●																					C010 C011 E013 E036 —041 H009 —011
	DNMG150404-MK	0.4															●	●																					
	DNMG150408-MK	0.8															●	●																					
	DNMG150412-MK	1.2															●	●																					
	DNMG150604-MK	0.4															●	●																					
	DNMG150608-MK	0.8															●	●																					
	DNMG150612-MK	1.2															●	●																					
* MS  Medium Cutting	DNMG150404-MS	0.4																				●	●	●														●	C010 C011 E013 E036 —041 H009 —011
	DNMG150408-MS	0.8																				●	●	●														●	
	DNMG150412-MS	1.2																				●	●	●														●	
	DNMG150604-MS	0.4																				●	●	●														●	
	DNMG150608-MS	0.8																				●	●	●														●	
	DNMG150612-MS	1.2																				●	●	●														●	
MS  Medium Cutting	DNMG110408-MS	0.8		●											●																								C010 C011 E013 E036 —041 H009 —011
	DNMG150404-MS	0.4		●	▲									▲	●	●									●	●	●												
	DNMG150408-MS	0.8		●										▲	●	●									●	●	●	●									●		
	DNMG150412-MS	1.2		●											●	●									●	●													
	DNMG150604-MS	0.4		●										▲	●	●									●	●		●											
	DNMG150608-MS	0.8		●										▲	●	●									●	●													
	DNMG150612-MS	1.2		●												●									●	●													
GK  Medium Cutting	DNMG150404-GK	0.4															●	●			●																		C010 C011 E013 E036 —041 H009 —011
	DNMG150408-GK	0.8															●	●																					
	DNMG150412-GK	1.2															●	●																					
	DNMG150604-GK	0.4															●	●																					
	DNMG150608-GK	0.8															●	●																					
	DNMG150612-GK	1.2															●	●																					

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

● (highlighted) = NEW

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

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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
	M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
	K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
	N	Non-ferrous Metal																																		◐			
	S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✣	●	◐	✣									◐	◐	◐	
GM	DNMG150404-GM	0.4									●	●	●																										C010, C011, E013, E036, —041, H009, —011
	DNMG150408-GM	0.8									●	●	●																										
	DNMG150412-GM	1.2									●	●	●																										
	DNMG150604-GM	0.4									●	●	●																										
	DNMG150608-GM	0.8									●	●	●																										
Medium Cutting	DNMG150612-GM	1.2									●	●	●																										
MA	DNMG110404-MA	0.4	●	●		●	●																																C010, C011, E013, E036, —041, H009, —011
	DNMG110408-MA	0.8	●	●		●	●																																
	DNMG110412-MA	1.2	●	●		●	●																																
	DNMG150404-MA	0.4	●	●	▲	●	●					●	●	▲	●		●	●	●	●			●				●			●									
	DNMG150408-MA	0.8	●	●	▲	●	●	●				●	●	▲	●		●	●	●	●			●	● NEW			●			●									
	DNMG150412-MA	1.2	●	●	▲	●	●	●				●	●		●		●	●		●			●	● NEW			●			●									
	DNMG150604-MA	0.4	●	●	▲	●	●					●	●	▲	●		●	●					●				●			●									
	DNMG150608-MA	0.8	●	●	▲	●	●	●				●	●	▲	●		●	●	●	●			●	● NEW			●			●									
	DNMG150612-MA	1.2	●	●	▲	●	●	●				●	●	▲	●		●	●	●	●			●	● NEW			●			●									
Medium Cutting	DNMG150616-MA	1.6		●																																			
MH	DNMG150404-MH	0.4	●	●	▲																																		C010, C011, E013, E036, —041, H009, —011
	DNMG150408-MH	0.8	●	●	▲	●	●	●						▲						●																			
	DNMG150412-MH	1.2	●	●	▲	●	●	●						▲						●																			
	DNMG150604-MH	0.4	●	●																●																			
	DNMG150608-MH	0.8	●	●	▲	●	●	●						▲						●																			
Medium Cutting	DNMG150612-MH	1.2	●	●	▲	●	●	●												●																			
Standard	DNMG110408	0.8		●																	● NEW																		C010, C011, E013, E036, —041, H009, —011
	DNMG150404	0.4	●	●	▲	●	●												●	●									●	●	●					●			
	DNMG150408	0.8	●	●	▲	●	●	●											●	●							●		●	●	●					●			
	DNMG150412	1.2	●	●	▲	●	●	●											●	●							●		●										
	DNMG150416	1.6		●		●	●	●																															
	DNMG150604	0.4	●	●	▲	●	●												●	●									●		●								
	DNMG150608	0.8	●	●	▲	●	●	●											●	●							●		●		●								
	DNMG150612	1.2	●	●	▲	●	●	●											●	●							●												
Medium Cutting	DNMG150616	1.6		●		●	●	●																															
* MW	DNMX150408-MW	0.8	●	●		●											●	●	●	●																			C010, E013, E036, E038, E040, H009, H011
	DNMX150412-MW	1.2	●	●		●											●	●	●	●																			
	DNMX150608-MW	0.8	●	●		●								▲			●	●	●	●																			
	DNMX150612-MW	1.2	●	●		●											●	●																					
Medium Cutting (Wiper)																																							
R/L	DNGG150404R	0.4																											●	●				●		●			C010, C011, E013, E036, —041, H009, —011
	DNGG150404L	0.4																											●	●				●		●			
	DNGG150408R	0.8																											●	●				●					
	DNGG150408L	0.8																											●	●									
	DNGG150604R	0.4																												●				●					
	DNGG150604L	0.4																												●									
	DNGG150608R	0.8																												●									
Medium Cutting	DNGG150608L	0.8																												●									

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

● = NEW

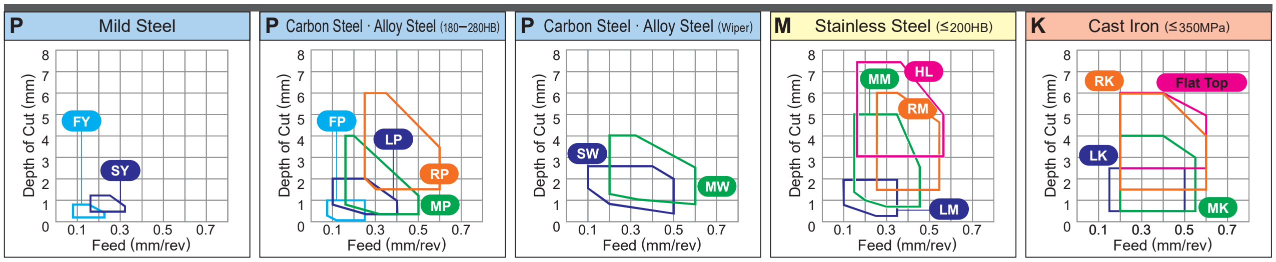
CHIP BREAKERS ➤A042
GRADES ➤A030
IDENTIFICATION ➤A002

55° DN TYPE INSERTS WITH HOLE

DNMG 15 04 08- RP
Size · Thickness · Corner Radius · Chip Breaker
* Please refer to page A002.

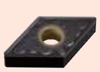
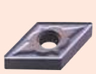
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting --- Light Cutting --- Medium Cutting --- Rough Cutting --- Heavy Cutting ---



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

Work Material			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015
			Coated																										Cermet		Coated Cermet			Carbide				
Work Material	P	Steel	●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤				
	M	Stainless Steel									●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤				
	K	Cast Iron															●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐		
	N	Non-ferrous Metal																																		◐		
	S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✤	●	◐	✤									◐	◐	◐

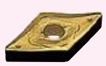
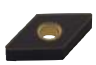
Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
RP	DNMG150408-RP	0.8	●	●		●	●	●																															C010 C011 E013 E036 –041 H009 –011
	DNMG150412-RP	1.2	●	●		●	●	●																															
	DNMG150416-RP	1.6	●	●		●	●	●																															
	DNMG150608-RP	0.8	●	●		●	●	●																															
	DNMG150612-RP	1.2	●	●		●	●	●																															
Rough Cutting	DNMG150616-RP	1.6	●	●		●	●	●																															
RM	DNMG150408-RM	0.8									●	●	●																										C010 C011 E013 E036 –041 H009 –011
	DNMG150412-RM	1.2									●	●	●																										
	DNMG150416-RM	1.6									●	●	●																										
	DNMG150608-RM	0.8									●	●	●																										
	DNMG150612-RM	1.2									●	●	●																										
Rough Cutting	DNMG150616-RM	1.6									●	●	●																										
RK	DNMG150408-RK	0.8															●	●																					C010 C011 E013 E036 –041 H009 –011
	DNMG150412-RK	1.2															●	●																					
	DNMG150608-RK	0.8															●	●																					
	DNMG150612-RK	1.2															●	●																					
Rough Cutting																																							
RS	DNMG150408-RS	0.8																					●	●														●	C010 C011 E013 E036 –041 H009 –011
	DNMG150412-RS	1.2																					●	●														●	
	DNMG150416-RS	1.6																					●															●	
	DNMG150608-RS	0.8																					●	●														●	
	DNMG150612-RS	1.2																					●	●														●	
Rough Cutting	DNMG150616-RS	1.6																					●															●	
GH	DNMG150408-GH	0.8	●	●	▲										●				●	●																			C010 C011 E013 E036 –041 H009 –011
	DNMG150412-GH	1.2	●	●	▲									▲	●				●	●																			
	DNMG150608-GH	0.8	●	●	▲										●				●	●																			
	DNMG150612-GH	1.2	●	●	▲										●				●	●																			
Rough Cutting																																							
GJ	DNMG150408-GJ	0.8														●										●	●											●		C010 C011 E013 E036 –041 H009 –011
	DNMG150412-GJ	1.2														●										●	●											●		
	DNMG150416-GJ	1.6														●										●	●											●		
	DNMG150608-GJ	0.8														●										●													
	DNMG150612-GJ	1.2														●										●													
Rough Cutting	DNMG150616-GJ	1.6														●										●													

● = NEW

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

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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015
P	Steel	●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤				
M	Stainless Steel									●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤				
K	Cast Iron															●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐		
N	Non-ferrous Metal																																		◐		
S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✤	●	◐	✤									◐	◐	◐

Shape	Order Number	RE (mm)	Coated																										Cermet		Coated Cermet			Carbide					Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	
HL  Heavy Cutting	**DNMM150408-HL**	0.8					●	●							●																								C010 C011 E013 E036 —041 H009 —011
	DNMM150412-HL	1.2					●	●							●																								
	DNMM150608-HL	0.8					●	●							●																								
	DNMM150612-HL	1.2					●	●							●																								
HZ  Heavy Cutting	**DNMM150408-HZ**	0.8		●	▲		●	●																															C010 C011 E013 E036 —041 H009 —011
	DNMM150412-HZ	1.2		●	▲		●	●																															
	DNMM150608-HZ	0.8		●	▲		●	●																															
	DNMM150612-HZ	1.2		●	▲		●	●																															
Flat Top 	**DNMA150404**	0.4															●	●	●	●																●			C010 C011 E013 E036 —041 H009 —011
	DNMA150408	0.8															●	●	●	●									●						●	●			
	DNMA150412	1.2															●	●	●	●																			
	DNMA150604	0.4															●	●																					
	DNMA150608	0.8															●	●	●	●																			
	DNMA150612	1.2															●	●	●	●																			
Flat Top 	**DNGA150404**	0.4																																		●			C010 C011 E013 E036 —041 H009 —011
	DNGA150408	0.8																																	●	●			

● = NEW

CHIP BREAKERS ➢ A042
GRADES ➢ A030
IDENTIFICATION ➢ A002

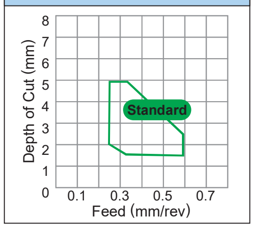
RN TYPE INSERTS WITH HOLE

RNMG 12 04 00
Size Thickness Corner Radius
* Please refer to page A002.

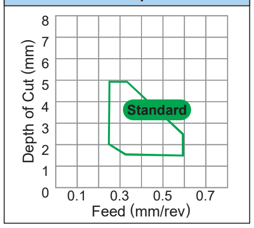
CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting---

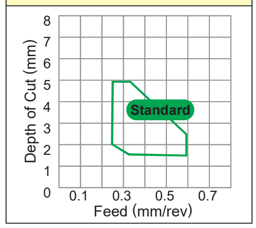
P Mild Steel



P Carbon Steel · Alloy Steel (180−280HB)



M Stainless Steel (≤200HB)



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

Work Material / Shape		Order Number	IC (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905
				Coated													
P	Steel			●	◐	✣	◐	✣	✣	✣	●						
M	Stainless Steel											●	◐	✣	●	✣	
K	Cast Iron																
N	Non-ferrous Metal																
S	Heat-resistant Alloy, Titanium Alloy																●
Standard  Medium Cutting		RNMG120400	12.7		●	▲	●	●									

Work Material / Shape		MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M
		Coated											
P	Steel											✣	✣
M	Stainless Steel										◐	✣	✣
K	Cast Iron	●	◐	●	◐	◐					◐	✣	
N	Non-ferrous Metal												
S	Heat-resistant Alloy, Titanium Alloy						●	◐	✣	●	◐	✣	
Standard	RNMG120400												

Work Material / Shape		NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
		Cermet		Coated Cermet			Carbide					
P	Steel	●	◐	◐	●	●	✣					
M	Stainless Steel	●			●	●	✣					
K	Cast Iron	●			●	●	✣	●	◐			
N	Non-ferrous Metal								◐			
S	Heat-resistant Alloy, Titanium Alloy								◐	◐	◐	
Standard	RNMG120400											–

● = NEW

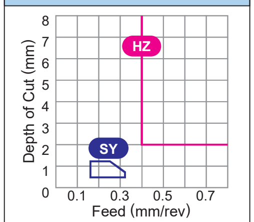
● : Inventory maintained in Japan. ▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

* Please refer to page A002.

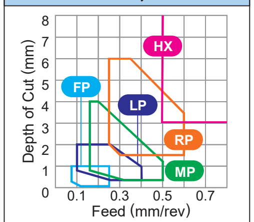
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting --- Light Cutting --- Medium Cutting --- Rough Cutting --- Heavy Cutting ---

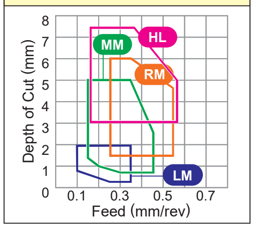
P Mild Steel



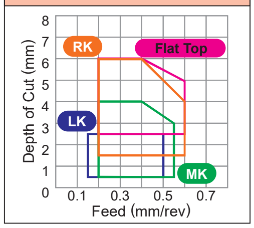
P Carbon Steel · Alloy Steel (180−280HB)



M Stainless Steel (≤200HB)



K Cast Iron (≤350MPa)



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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P	Steel	●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤					
	M	Stainless Steel									●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤					
	K	Cast Iron															●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐			
	N	Non-ferrous Metal																																		◐			
	S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✤	●	◐	✤									◐	◐	◐	
FP  Finish Cutting	SNMG120404-FP	0.4				●	●																						●		●								C012 –015 E014 E035
	SNMG120408-FP	0.8				●	●																						●		●								
	NEW SNMG120412-FP	1.2				●	●																						●		●								
FH  Finish Cutting	SNMG090304-FH	0.4																											●										C012 –015 E014 E035
	SNMG090308-FH	0.8																											●										
	SNMG120404-FH	0.4		●																									●		●								
	SNMG120408-FH	0.8		●																											●								
FS  Finish Cutting	SNMG120408-FS	0.8																											●										C012 –015 E014 E035
LP  Light Cutting	SNMG120404-LP	0.4	●	●		●	●	●																							●								C012 –015 E014 E035
	SNMG120408-LP	0.8	●	●		●	●	●																							●								
	SNMG120412-LP	1.2	●	●		●	●	●																															
LM  Light Cutting	SNMG120404-LM	0.4									●	●	●																										C012 –015 E014 E035
	SNMG120408-LM	0.8									●	●	●																										
LK  Light Cutting	SNMG120408-LK	0.8															●	●																					C012 –015 E014 E035
	SNMG120412-LK	1.2															●	●																					
SH  Light Cutting	SNMG120404-SH	0.4		●																●																			C012 –015 E014 E035
	SNMG120408-SH	0.8	●	●	▲															●									●										
	SNMG120412-SH	1.2		●	▲															●																			

● = NEW

CHIP BREAKERS ➢ A042
GRADES ➢ A030
IDENTIFICATION ➢ A002

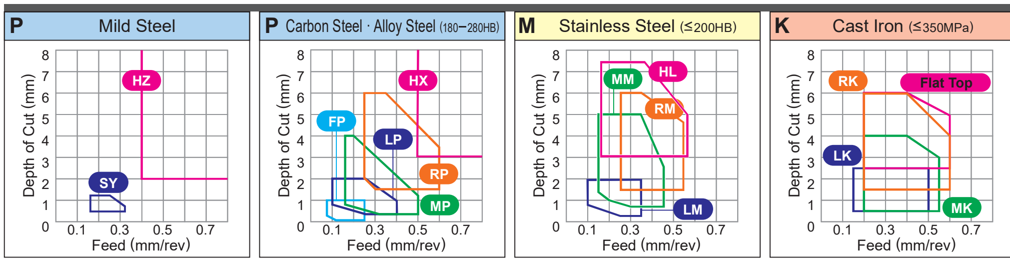
90° SN TYPE INSERTS WITH HOLE

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

A
TURNING INSERTS
NEG
WITH HOLE
C D R S T V W

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---



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

Shape	Order Number	RE (mm)	Coated																										Cermet		Coated Cermet			Carbide					Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 NEW	MP9005	MP9015	MP9025 NEW	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	
Work Material	P Steel		●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
	M Stainless Steel										●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
	K Cast Iron																●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
	N Non-ferrous Metal																																			◐			
	S Heat-resistant Alloy, Titanium Alloy														●						●	◐	✣	●	◐	✣										◐	◐	◐	
SA  Light Cutting	SNMG120404-SA	0.4		●																										●									C012 —015 E014 E035
	SNMG120408-SA	0.8	●	●	▲																									●									
	SNMG120412-SA	1.2		●	▲																									●									
SY  Light Cutting	SNMG120408-SY	0.8			▲																										●								C012 —015 E014 E035
C  Light Cutting	SNMG090304-C	0.4																											▲										C012 —015 E014 E035
	SNMG090308-C	0.8																											▲										
	SNMG120408-C	0.8																											▲	▲									
	SNMG120416-C	1.6																											▲										
R/L-1G  Light Cutting	SNMG120404L-1G	0.4																											●										C012 —015 E014 E035
	SNMG120404R-1G	0.4																											●										
	SNMG120408R-1G	0.8																											●										
MP  Medium Cutting	SNMG120404-MP	0.4	●	●	▲	●	●	●												●											●								C012 —015 E014 E035
	SNMG120408-MP	0.8	●	●	▲	●	●	●												●											●								
	SNMG120412-MP	1.2	●	●	▲	●	●	●												●											●								
MM  Medium Cutting	SNMG120408-MM	0.8									●	●	●																										C012 —015 E014 E035
	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									●	●	●																										

● = NEW

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

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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015
P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣				
M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣				
K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐		
N	Non-ferrous Metal																																		◐		
S	Heat-resistant Alloy, Titanium Alloy													●							●	◐	✣	●	◐	✣									◐	◐	◐

Shape	Order Number	RE (mm)	Coated																									Cermet		Coated Cermet			Carbide					Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	NEW MH515	MP9005	MP9015	NEW MP9025	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	
MK 	SNMG120408-MK	0.8															●	●																					
	SNMG120412-MK	1.2															●	●																					
	SNMG120416-MK	1.6															●	●																					C012 –015 E014 E035
	SNMG150612-MK	1.2															●	●																					
	SNMG150616-MK	1.6															●	●																					
	SNMG190612-MK	1.2															●	●																					
Medium Cutting	SNMG190616-MK	1.6															●	●																					
* MS 	SNMG120404-MS	0.4																				●	●															●	
	SNMG120408-MS	0.8																				●	●	●														●	C012 –015 E014 E035
	SNMG120412-MS	1.2																				●	●	●														●	
	SNMG150612-MS	1.2																				●	●															●	
	SNMG150616-MS	1.6																				●	●															●	
Medium Cutting	NEW SNMG190612-MS	1.2																				●	●																
MS 	SNMG090304-MS	0.4													●																								
	SNMG090308-MS	0.8													●																								
	SNMG120404-MS	0.4		●										▲	●																								C012 –015 E014 E035
	SNMG120408-MS	0.8		●	▲									▲	●	●									●	●	●	●						●			●		
	SNMG120412-MS	1.2		●										▲	●	●									●	●	●												
	SNMG120416-MS	1.6													●																								
Medium Cutting	SNMG190616-MS	1.6													●																								
GK 	SNMG120404-GK	0.4															●	●			●																		C012 –015 E014 E035
	SNMG120408-GK	0.8															●	●																					
Medium Cutting	SNMG120412-GK	1.2															●	●			●																		
GM 	SNMG120404-GM	0.4									●	●	●																										C012 –015 E014 E035
	SNMG120408-GM	0.8									●	●	●																										
Medium Cutting	SNMG120412-GM	1.2									●	●	●																										
MA 	SNMG120404-MA	0.4	●	●	▲	●	●					●	●		●		●	●		●			●				●			●									
	SNMG120408-MA	0.8	●	●	▲	●	●	●				●	●	▲	●		●	●	●	●			●				●			●									
	SNMG120412-MA	1.2	●	●	▲	●	●	●				●	●	▲	●		●	●	●	●			●				●			●									
	SNMG120416-MA	1.6																		●			●																C012 –015 E014 E035
	SNMG150608-MA	0.8	●	●	▲										●																								
	SNMG150612-MA	1.2	●	●	▲	●	●	●							●					●																			
	SNMG150616-MA	1.6		●		●	●	●																															
	SNMG190612-MA	1.2	●	●	▲	●	●	●												●																			
Medium Cutting	SNMG190616-MA	1.6	●	●	▲	●	●	●							●																								
MH 	SNMG120408-MH	0.8	●	●	▲	●	●	●						▲						●																			C012 –015 E014 E035
	SNMG120412-MH	1.2	●	●	▲	●	●	●						▲						●																			
	SNMG190612-MH	1.2	●	●	▲															●																			
Medium Cutting	SNMG190616-MH	1.6	●	●	▲																																		

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

● = NEW

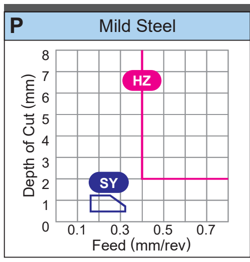
CHIP BREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

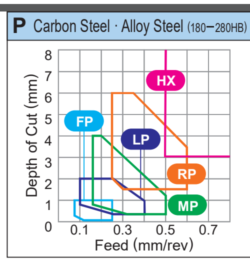
90° SN TYPE INSERTS WITH HOLE

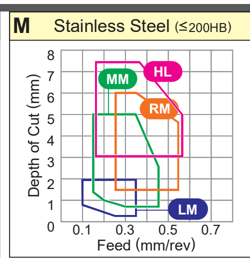
SNMG 09 03 04
Size Thickness Corner Radius
* Please refer to page A002.

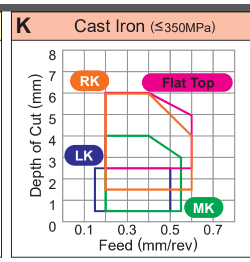
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---









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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P Steel		●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤					
	M Stainless Steel										●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤					
	K Cast Iron																●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐			
	N Non-ferrous Metal																																			◐			
	S Heat-resistant Alloy, Titanium Alloy															●						●	◐	✤	●	◐	✤									◐	◐	◐	
Standard	SNMG090304	0.4	●	●	▲	●	●																						●	●	●			●					C012−015 E014 E035
	SNMG090308	0.8	●	●	▲	●	●																						●	●	●			●	●	●			
	SNMG120404	0.4	●	●	▲	●	●																						●		●			●		●			
	SNMG120408	0.8	●	●	▲	●	●	●											●	●							●		●	●	●			●	●	●			
	SNMG120412	1.2	●	●	▲	●	●	●											●	●										●				●	●				
	SNMG120416	1.6		●	▲	●	●	●											●	●										●				●					
	SNMG120420	2.0			▲	●	●	●																															
	SNMG150612	1.2	●	●	▲	●	●	●											●	●																			
	SNMG150616	1.6				●	●	●																															
	SNMG190612	1.2	●	●	▲	●	●	●											●	●														●					
 Medium Cutting	SNMG190616	1.6	●	●	▲	●	●	●												●														●					
R/L	SNGG090304R	0.4																											●	●				●		●			C012−015 E014 E035
	SNGG090304L	0.4																											●	●				●					
	SNGG090308R	0.8																											●	●									
	SNGG090308L	0.8																											●	●									
	SNGG120404R	0.4																											●	●	●			●					
	SNGG120404L	0.4																											●	●	●			●					
	SNGG120408R	0.8																											●	●	●								
 Medium Cutting	SNGG120408L	0.8																											●	●	●			●		●			
RP	SNMG120408-RP	0.8	●	●		●	●	●																															C012−015 E014 E035
	SNMG120412-RP	1.2	●	●		●	●	●																															
	SNMG120416-RP	1.6	●	●		●	●	●																															
	SNMG150612-RP	1.2	●	●		●	●	●																															
	SNMG150616-RP	1.6	●	●		●	●	●																															
	SNMG190612-RP	1.2	●	●		●	●	●																															
 Rough Cutting	SNMG190616-RP	1.6	●	●		●	●	●																															
RM	SNMG120408-RM	0.8									●	●	●																										C012−015 E014 E035
	SNMG120412-RM	1.2									●	●	●																										
	SNMG120416-RM	1.6									●	●	●																										
	SNMG150612-RM	1.2									●	●	●																										
	SNMG150616-RM	1.6									●	●	●																										
	SNMG190612-RM	1.2									●	●	●																										
 Rough Cutting	SNMG190616-RM	1.6									●	●	●																										

● = NEW

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

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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
Work Material	M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
Work Material	K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
Work Material	N	Non-ferrous Metal																																		◐			
Work Material	S	Heat-resistant Alloy, Titanium Alloy													●						●	◐	✣	●	◐	✣									◐	◐	◐	
RK	SNMG120408-RK	0.8															●	●																					C012–015 E014 E035
	SNMG120412-RK	1.2															●	●																					
	SNMG120416-RK	1.6															●	●																					
	SNMG150612-RK	1.2															●	●																					
	SNMG150616-RK	1.6															●	●																					
	SNMG190612-RK	1.2															●	●																					
Rough Cutting	SNMG190616-RK	1.6															●	●																					
RS	SNMG120408-RS	0.8																					●	● NEW														●	C012–015 E014 E035
	SNMG120412-RS	1.2																					●	● NEW														●	
	SNMG120416-RS	1.6																					●															●	
	SNMG150616-RS	1.6																					●															●	
	NEW SNMG190612-RS	1.2																					● NEW																
Rough Cutting	SNMG190616-RS	1.6																					●															●	
GH	SNMG120408-GH	0.8	●	●	▲									▲	●				●	●																			C012–015 E014 E035
	SNMG120412-GH	1.2	●	●	▲									▲	●				●	●																			
	SNMG120416-GH	1.6	●	●											●																								
	SNMG150612-GH	1.2	●	●																																			
	SNMG150616-GH	1.6		●																																			
	SNMG190612-GH	1.2	●	●											●																								
Rough Cutting	SNMG190616-GH	1.6	●	●										▲	●																								
HX	SNMM120408-HX	0.8					●	●																															C012–015 E014 E035
	SNMM120412-HX	1.2					●	●																															
	SNMM150612-HX	1.2					●	●																															
	SNMM190612-HX	1.2		●	▲		●	●	●																														
	SNMM190616-HX	1.6		●	▲		●	●	●																														
	SNMM190624-HX	2.4		●	▲		●	●	●																														
	SNMM250724-HX	2.4		●	▲		●	●	●																														
Heavy Cutting	SNMM250924-HX	2.4		●	▲		●	●	●																														
HL	SNMM120408-HL	0.8					●	●							●																								C012–015 E014 E035
	SNMM120412-HL	1.2					●	●							●																								
	SNMM150612-HL	1.2					●	●							●																								
	SNMM190612-HL	1.2					●	●							●																								
	SNMM190616-HL	1.6					●	●							●																								
Heavy Cutting	SNMM190624-HL	2.4					●	●							●																								
HR	SNMM250724-HR	2.4					●	●																															–
 Heavy Cutting	SNMM250924-HR	2.4					●	●																															
HV	SNMM190616-HV	1.6		●	▲		●	●	●																														C012–014
	SNMM190624-HV	2.4		●	▲		●	●	●																														
	SNMM250724-HV	2.4		●	▲		●	●	●																														
Heavy Cutting	SNMM250924-HV	2.4		●	▲		●	●	●																														

● = NEW

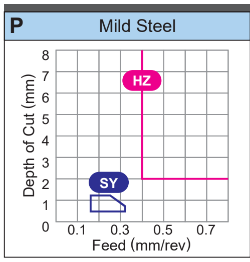
CHIP BREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

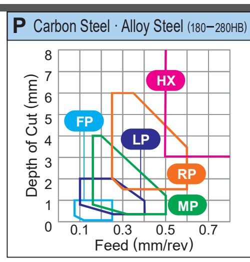
90° SN TYPE INSERTS WITH HOLE

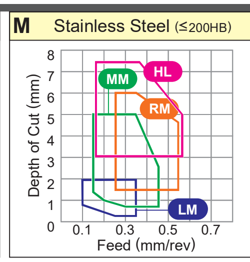
SNMM 12 04 08- HZ
Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

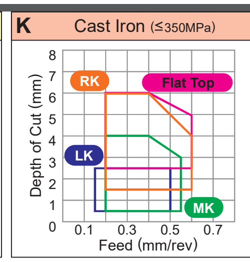
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---









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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
	M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
	K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
	N	Non-ferrous Metal																																		◐			
	S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✣	●	◐	✣									◐	◐	◐	
HZ  Heavy Cutting	SNMM120408-HZ	0.8		●	▲		●	●																															C012–015 E014 E035
	SNMM120412-HZ	1.2		●	▲		●	●																															
	SNMM150612-HZ	1.2		●	▲																																		
	SNMM190612-HZ	1.2		●	▲				●																														
	SNMM190616-HZ	1.6		●	▲				●																														
HM  Heavy Cutting	SNMM150612-HM	1.2					●	●							●																								C012–014
	SNMM190612-HM	1.2					●	●							●																								
	SNMM190616-HM	1.6					●	●							●																								
	SNMM190624-HM	2.4					●	●							●																								
	SNMM250724-HM	2.4					●	●																															
	SNMM250924-HM	2.4					●	●																															
Flat Top 	SNMA090304	0.4																																		●			C012–015 E014 E035
	SNMA090308	0.8															●	●	●	●																●			
	SNMA120408	0.8															●	●	●	●														●	●	●			
	SNMA120412	1.2															●	●	●	●																●			
	SNMA120416	1.6															●	●	●	●																			
	SNMA150612	1.2															●	●																					
	SNMA150616	1.6															●	●																					
	SNMA190612	1.2															●	●	●	●																			
	SNMA190616	1.6															●	●	●	●																			
Flat Top 	SNGA090304	0.4																											●										C012–015 E014 E035
	SNGA120404	0.4																																		●			
	SNGA120408	0.8																											●						●	●			

● = NEW

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

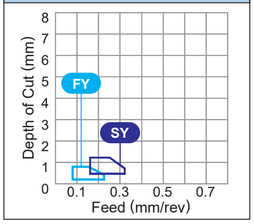
60° TN TYPE INSERTS WITH HOLE

TNMG 16 04 02- FP
Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

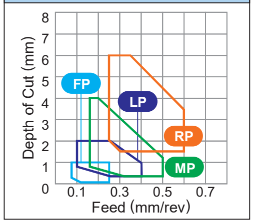
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---

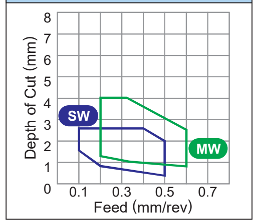
P Mild Steel



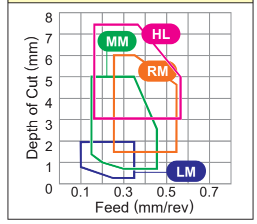
P Carbon Steel · Alloy Steel (180–280HB)



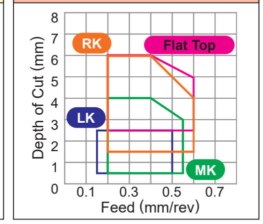
P Carbon Steel · Alloy Steel (Wiper)



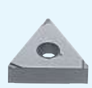
M Stainless Steel (≤200HB)



K Cast Iron (≤350MPa)



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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	NEW MH515	MP9005	MP9015	NEW MP9025	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
Work Material	P Steel		●	◐	✤	◐	✤	✤	✤	●																							✤	✤	●	◐	◐	●	●	✤					
	M Stainless Steel										●	◐	✤	●	✤												◐	✤	✤	●			●	●	✤					
	K Cast Iron																●	◐	●	◐	◐						◐	✤		●			●	●	✤	●	◐			
	N Non-ferrous Metal																																					◐			
	S Heat-resistant Alloy, Titanium Alloy															●						●	◐	✤	●	◐	✤											◐	◐	◐	
			Coated																										Cermet		Coated Cermet			Carbide					
FP  Finish Cutting	TNMG160402-FP	0.2				●	●																						●		●								C016 C017 E014 E035 E040
	TNMG160404-FP	0.4				●	●																						●		●								
	TNMG160408-FP	0.8				●	●																						●		●								
	NEW TNMG160412-FP	1.2				●	●																						●		●								
FH  Finish Cutting	TNMG110304-FH	0.4																											●										C016 C017 E014 E035 E040
	TNMG160402-FH	0.2		●	▲																								●	●	●								
	TNMG160404-FH	0.4		●																									●	●	●	●							
	TNMG160408-FH	0.8		●	▲																								●	●	●	●							
FS  Finish Cutting	TNMG160404-FS	0.4			▲																								●										C016 C017 E014 E035 E040
	TNMG160408-FS	0.8			▲																								●										
FY  Finish Cutting	TNMG160404-FY	0.4			▲																								●	●	●		●						C016 C017 E014 E035 E040
	TNMG160408-FY	0.8			▲																								●		●		●						
PK  Finish Cutting	TNGG160404-PK	0.4																											●										C016 C017 E014 E035 E040
	TNGG160408-PK	0.8																											●										
R/L-FS  Finish Cutting	TNGG160402R-FS	0.2								●																			●										C016 C017 E014 E035 E040
	TNGG160402L-FS	0.2								●																			●										
	TNGG160404R-FS	0.4								●																			●										
	TNGG160404L-FS	0.4								●																			●										
	NEW TNGG160408R-FS	0.8								●																													
	NEW TNGG160408L-FS	0.8								●																													

● = NEW

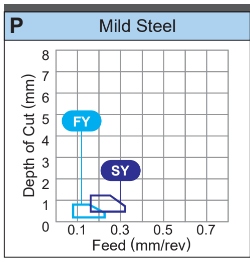
CHIP BREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

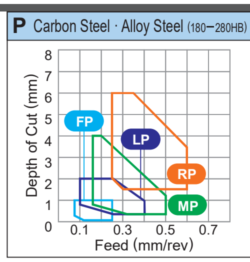
60° TN TYPE INSERTS WITH HOLE

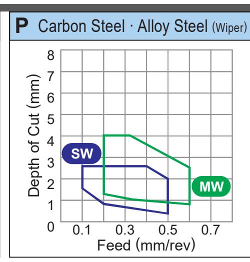
TNGG 16 04 02 R- F
Size Thickness Corner Radius R/L Chip Breaker
* Please refer to page A002.

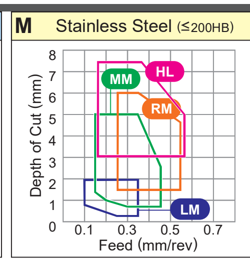
CHIP CONTROL RANGE FOR WORK MATERIALS

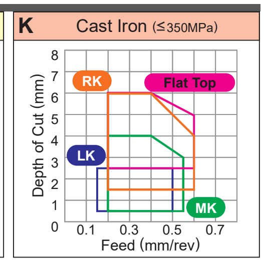
Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---



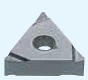








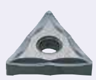
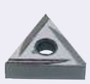
Cutting Conditions (Guide) : ●: Stable Cutting ◐: General Cutting ✣: Unstable Cutting

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																								Cermet		Coated Cermet			Carbide					
Work Material	P Steel		●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
Work Material	M Stainless Steel										●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
Work Material	K Cast Iron																●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
Work Material	N Non-ferrous Metal																																			◐			
Work Material	S Heat-resistant Alloy, Titanium Alloy															●						●	◐	✣	●	◐	✣									◐	◐	◐	
R/L-F  Finish Cutting	TNGG160402R-F	0.2																									●		●	●	●								C016 C017 E014 E035 E040
	TNGG160402L-F	0.2																									●		●	●	●								
	TNGG160404R-F	0.4																									●		●	●	●								
	TNGG160404L-F	0.4																									●		●	●	●								
	TNGG160408R-F	0.8																									●		●	●	●								
	TNGG160408L-F	0.8																									●		●	●	●								
LP  Light Cutting	TNMG160404-LP	0.4	●	●		●	●	●																							●								C016 C017 E014 E035 E040
	TNMG160408-LP	0.8	●	●		●	●	●																							●								
	TNMG160412-LP	1.2	●	●		●	●	●																							●								
	TNMG220408-LP	0.8	●	●		●	●	●																							●								
	TNMG220412-LP	1.2	●	●		●	●	●																															
LM  Light Cutting	TNMG160404-LM	0.4									●	●	●																										C016 C017 E014 E035 E040
	TNMG160408-LM	0.8									●	●	●																										
	TNMG160412-LM	1.2									●	●	●																										
LK  Light Cutting	TNMG160404-LK	0.4															●	●																					C016 C017 E014 E035 E040
	TNMG160408-LK	0.8															●	●																					
	TNMG160412-LK	1.2															●	●																					
LS  Light Cutting	NEW TNMG160402-LS	0.2																				●	●	●														●	C016 C017 E014 E035 E040
	TNMG160404-LS	0.4																				●	●	●														●	
	TNMG160408-LS	0.8																				●	●	●														●	
SH  Light Cutting	TNMG160404-SH	0.4	●	●	▲	●	●								●					●									●	●		●							C016 C017 E014 E035 E040
	TNMG160408-SH	0.8	●	●	▲	●	●								●					●									●	●		●							
	TNMG220408-SH	0.8	●	●											●																								
SA  Light Cutting	TNMG160404-SA	0.4	●	●	▲	●	●																						●	●									C016 C017 E014 E035 E040
	TNMG160408-SA	0.8	●	●	▲	●	●																						●	●									
	TNMG160412-SA	1.2	●	●	▲																									●									
	TNMG220408-SA	0.8	●	●	▲																																		
	TNMG220412-SA	1.2		●																																			

● = NEW

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

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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P	Steel	●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤					
Work Material	M	Stainless Steel									●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤					
Work Material	K	Cast Iron															●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐			
Work Material	N	Non-ferrous Metal																																		◐			
Work Material	S	Heat-resistant Alloy, Titanium Alloy													●						●	◐	✤	●	◐	✤										◐	◐	◐	
* SW  Light Cutting (Wiper)	TNMX160404-SW	0.4	●	●		●								▲															●	●	●								C017
	TNMX160408-SW	0.8	●	●		●								▲															●	●	●								
SY  Light Cutting	TNMG160404-SY	0.4			▲																								●	●	●		●						C016, C017, E014, E035, E040
	TNMG160408-SY	0.8			▲																								●		●		●						
C  Light Cutting	TNMG160404-C	0.4																											▲	▲									C016, C017, E014, E035, E040
	TNMG160408-C	0.8																											▲	▲									
	TNMG220404-C	0.4																											▲	▲									
	TNMG220408-C	0.8																												▲									
MJ  Light Cutting	TNMG160404-MJ	0.4														●						●	●		●	●											●		C016, C017, E014, E035, E040
	TNMG160408-MJ	0.8														●						●	●		●	●											●		
	TNMG160412-MJ	1.2														●						●	●		●	●													
R/L-1G  Light Cutting	TNMG160404R-1G	0.4																											●										C016, C017, E014, E035, E040
	TNMG160404L-1G	0.4																											●										
	TNMG220404R-1G	0.4																											●										
	TNMG220404L-1G	0.4																											●										
R/L-K  Light Cutting	TNGG160402R-K	0.2																											●	●	●								C016, C017, E014, E035, E040
	TNGG160402L-K	0.2																											●	●	●								
	TNGG160404R-K	0.4																											●	●	●								
	TNGG160404L-K	0.4																												●	●								
	TNGG160408R-K	0.8																													●								
	TNGG160408L-K	0.8																													●								
MP  Medium Cutting	TNMG160404-MP	0.4	●	●	▲	●	●	●												●											●								C016, C017, E014, E035, E040
	TNMG160408-MP	0.8	●	●	▲	●	●	●												●											●								
	TNMG160412-MP	1.2	●	●	▲	●	●	●												●											●								
	TNMG220408-MP	0.8	●	●	▲	●	●	●												●																			
	TNMG220412-MP	1.2	●	●	▲	●	●	●												●																			
MM  Medium Cutting	TNMG160408-MM	0.8									●	●	●																										C016, C017, E014, E035, E040
	TNMG160412-MM	1.2									●	●	●																										
	TNMG220408-MM	0.8									●	●	●																										
	TNMG220412-MM	1.2									●	●	●																										
	TNMG220416-MM	1.6									●	●	●																										
MK  Medium Cutting	TNMG160404-MK	0.4															●	●																					C016, C017, E014, E035, E040
	TNMG160408-MK	0.8															●	●																					
	TNMG160412-MK	1.2															●	●																					
	TNMG220408-MK	0.8															●	●																					
	TNMG220412-MK	1.2															●	●																					
	TNMG220416-MK	1.6															●	●																					

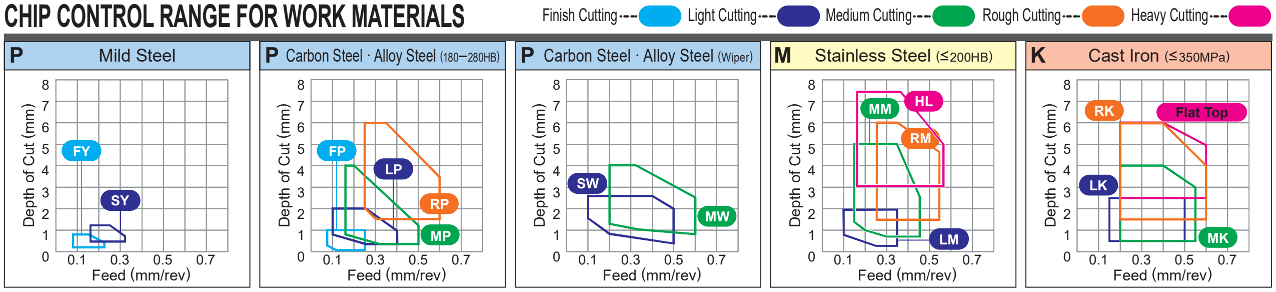
* Please refer to A028 before using the SW breaker (wiper insert).

● = NEW

60° TN TYPE INSERTS WITH HOLE

TNMG 16 04 04-MS
Size · Thickness · Corner Radius · Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS



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

			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	NEW MH515	MP9005	MP9015	NEW MP9025	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
Work 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																										Cermet		Coated Cermet			Carbide					
* MS	TNMG160404-MS	0.4																				●	●																●	C016
	TNMG160408-MS	0.8																				●	●	●															●	C017
	TNMG160412-MS	1.2																				●	●	●															●	E014
	TNMG220408-MS	0.8																				●	●																●	E035
Medium Cutting	TNMG220412-MS	1.2																				●	●																●	E040
MS	TNMG160404-MS	0.4		●										▲	●	●									●	●	●							●					C016
	TNMG160408-MS	0.8		●	▲									▲	●	●									●	●	●	●		●							●		C017
	TNMG160412-MS	1.2		●											●	●									●	●													E014
	TNMG220408-MS	0.8		●										▲	●	●									●	●	●	●											E035
Medium Cutting	TNMG220412-MS	1.2													●																								E040
GK	TNMG160404-GK	0.4															●	●																					C016
	TNMG160408-GK	0.8															●	●																					C017
	TNMG160412-GK	1.2															●	●			●																		E014
	TNMG220408-GK	0.8															●	●																					E035
Medium Cutting	TNMG220412-GK	1.2															●	●																					E040
GM	TNMG160404-GM	0.4									●	●	●																										C016
	TNMG160408-GM	0.8									●	●	●																										C017
	TNMG160412-GM	1.2									●	●	●																										E014
	TNMG220408-GM	0.8									●	●	●																										E035
Medium Cutting	TNMG220412-GM	1.2									●	●	●																										E040
MA	TNMG160404-MA	0.4	●	●	▲	●	●					●	●	▲	●		●	●	●	●			●	●			●			●									
	TNMG160408-MA	0.8	●	●	▲	●	●	●				●	●	▲	●		●	●	●	●			●	●			●			●									
	TNMG160412-MA	1.2	●	●	▲	●	●	●				●	●	▲	●		●	●		●			●				●			●									
	TNMG160416-MA	1.6																		●																			
	TNMG220408-MA	0.8	●	●	▲	●	●	●				●	●	▲	●		●	●	●	●			●				●												C016
	TNMG220412-MA	1.2	●	●	▲	●	●	●				●	●	▲	●		●	●		●			●				●												C017
	TNMG220416-MA	1.6																		●			●																E014
	TNMG270608-MA	0.8	●	●	▲																																		E035
	TNMG270612-MA	1.2	●	●	▲										●																								E040
	NEW TNMG270616-MA	1.6																					●																
Medium Cutting	NEW TNMG330924-MA	2.4																					●																
MH	TNMG160404-MH	0.4	●	●	▲									▲						●																			C016
	TNMG160408-MH	0.8	●	●	▲	●	●	●						▲						●																			C017
	TNMG160412-MH	1.2	●	●	▲	●	●	●												●																			E014
	TNMG220408-MH	0.8	●	●	▲	●	●	●						▲						●																			E035
Medium Cutting	TNMG220412-MH	1.2	●	●	▲	●	●	●												●																			E040

* 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)

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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 NEW	MP9005	MP9015	MP9025 NEW	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P Steel		●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤					
	M Stainless Steel										●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤					
	K Cast Iron																●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐			
	N Non-ferrous Metal																																			◐			
	S Heat-resistant Alloy, Titanium Alloy															●						●	◐	✤	●	◐	✤									◐	◐	◐	
Standard  Medium Cutting	TNMG110304	0.4		●	▲	●	●																											●		●			C016 C017 E014 E035 E040
	TNMG110308	0.8		●	▲	●	●																																
	TNMG160304	0.4		●		●	●																											●					
	TNMG160308	0.8		●	▲	●	●																											●					
	TNMG160404	0.4	●	●	▲	●	●												●	●							●		●	●	●			●	●	●			
	TNMG160408	0.8	●	●	▲	●	●	●											●	●							●		●	●	●			●	●	●			
	TNMG160412	1.2	●	●	▲	●	●	●											●	●									●										
	TNMG160416	1.6		●		●	●	●												●									●										
	TNMG220404	0.4	●	●	▲	●	●	●																						●				●					
	TNMG220408	0.8	●	●	▲	●	●	●												●									●	●				●					
	TNMG220412	1.2	●	●	▲	●	●	●												●																			
	TNMG220416	1.6		●	▲	●	●	●																															
	TNMG270608	0.8		●		●	●	●																															
	TNMG270612	1.2		●	▲	●	●	●																										●					
	TNMG270616	1.6		●	▲																																		
	TNMG330924	2.4																																●					
* MW  Medium Cutting (Wiper)	TNMX160408-MW	0.8	●	●		●								▲			●	●		●																			C017
	TNMX160412-MW	1.2	●	●		●								▲			●	●	●	●																			
R/L-ES  Medium Cutting	TNMG160404R-ES	0.4												▲	●																								C016 C017 E014 E035 E040
	TNMG160404L-ES	0.4												▲	●																								
	TNMG160408R-ES	0.8												▲	●																								
	TNMG160408L-ES	0.8												▲	●																								
	TNMG220408R-ES	0.8													●																								
	TNMG220408L-ES	0.8													●																								
R/L-2G  Medium Cutting	TNMG160404R-2G	0.4																											●										C016 C017 E014 E035 E040
	TNMG160404L-2G	0.4																											●										
	TNMG160408R-2G	0.8																											●										
	TNMG160408L-2G	0.8																											●										
R/L  Medium Cutting	TNGG110302R	0.2																												●									C016 C017 E014 E035 E040
	TNGG110302L	0.2																											●	●									
	TNGG110304R	0.4																											●	●									
	TNGG110304L	0.4																											●	●									
	TNGG110308R	0.8																												●									
	TNGG110308L	0.8																											●	●									
	TNGG160304R	0.4																											●	●				●					
	TNGG160304L	0.4																											●	●									
	TNGG160402R	0.2																											●	●	●			●		●			
	TNGG160402L	0.2																											●	●	●								
	TNGG160404R	0.4																											●	●	●			●	●	●			
	TNGG160404L	0.4																											●	●	●			●		●			

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

● = NEW

A

TURNING INSERTS

NEG

WITH HOLE

C D R S T V W

CHIP BREAKERS ➢ A042
GRADES ➢ A030
IDENTIFICATION ➢ A002

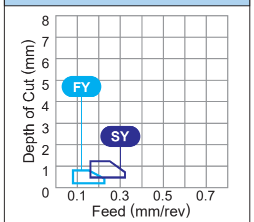
60° TN TYPE INSERTS WITH HOLE

TNGG 16 04 08 R
Size / Thickness / Corner Radius / R/L
* Please refer to page A002.

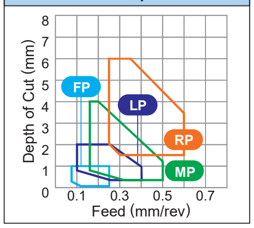
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---

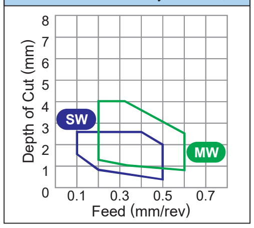
P Mild Steel



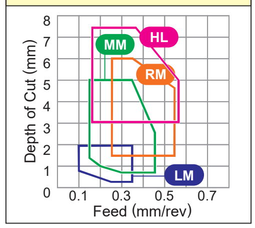
P Carbon Steel · Alloy Steel (180~280HB)



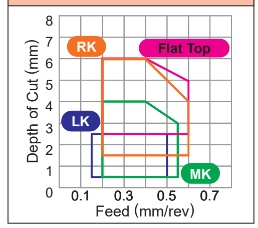
P Carbon Steel · Alloy Steel (Wiper)



M Stainless Steel (≤200HB)



K Cast Iron (≤350MPa)



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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
Work Material	P: Steel		●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤					
Work Material	M: Stainless Steel										●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤					
Work Material	K: Cast Iron																●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐			
Work Material	N: Non-ferrous Metal																																			◐			
Work Material	S: Heat-resistant Alloy, Titanium Alloy															●						●	◐	✤	●	◐	✤									◐	◐	◐	
			Coated																										Cermet		Coated Cermet			Carbide					
R/L  Medium Cutting	TNGG160408R	0.8																											●	●	●			●	●	●			C016, C017, E014, E035, E040
	TNGG160408L	0.8																											●	●	●			●	●	●			
	TNGG220404R	0.4																											●	●				●					
	TNGG220404L	0.4																											●	●				●					
	TNGG220408R	0.8																											●	●				●					
	TNGG220408L	0.8																											●	●				●					
RP  Rough Cutting	TNMG160408-RP	0.8	●	●		●	●	●																															C016, C017, E014, E035, E040
	TNMG160412-RP	1.2	●	●		●	●	●																															
	TNMG220408-RP	0.8	●	●		●	●	●																															
	TNMG220412-RP	1.2	●	●		●	●	●																															
	TNMG220416-RP	1.6	●	●		●	●	●																															
	TNMG270612-RP	1.2	●	●		●	●	●																															
	TNMG270616-RP	1.6	●	●		●	●	●																															
RM  Rough Cutting	TNMG160408-RM	0.8									●	●	●																										C016, C017, E014, E035, E040
	TNMG160412-RM	1.2									●	●	●																										
	TNMG220408-RM	0.8									●	●	●																										
	TNMG220412-RM	1.2									●	●	●																										
	TNMG220416-RM	1.6									●	●	●																										
RK  Rough Cutting	TNMG160408-RK	0.8															●	●																					C016, C017, E014, E035, E040
	TNMG160412-RK	1.2															●	●																					
	TNMG160416-RK	1.6															●	●																					
	TNMG220408-RK	0.8															●	●																					
	TNMG220412-RK	1.2															●	●																					
	TNMG220416-RK	1.6															●	●																					
RS  Rough Cutting	TNMG160408-RS	0.8																					●	●														●	C016, C017, E014, E035, E040
	TNMG160412-RS	1.2																					●	●														●	
	TNMG220408-RS	0.8																					●															●	
	TNMG220412-RS	1.2																					●															●	
GH  Rough Cutting	TNMG160408-GH	0.8	●	●	▲									▲	●				●	●																			C016, C017, E014, E035, E040
	TNMG160412-GH	1.2	●	●																●																			
	TNMG220408-GH	0.8	●	●	▲										●					●																			
	TNMG220412-GH	1.2	●	●	▲										●				●	●																			
	TNMG220416-GH	1.6	●	●																																			
	TNMG270612-GH	1.2	●	●	▲										●																								
	TNMG270616-GH	1.6	●	●																																			

● = NEW

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

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

Shape	Order Number	RE (mm)	Coated																										Cermet		Coated Cermet			Carbide					Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	
Work Material	P: Steel		●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
	M: Stainless Steel										●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
	K: Cast Iron																●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
	N: Non-ferrous Metal																																			◐			
	S: Heat-resistant Alloy, Titanium Alloy															●						●	◐	✣	●	◐	✣									◐	◐	◐	
HL  Heavy Cutting	TNMM160408-HL	0.8					●	●							●																								C016, C017, E014, E035, E040
	TNMM160412-HL	1.2					●	●							●																								
	TNMM220408-HL	0.8					●	●							●																								
	TNMM220412-HL	1.2					●	●							●																								
	TNMM220416-HL	1.6					●	●							●																								
HZ  Heavy Cutting	TNMM160408-HZ	0.8		●	▲		●	●																															C016, C017, E014, E035, E040
	TNMM160412-HZ	1.2					●	●																															
	TNMM220408-HZ	0.8		●	▲																																		
	TNMM220412-HZ	1.2		●	▲																																		
	TNMM220416-HZ	1.6		●	▲																																		
Flat Top 	TNMA160404	0.4															●	●	●	●															●	●			C016, C017, E014, E035, E040
	TNMA160408	0.8															●	●	●	●														●	●	●			
	TNMA160412	1.2															●	●	●	●																			
	TNMA160416	1.6															●	●		●																			
	TNMA160420	2.0															●	●																					
	TNMA220404	0.4																																		●			
	TNMA220408	0.8															●	●	●	●									●					●		●			
	TNMA220412	1.2															●	●	●	●																			
	TNMA220416	1.6															●	●	●	●														●					
Flat Top 	TNGA110304	0.4																																		●			C016, C017, E014, E035, E040
	TNGA110308	0.8																											●							●			
	TNGA160402	0.2																											●							●			
	TNGA160404	0.4																																●	●	●			
	TNGA160408	0.8																																	●	●			
	TNGA220404	0.4																																●					
	TNGA220408	0.8																																	●				

● = NEW

A

TURNING INSERTS

NEG

WITH HOLE

C D R S T V W

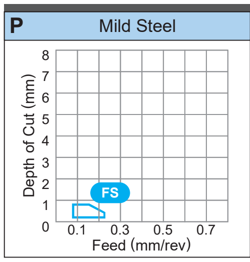
CHIP BREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

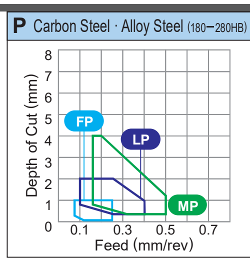
35° VN TYPE INSERTS WITH HOLE

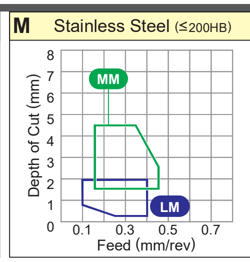
VNMG 16 04 02- FP
Size / Thickness / Corner Radius / Chip Breaker
* Please refer to page A002.

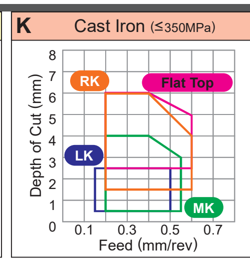
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting / Light Cutting / Medium Cutting / Rough Cutting / Heavy Cutting









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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
Work Material	P Steel		●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
	M Stainless Steel										●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
	K Cast Iron																●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
	N Non-ferrous Metal																																			◐			
	S Heat-resistant Alloy, Titanium Alloy															●						●	◐	✣	●	◐	✣									◐	◐	◐	
			Coated																										Cermet		Coated Cermet			Carbide					
FP  Finish Cutting	VNMG160402-FP	0.2				●	●																						●		●								C018 −020 E015 E042
	VNMG160404-FP	0.4				●	●																						●		●								
	VNMG160408-FP	0.8				●	●																						●		●								
	NEW VNMG160412-FP	1.2				●	●																						●		●								
FH  Finish Cutting	VNMG160402-FH	0.2		●	▲																								●	●	●								C018 −020 E015 E042
	VNMG160404-FH	0.4		●	▲																								●		●	●							
	VNMG160408-FH	0.8		●	▲																								●	●	●	●							
FS  Finish Cutting	VNMG160404-FS	0.4			▲																								●										C018 −020 E015 E042
	VNMG160408-FS	0.8			▲																								●										
FJ  Finish Cutting	VNGG1604V5-FJ	0.05																								●											●		C018 −020 E015 E042
	VNGG160401-FJ	0.1																								●											●		
	VNGG160402-FJ	0.2																								●											●		
R/L-F  Finish Cutting	VNGG160402R-F	0.2																									●		●	●	●								C018 −020 E015 E042
	VNGG160402L-F	0.2																									●		●	●	●								
	VNGG160404R-F	0.4																									●		●	●	●								
	VNGG160404L-F	0.4																									●		●	●	●								
LP  Light Cutting	VNMG160404-LP	0.4	●	●		●	●	●																							●								C018 −020 E015 E042
	VNMG160408-LP	0.8	●	●		●	●	●																							●								
LM  Light Cutting	VNMG160404-LM	0.4									●	●	●																										C018 −020 E015 E042
	VNMG160408-LM	0.8									●	●	●																										

● = NEW

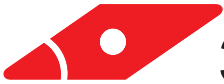
● : Inventory maintained in Japan. ▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
	M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
	K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
	N	Non-ferrous Metal																																		◐			
	S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✣	●	◐	✣									◐	◐	◐	
LK  Light Cutting	VNMG160404-LK	0.4															●	●																					C018–020 E015 E042
	VNMG160408-LK	0.8															●	●																					
LS  Light Cutting	NEW VNMG160402-LS	0.2																				●	●	●														●	C018–020 E015 E042
	VNMG160404-LS	0.4																				●	●	●														●	
	VNMG160408-LS	0.8																				●	●	●														●	
SH  Light Cutting	VNMG160404-SH	0.4	●	●	▲	●	●																						●	●		●							C018–020 E015 E042
	VNMG160408-SH	0.8	●	●	▲	●	●																						●	●		●							
SA  Light Cutting	VNMG160404-SA	0.4				●	●																						●										C018–020 E015 E042
	VNMG160408-SA	0.8				●	●																						●										
MJ  Light Cutting	VNMG160404-MJ	0.4														●						●	●		●	●											●		C018–020 E015 E042
	VNMG160408-MJ	0.8														●						●	●		●	●											●		
	VNMG160412-MJ	1.2														●						●	●		●	●											●		
MJ  Light Cutting	VNGM160404-MJ	0.4																								●											●		C018–020 E015 E042
	VNGM160408-MJ	0.8																								●											●		
MP  Medium Cutting	VNMG160404-MP	0.4	●	●	▲	●	●	●												●											●								C018–020 E015 E042
	VNMG160408-MP	0.8	●	●	▲	●	●	●												●											●								
	VNMG160412-MP	1.2	●	●	▲	●	●	●												●																			
MM  Medium Cutting	VNMG160408-MM	0.8									●	●	●																										C018–020 E015 E042
MK  Medium Cutting	VNMG160404-MK	0.4															●	●																					C018–020 E015 E042
	VNMG160408-MK	0.8															●	●			●																		
	VNMG160412-MK	1.2															●	●																					

● = NEW

CHIP BREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

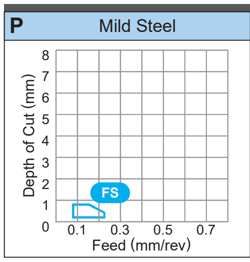


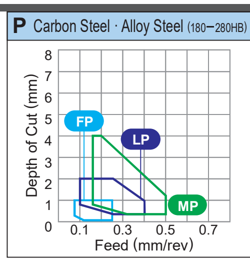
35° VN TYPE INSERTS WITH HOLE

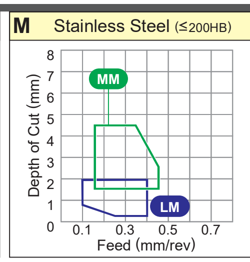
VNMG 16 04 04- MS
Size · Thickness · Corner Radius · Chip Breaker
* Please refer to page A002.

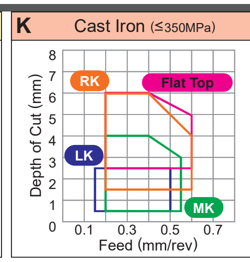
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---









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

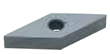
Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
Work Material	M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
Work Material	K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
Work Material	N	Non-ferrous Metal																																		◐			
Work Material	S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✣	●	◐	✣									◐	◐	◐	
* MS  Medium Cutting	VNMG160404-MS	0.4																				●	●	●														●	C018—020 E015 E042
	VNMG160408-MS	0.8																				●	●	●														●	
MS  Medium Cutting	VNMG160404-MS	0.4		●										▲	●	●									●	●		●											C018—020 E015 E042
	VNMG160408-MS	0.8		●										▲	●	●									●	●				●							●		
GK  Medium Cutting	VNMG160404-GK	0.4															●	●																					C018—020 E015 E042
	VNMG160408-GK	0.8															●	●																					
	VNMG160412-GK	1.2															●	●																					
GM  Medium Cutting	VNMG160404-GM	0.4									●	●	●																										C018—020 E015 E042
	VNMG160408-GM	0.8									●	●	●																										
MA  Medium Cutting	VNMG160404-MA	0.4	●	●	▲	●	●					●	●	▲	●		●	●	●	●							●												C018—020 E015 E042
	VNMG160408-MA	0.8	●	●	▲	●	●	●				●	●	▲	●		●	●	●	●							●												
MH  Medium Cutting	VNMG160404-MH	0.4	●	●	▲															●																			C018—020 E015 E042
	VNMG160408-MH	0.8	●	●	▲	●	●	●						▲						●																			
Standard  Medium Cutting	VNMG160404	0.4	●	●	▲	●	●												●	●							●		●	●	●			●		●			C018—020 E015 E042
	VNMG160408	0.8	●	●	▲	●	●	●											●	●							●		●	●	●			●		●			
	VNMG160412	1.2	●	●		●	●	●											●	●									●										

* 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)

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

			Coated																										Cermet		Coated Cermet			Carbide					
Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 NEW	MP9005	MP9015	MP9025 NEW	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
Work Material	P	Steel	●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤					
	M	Stainless Steel									●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤					
	K	Cast Iron															●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐			
	N	Non-ferrous Metal																																		◐			
	S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✤	●	◐	✤									◐	◐	◐	
R/L  Medium Cutting	VNGG160404R	0.4																											●	●				●		●			C018 –020 E015 E042
	VNGG160404L	0.4																											●	●				●					
Flat Top 	VNMA160404	0.4															●	●																					C018 –020 E015 E042
	VNMA160408	0.8															●	●																					
	VNMA160412	1.2															●	●																					
Flat Top 	VNGA160404	0.4																																	●	●			C018 –020 E015 E042
	VNGA160408	0.8																																	●	●			

● = NEW

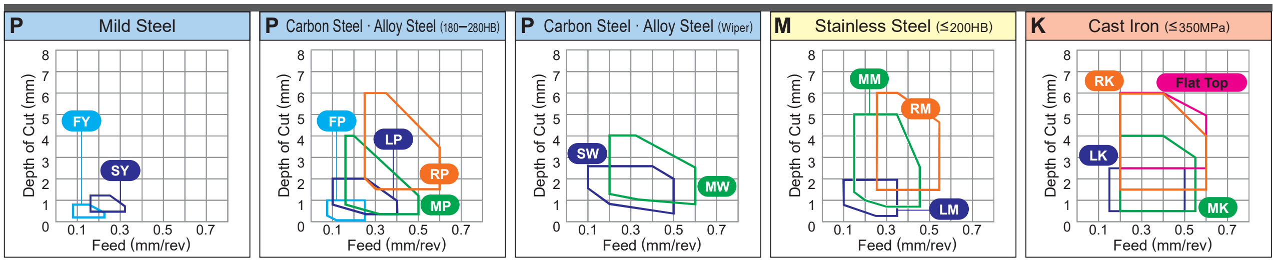
CHIP BREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° WN TYPE INSERTS WITH HOLE

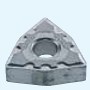
WNMG 08 04 02- FP
Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---



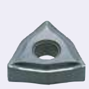
Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
Work Material	P	Steel	●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤					
	M	Stainless Steel									●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤					
	K	Cast Iron															●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐			
	N	Non-ferrous Metal																																		◐			
	S	Heat-resistant Alloy, Titanium Alloy													●						●	◐	✤	●	◐	✤									◐	◐	◐	
			Coated																										Cermet		Coated Cermet			Carbide					
FP	WNMG080402-FP	0.2				●	●																						●		●								C021 E015 E039
	WNMG080404-FP	0.4				●	●																						●		●								
	WNMG080408-FP	0.8				●	●																						●		●								
Finish Cutting	NEW WNMG080412-FP	1.2				●	●																						●		●								
FH	WNMG080404-FH	0.4		●																									●		●								C021 E015 E039
	WNMG080408-FH	0.8		●																									●		●	●							
Finish Cutting																																							
FS	WNMG080404-FS	0.4			▲																								●										C021 E015 E039
	WNMG080408-FS	0.8			▲																								●										
Finish Cutting																																							
FY	WNMG080404-FY	0.4																											●		●								C021 E015 E039
	WNMG080408-FY	0.8			▲																								●		●		●						
Finish Cutting																																							
LP	WNMG060404-LP	0.4	●	●		●	●	●																							●								C021 E015 E037 E039
	WNMG060408-LP	0.8	●	●		●	●	●																							●								
	WNMG06T304-LP	0.4	●	●		●	●	●																							●								
	WNMG06T308-LP	0.8	●	●		●	●	●																							●								
	WNMG080404-LP	0.4	●	●		●	●	●																							●								
	WNMG080408-LP	0.8	●	●		●	●	●																							●								
Light Cutting	WNMG080412-LP	1.2	●	●		●	●	●																															
LM	WNMG060404-LM	0.4									●	●	●																										C021 E015 E039
	WNMG060408-LM	0.8									●	●	●																										
	WNMG080404-LM	0.4									●	●	●																										
	WNMG080408-LM	0.8									●	●	●																										
Light Cutting																																							

● = NEW

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

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

Work Material			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	
P	Steel		●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
M	Stainless Steel										●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
K	Cast Iron																●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
N	Non-ferrous Metal																																			◐			
S	Heat-resistant Alloy, Titanium Alloy															●						●	◐	✣	●	◐	✣									◐	◐	◐	
Shape	Order Number	RE (mm)	Coated																										Cermet		Coated Cermet			Carbide					Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 NEW	MP9005	MP9015	MP9025 NEW	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	
LK  Light Cutting	WNMG080404-LK	0.4															●	●																					C021 E015 E039
	WNMG080408-LK	0.8															●	●			●																		
	WNMG080412-LK	1.2															●	●			●																		
LS  Light Cutting	NEW WNMG080402-LS	0.2																				●	●															●	C021 E015 E039
	WNMG080404-LS	0.4																				●	●	●														●	
	WNMG080408-LS	0.8																				●	●	●														●	
SH  Light Cutting	WNMG06T304-SH	0.4	●	●											●																								C021 E015 E037 E039
	WNMG06T308-SH	0.8	●	●											●																								
	WNMG060404-SH	0.4	●	●											●																								
	WNMG060408-SH	0.8	●	●											●																								
	WNMG080404-SH	0.4	●	●		●	●								●					●									●										
	WNMG080408-SH	0.8	●	●	▲	●	●								●					●									●										
	WNMG080412-SH	1.2	●	●	▲	●	●								●					●																			
SA  Light Cutting	WNMG080404-SA	0.4	●	●	▲	●	●																						●	●									C021 E015 E039
	WNMG080408-SA	0.8	●	●	▲	●	●																						●	●									
	WNMG080412-SA	1.2	●	●	▲	●	●																							●									
* SW  Light Cutting (Wiper)	WNMG060404-SW	0.4	●	●		●								▲															●		●								C021 E015 E039
	WNMG060408-SW	0.8	●	●		●								▲															●		●								
	WNMG080404-SW	0.4	●	●		●								▲			●	●		●									●	●	●								
	WNMG080408-SW	0.8	●	●		●								▲			●	●		●									●	●	●								
	WNMG080412-SW	1.2	●	●		●								▲															●	●	●								
SY  Light Cutting	WNMG080404-SY	0.4																											●		●								C021 E015 E039
	WNMG080408-SY	0.8			▲																								●	●	●		●						
C  Light Cutting	WNMG080404-C	0.4																											▲	▲									C021 E015 E039
	WNMG080408-C	0.8																												▲									
MJ  Light Cutting	WNMG080408-MJ	0.8														●						●	●		●	●													C021 E015 E039
	WNMG080412-MJ	1.2														●						●	●		●	●													
	WNMG080416-MJ	1.6														●						●	●		●	●													

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

● = NEW

A

TURNING INSERTS

NEG

WITH HOLE

C D R S T V W

CHIP BREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

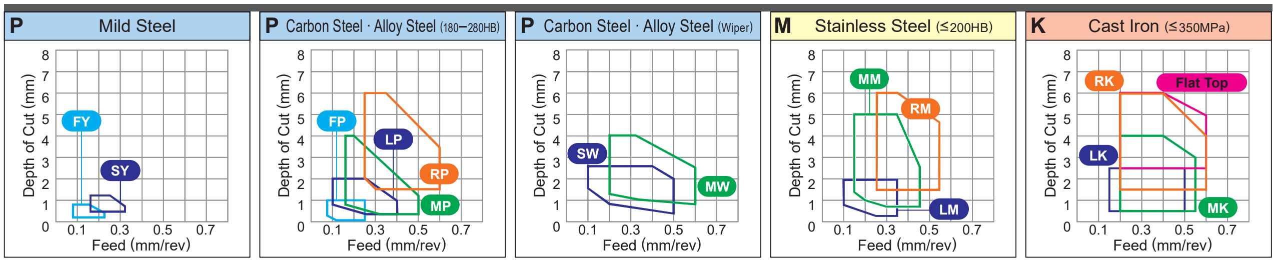
80° WN TYPE INSERTS WITH HOLE

WNMG 06 04 04- MP
Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

A
TURNING INSERTS
NEG
WITH HOLE
C
D
R
S
T
V
W

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---



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

Work Material			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	MP9025	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015
	P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣				
	M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣				
	K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐		
	N	Non-ferrous Metal																																		◐		
	S	Heat-resistant Alloy, Titanium Alloy													●						●	◐	✣	●	◐	✣										◐	◐	◐

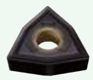
Shape	Order Number	RE (mm)	Coated																										Cermet		Coated Cermet			Carbide					Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	
MP	WNMG060404-MP	0.4	●	●	▲	●	●	●												●																			C021 E015 E037 E039
	WNMG060408-MP	0.8	●	●	▲	●	●	●												●																			
	WNMG060412-MP	1.2	●	●	▲	●	●	●												●																			
	WNMG06T304-MP	0.4	●	●	▲	●	●	●												●																			
	WNMG06T308-MP	0.8	●	●	▲	●	●	●												●																			
	WNMG06T312-MP	1.2	●	●	▲	●	●	●												●																			
	WNMG080404-MP	0.4	●	●	▲	●	●	●												●											●								
	WNMG080408-MP	0.8	●	●	▲	●	●	●												●											●								
	WNMG080412-MP	1.2	●	●	▲	●	●	●												●											●								
Medium Cutting	WNMG080416-MP	1.6	●	●	▲	●	●	●												●																			
MM	WNMG060408-MM	0.8									●	●	●																										C021 E015 E039
	WNMG060412-MM	1.2									●	●	●																										
	WNMG080408-MM	0.8									●	●	●																										
	WNMG080412-MM	1.2									●	●	●																										
Medium Cutting																																							
MK	WNMG080404-MK	0.4															●	●																					C021 E015 E039
	WNMG080408-MK	0.8															●	●																					
	WNMG080412-MK	1.2															●	●																					
	WNMG080416-MK	1.6															●	●																					
Medium Cutting																																							
* MS	WNMG080404-MS	0.4																				●	●	●														●	C021 E015 E039
	WNMG080408-MS	0.8																				●	●	●														●	
	WNMG080412-MS	1.2																				●	●	●														●	
Medium Cutting																																							
MS	WNMG060404-MS	0.4		●										▲	●																								C021 E015 E037 E039
	WNMG060408-MS	0.8		●										▲	●																								
	WNMG06T304-MS	0.4		●										▲	●																								
	WNMG06T308-MS	0.8		●										▲	●																								
	WNMG080404-MS	0.4		●	▲									▲	●																								
	WNMG080408-MS	0.8		●	▲									▲	●	●									●	●	●										●		
Medium Cutting	WNMG080412-MS	1.2		●											●	●									●	●													

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

● (highlighted) = NEW

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

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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
	M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
	K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
	N	Non-ferrous Metal																																		◐			
	S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✣	●	◐	✣									◐	◐	◐	
GK  Medium Cutting	WNMG060404-GK	0.4															●	●																					C021 E015 E039
	WNMG060408-GK	0.8															●	●																					
	WNMG080404-GK	0.4															●	●																					
	WNMG080408-GK	0.8															●	●			●																		
	WNMG080412-GK	1.2															●	●			●																		
GM  Medium Cutting	WNMG060404-GM	0.4									●	●	●																										C021 E015 E039
	WNMG060408-GM	0.8									●	●	●																										
	WNMG080404-GM	0.4									●	●	●																										
	WNMG080408-GM	0.8									●	●	●																										
	WNMG080412-GM	1.2									●	●	●																										
MA  Medium Cutting	WNMG06T304-MA	0.4	●	●											●																								C021 E015 E037 E039
	WNMG06T308-MA	0.8	●	●											●																								
	WNMG06T312-MA	1.2	●	●											●																								
	WNMG060404-MA	0.4	●	●		●	●								●																								
	WNMG060408-MA	0.8	●	●		●	●					●	●		●		●	●									●												
	WNMG060412-MA	1.2	●	●		●	●					●	●		●		●	●									●												
	WNMG080404-MA	0.4	●	●	▲	●	●					●	●	▲	●		●	●		●			●				●			●									
	WNMG080408-MA	0.8	●	●	▲	●	●	●				●	●	▲	●		●	●	●	●			●				●			●									
	WNMG080412-MA	1.2	●	●	▲	●	●	●				●	●	▲	●		●	●	●	●			●				●			●									
	WNMG080416-MA	1.6	●	●																●			●																
	WNMG100612-MA	1.2			▲																																		
MH  Medium Cutting	WNMG080404-MH	0.4	●	●	▲																																		C021 E015 E039
	WNMG080408-MH	0.8	●	●	▲	●	●	●						▲						●																			
	WNMG080412-MH	1.2	●	●	▲	●	●	●												●																			
Standard  Medium Cutting	WNMG080404	0.4	●	●	▲	●	●												●	●									●		●								C021 E015 E039
	WNMG080408	0.8	●	●	▲	●	●	●											●	●							●		●		●			●					
	WNMG080412	1.2	●	●	▲	●	●	●											●	●							●							●					
	WNMG080416	1.6																		●																			
* MW  Medium Cutting (Wiper)	WNMG060408-MW	0.8	●	●	▲	●	●										●	●	●	●																			C021 E015 E039
	WNMG060412-MW	1.2	●	●		●	●										●	●	●	●																			
	WNMG080408-MW	0.8	●	●	▲	●	●							▲			●	●	●	●																			
	WNMG080412-MW	1.2	●	●		●	●							▲			●	●	●	●																			
RP  Rough Cutting	WNMG080408-RP	0.8	●	●		●	●	●																															C021 E015 E039
	WNMG080412-RP	1.2	●	●		●	●	●																															
RM  Rough Cutting	WNMG060408-RM	0.8									●	●	●																										C021 E015 E039
	WNMG060412-RM	1.2									●	●	●																										
	WNMG080408-RM	0.8									●	●	●																										
	WNMG080412-RM	1.2									●	●	●																										

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

● = NEW

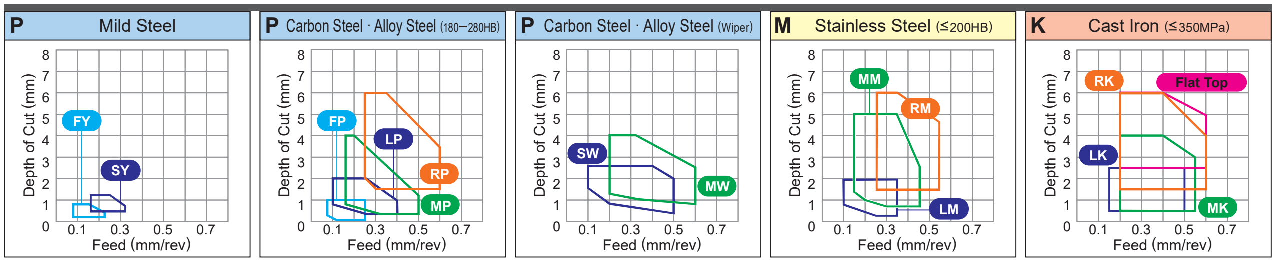
CHIP BREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° WN TYPE INSERTS WITH HOLE

WNMG 08 04 08- RK
Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

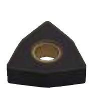
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting--- Rough Cutting--- Heavy Cutting---



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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015
P	Steel	●	◐	✤	◐	✤	✤	✤	●																	✤	✤	●	◐	◐	●	●	✤				
M	Stainless Steel									●	◐	✤	●	✤											◐	✤	✤	●			●	●	✤				
K	Cast Iron															●	◐	●	◐	◐					◐	✤		●			●	●	✤	●	◐		
N	Non-ferrous Metal																																		◐		
S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✤	●	◐	✤									◐	◐	◐
		Coated																										Cermet		Coated Cermet			Carbide				

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
RK  Rough Cutting	WNMG080408-RK	0.8															●	●																					C021 E015 E039
	WNMG080412-RK	1.2															●	●			●																		
	WNMG080416-RK	1.6															●	●			●																		
RS  Rough Cutting	WNMG080408-RS	0.8																					●	●														●	C021 E015 E039
	WNMG080412-RS	1.2																					●	●														●	
	WNMG080416-RS	1.6																					●															●	
	WNMG100612-RS	1.2																					●															●	
GH  Rough Cutting	WNMG080408-GH	0.8	●	●	▲									▲	●				●	●																			C021 E015 E039
	WNMG080412-GH	1.2	●	●	▲										●				●	●																			
GJ  Rough Cutting	WNMG080408-GJ	0.8														●										●											●		C021 E015 E039
	WNMG080412-GJ	1.2														●										●											●		
	WNMG080416-GJ	1.6														●										●											●		
	WNMG100612-GJ	1.2																								●											●		
Flat Top 	WNMA060408	0.8															●	●																					C021 E015 E039
	WNMA060412	1.2															●	●																					
	WNMA080404	0.4															●	●	●	●																●			
	WNMA080408	0.8															●	●	●	●																●			
	WNMA080412	1.2															●	●	●	●																			
	WNMA080416	1.6															●	●		●																			

● (highlighted) = NEW

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

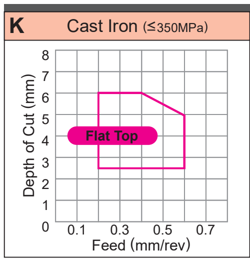
CHIP BREAKERS ➤ A042

80° CN TYPE INSERTS WITHOUT HOLE

CNMN 12 04 08
Size Thickness Corner Radius
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Heavy Cutting---



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

Work Material	P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
	M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
	K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
	N	Non-ferrous Metal																																		◐			
	S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✣	●	◐	✣									◐	◐	◐	
			Coated																										Cermet		Coated Cermet			Carbide					
Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	NEW MH515	MP9005	MP9015	NEW MP9025	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
Flat Top	CNMN120408	0.8															●	●																					
	CNMN120412	1.2															●	●																					
	CNMN120416	1.6															●	●																					–

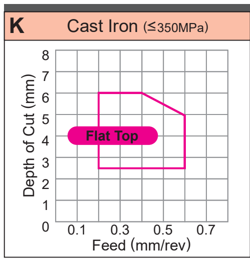
● = NEW

90° SN TYPE INSERTS WITHOUT HOLE

SNMN 12 04 08
Size Thickness Corner Radius
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Heavy Cutting



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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015
P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣				
M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣				
K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐		
N	Non-ferrous Metal																																		◐		
S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✣	●	◐	✣									◐	◐	◐

Shape	Order Number	RE (mm)	Coated																								Cermet		Coated Cermet			Carbide					Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	
Flat Top 	SNMN120408	0.8															●	●	●	●									●					●		●			–
	SNMN120412	1.2															●	●	●	●									●					●					
	SNMN120416	1.6															●	●	●	●																			
	SNMN190412	1.2																																●					
Flat Top 	SNGN090308	0.8																																		●			–
	SNGN120404	0.4																																●		●			
	SNGN120408	0.8																																●					

● = NEW

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

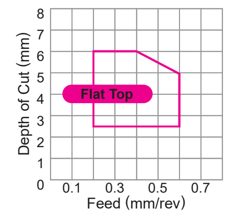
CHIP BREAKERS ➢ A074
GRADES ➢ A030
IDENTIFICATION ➢ A002

TNMN 16 03 08
Size Thickness Corner Radius
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Heavy Cutting

K Cast Iron (≤350MPa)



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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	MP9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9010	MT9015	Applicable Holder Page
			Coated																										Cermet		Coated Cermet			Carbide					
Work Material	P	Steel	●	◐	✣	◐	✣	✣	✣	●																	✣	✣	●	◐	◐	●	●	✣					
	M	Stainless Steel									●	◐	✣	●	✣											◐	✣	✣	●			●	●	✣					
	K	Cast Iron															●	◐	●	◐	◐					◐	✣		●			●	●	✣	●	◐			
	N	Non-ferrous Metal																																		◐			
	S	Heat-resistant Alloy, Titanium Alloy														●						●	◐	✣	●	◐	✣									◐	◐	◐	
Flat Top	TNMN160308	0.8																											●										–
	TNMN160408	0.8															●	●	●	●									●										
	TNMN160412	1.2															●	●	●	●																			
	TNMN160416	1.6															●	●	●	●																			
	TNMN160420	2.0																		●																			
	TNMN220408	0.8																											●										
	TNMN220412	1.2																																●					
Flat Top	TNGN110304	0.4																																		●			–
	TNGN110308	0.8																																		●			
	TNGN160404	0.4																																		●			
	TNGN160408	0.8																																		●			

● = NEW

A
TURNING INSERTS
NEG
WITHOUT HOLE
C
D
R
S
T
V
W

CHIP BREAKERS ➤ A074
GRADES ➤ A030
IDENTIFICATION ➤ A002

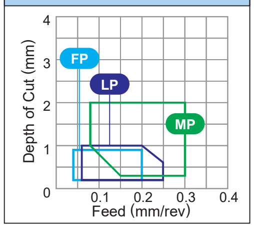
80° CC TYPE INSERTS WITH HOLE

CCMT 06 02 02- FP
Size / Thickness / Corner Radius / Chip Breaker
* Please refer to page A002.

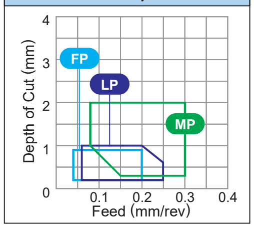
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---

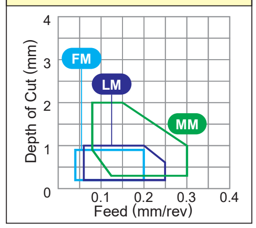
P Mild Steel



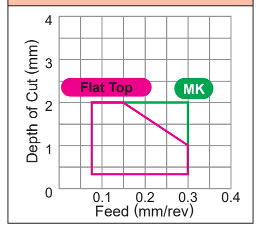
P Carbon Steel • Alloy Steel (180−280HB)



M Stainless Steel (≤200HB)



K Cast Iron (≤350MPa)



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

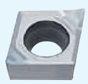
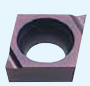
Work Material			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
			Coated																							Cermet		Coated Cermet				Carbide					
	P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●
	M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤					
	K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●
	N	Non-ferrous Metal																																◐			●
	S	Heat-resistant Alloy, Titanium Alloy											●							●	◐	●	◐	✤										◐	◐	●	

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
FP	CCMT060202-FP	0.2		●		●	●																			●		●										C022 D008 E006 E030 E034
	CCMT060204-FP	0.4		●		●	●																			●		●										
	CCMT09T302-FP	0.2		●		●	●																			●		●										
	CCMT09T304-FP	0.4		●		●	●																			●		●										
Finish Cutting	CCMT09T308-FP	0.8		●		●	●																			●		●										
FM	CCMT060202-FM	0.2																						●														C022 D008 E006 E030 E034
	CCMT060204-FM	0.4																						●														
	CCMT09T302-FM	0.2																						●														
	CCMT09T304-FM	0.4																						●														
Finish Cutting	CCMT09T308-FM	0.8																						●														
FS NEW	CCGT060201M-FS	0.08																		●	●																	C022 D008 E006 E030 E034
	CCGT060202M-FS	0.18																		●	●																	
	CCGT09T301M-FS	0.08																		●	●																	
	CCGT09T302M-FS	0.18																		●	●																	
Finish Cutting	CCGT09T304M-FS	0.38																		●	●																	
FS-P NEW	CCGT060201M-FS-P	0.08																																		●		C022 D008 E006 E030 E034
	CCGT060202M-FS-P	0.18																																		●		
	CCGT09T301M-FS-P	0.08																																		●		
	CCGT09T302M-FS-P	0.18																																		●		
Finish Cutting	CCGT09T304M-FS-P	0.38																																		●		
FV	CCMT060202-FV	0.2			▲																			●		●	●		●		●							C022 D008 E006 E030 E034
	CCMT060204-FV	0.4			▲																			●		●	●		●		●							
	CCMT09T302-FV	0.2			▲																					●	●				●							
	CCMT09T304-FV	0.4			▲																					●	●		●		●							
Finish Cutting	CCMT09T308-FV	0.8			▲																					●	●		●		●							
FJ	CCGT0602V5-FJ	0.05																					●															C022 D008 E006 E030 E034
	CCGT060201-FJ	0.1																					●															
	CCGT060202-FJ	0.2																					●															
	CCGT09T3V5-FJ	0.05																					●															
	CCGT09T301-FJ	0.1																					●											●			
	CCGT09T302-FJ	0.2																					●											●			
Finish Cutting	CCGT09T304-FJ	0.4																					●											●			

● = NEW

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

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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
Work Material	P Steel		●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●	
Work Material	M Stainless Steel									◐	✣	●	✣										◐	✣	✣	●			●	●		✣							
Work Material	K Cast Iron														●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●	
Work Material	N Non-ferrous Metal																																	◐			●	
Work Material	S Heat-resistant Alloy, Titanium Alloy													●						●	◐	●	◐	✣										◐	◐	●		
AZ  Medium Cutting – Finish Cutting	CCGT060202-AZ	0.2																																●				C022 D008 E006 E030 E034
	CCGT060204-AZ	0.4																																●				
	CCGT09T302-AZ	0.2																																●				
	CCGT09T304-AZ	0.4																																●				
	CCGT09T308-AZ	0.8																																●				
	CCGT120402-AZ	0.2																																●				
	CCGT120404-AZ	0.4																																●				
	CCGT120408-AZ	0.8																																●				
R/L-F  Finish Cutting	* CCGT03S1V3L-F	0.03																						●		●												E016
	* CCGT03S101L-F	0.1																						●		●												
	* CCGT03S102L-F	0.2																						●		●		●										
	* CCGT03S104L-F	0.4																						●		●		●										
	* CCGT04T0V3L-F	0.03																						●		●												
	* CCGT04T001L-F	0.1																						●		●												
	* CCGT04T002L-F	0.2																						●		●		●										
	* CCGT04T004L-F	0.4																						●		●		●										
	NEW * CCGT03S101MR-F	0.08							●																												E016
	NEW * CCGT03S101ML-F	0.08							●																												
	NEW * CCGT03S102MR-F	0.18							●																												
	NEW * CCGT03S102ML-F	0.18							●																												
	NEW * CCGT03S104MR-F	0.38							●																												
	NEW * CCGT03S104ML-F	0.38							●																												
	NEW * CCGT04T001MR-F	0.08							●																												
	NEW * CCGT04T001ML-F	0.08							●																												
	NEW * CCGT04T002MR-F	0.18							●																												
	NEW * CCGT04T002ML-F	0.18							●																												
	NEW * CCGT04T004MR-F	0.38							●																												
	NEW * CCGT04T004ML-F	0.38							●																												
R/L-F  Finish Cutting	CCGH060202R-F	0.2																						●		●			●					●				C022 D008 E006 E030 E034
	CCGH060202L-F	0.2																						●		●			●					●				
	CCGH060204R-F	0.4																						●		●			●					●				
	CCGH060204L-F	0.4																						●		●			●					●				
	NEW CCGH060202MR-F	0.18							●																												C022 D008 E006 E030 E034
	NEW CCGH060202ML-F	0.18							●																												
	NEW CCGH060204MR-F	0.38							●																												
	NEW CCGH060204ML-F	0.38							●																												
LP  Light Cutting	CCMT060204-LP	0.4		●		●	●																			●		●										C022 D008 E006 E030 E034
	CCMT060208-LP	0.8		●		●	●																			●		●										
	CCMT09T304-LP	0.4		●		●	●																			●		●										
	CCMT09T308-LP	0.8		●		●	●																			●		●										

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

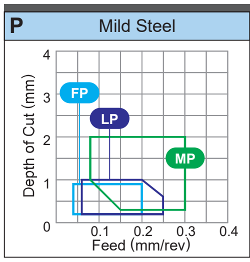
● = NEW

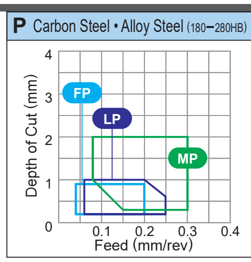
80° CC TYPE INSERTS WITH HOLE

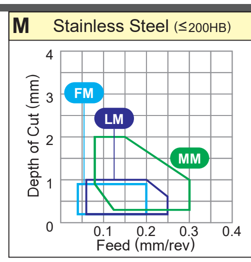
CCMT 06 02 04- LM
Size / Thickness / Corner Radius / Chip Breaker
* Please refer to page A002.

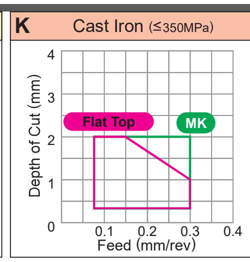
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---









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

Work Material			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
	P	Steel	●	◐	✣	◐	✣	✣	●																✣	✣	●	◐	◐	●	●	◐	✣					●
	M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣					
	K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●
	N	Non-ferrous Metal																																◐			●
	S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✣										◐	◐	●	

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
LM	CCMT060204-LM	0.4								●	●													●														C022 D008 E006 E030 E034
	CCMT060208-LM	0.8								●	●													●														
	CCMT09T304-LM	0.4								●	●													●														
	CCMT09T308-LM	0.8								●	●													●														
Light Cutting																																						
LS (NEW)	CCMT060202-LS	0.2																		●	●															●		C022 D008 E006 E030 E034
	CCMT060204-LS	0.4																		●	●															●		
	CCMT09T302-LS	0.2																		●	●															●		
	CCMT09T304-LS	0.4																		●	●															●		
Light Cutting	CCMT09T308-LS	0.8																		●	●															●		
LS (NEW)	CCGT060201M-LS	0.08																		●	●																C022 D008 E006 E030 E034
	CCGT060202M-LS	0.18																		●	●																
	CCGT09T301M-LS	0.08																		●	●																
	CCGT09T302M-LS	0.18																		●	●																
Light Cutting	CCGT09T304M-LS	0.38																		●	●																
LS-P (NEW)	CCGT060201M-LS-P	0.08							●																											●		C022 D008 E006 E030 E034
	CCGT060202M-LS-P	0.18							●																											●		
	CCGT09T301M-LS-P	0.08							●																											●		
	CCGT09T302M-LS-P	0.18							●																											●		
Light Cutting	CCGT09T304M-LS-P	0.38							●																											●		
SV	CCMH060202-SV	0.2			▲		●					▲	●											●		●	●	●			●							C022 D008 E006 E030 E034
	CCMH060204-SV	0.4			▲		●					▲	●											●		●	●	●			●							
Light Cutting																																						
* SW	CCMT060202-SW	0.2		●	▲	●	●					▲														●		●		●								C022 D008 E006 E030 E034
	CCMT060204-SW	0.4		●	▲	●	●					▲						●								●		●		●								
	CCMT09T302-SW	0.2		●	▲	●	●					▲						●								●		●		●								
Light Cutting (Wiper)	CCMT09T304-SW	0.4		●	▲	●	●					▲						●								●		●		●								

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

● = NEW

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

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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
Work Material	P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●	
	M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣						
	K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●	
	N	Non-ferrous Metal																																◐			●	
	S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✣									◐	◐	●		
R/L-SS 	CCGT0602V3R-SS	0.03																						●														C022 D008 E006 E030 E034
	CCGT0602V3L-SS	0.03																						●														
	CCGT060201R-SS	0.1																						●														
	CCGT060201L-SS	0.1																						●														
	CCGT060202R-SS	0.2																						●														
	CCGT060202L-SS	0.2																						●														
	CCGT09T3V3R-SS	0.03																						●														
	CCGT09T3V3L-SS	0.03																						●														
	CCGT09T301R-SS	0.1																						●														
	CCGT09T301L-SS	0.1																						●														
	CCGT09T302R-SS	0.2																						●														
	CCGT09T302L-SS	0.2																						●														
	CCGT060201MR-SS	0.08							●																													C022 D008 E006 E030 E034
	NEW CCGT060201ML-SS	0.08							●																													
	CCGT060202MR-SS	0.18							●																													
	NEW CCGT060202ML-SS	0.18							●																													
	CCGT09T301MR-SS	0.08							●																													
	NEW CCGT09T301ML-SS	0.08							●																													
	CCGT09T302MR-SS	0.18							●																													
	NEW CCGT09T302ML-SS	0.18							●																													
	CCGT09T304MR-SS	0.38							●																													
Light Cutting	NEW CCGT09T304ML-SS	0.38							●																													
MP 	CCMT060204-MP	0.4		●		●	●																			●		●										C022 D008 E006 E030 E034
	CCMT060208-MP	0.8		●		●	●																			●		●										
	CCMT09T304-MP	0.4		●		●	●																			●		●										
	CCMT09T308-MP	0.8		●		●	●																			●		●										
	CCMT120404-MP	0.4		●		●	●																			●		●										
	CCMT120408-MP	0.8		●		●	●																			●		●										
Medium Cutting	CCMT120412-MP	1.2		●		●	●																			●		●										
MM 	CCMT060204-MM	0.4								●	●													●														C022 D008 E006 E030 E034
	CCMT060208-MM	0.8								●	●													●														
	CCMT09T304-MM	0.4								●	●													●														
	CCMT09T308-MM	0.8								●	●													●														
	CCMT120404-MM	0.4								●	●													●														
	CCMT120408-MM	0.8								●	●													●														
Medium Cutting	CCMT120412-MM	1.2								●	●													●														
MK 	CCMT060204-MK	0.4													●	●																						C022 D008 E006 E030 E034
	CCMT060208-MK	0.8													●	●																						
	CCMT09T304-MK	0.4													●	●																						
	CCMT09T308-MK	0.8													●	●																						
	CCMT120404-MK	0.4													●	●																						
	CCMT120408-MK	0.8													●	●																						
Medium Cutting	CCMT120412-MK	1.2													●	●																						

● = NEW

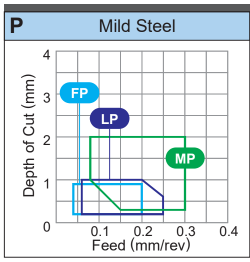
CHIP BREAKERS ➤ A060
GRADES ➤ A030
IDENTIFICATION ➤ A002

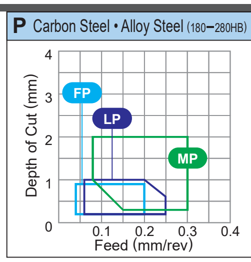
80° CC TYPE INSERTS WITH HOLE

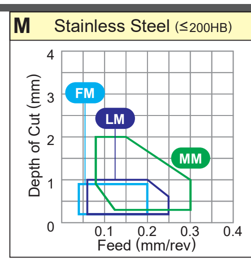
CCMT 06 02 02- MS
Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

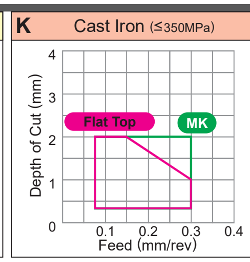
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---









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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
Work Material	P Steel		●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●	
	M Stainless Steel									◐	✤	●	✤										◐	✤	✤	●			●	●		✤						
	K Cast Iron														●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●	
	N Non-ferrous Metal																																	◐			●	
	S Heat-resistant Alloy, Titanium Alloy													●						●	◐	●	◐	✤										◐	◐	●		
MS (NEW)	CCMT060202-MS	0.2																		●	●															●		C022 D008 E006 E030 E034
	CCMT060204-MS	0.4																		●	●															●		
	CCMT060208-MS	0.8																		●	●															●		
	CCMT09T302-MS	0.2																		●	●																	
	CCMT09T304-MS	0.4																		●	●															●		
	CCMT09T308-MS	0.8																		●	●															●		
	CCMT120404-MS	0.4																		●	●															●		
	CCMT120408-MS	0.8																		●	●															●		
Medium Cutting	CCMT120412-MS	1.2																		●	●															●		
Standard	CCMT060202	0.2		●	▲								●													●	●	●	●			●						C022 D008 E006 E030 E034
	CCMT060204	0.4	●	●	▲								●					●						●		●	●	●	●			●						
	CCMT060208	0.8		●	▲								●					●						●		●						●						
	CCMT080302	0.2		●																																		
	CCMT080304	0.4		●									●													●	●	●	●			●						
	CCMT080308	0.8		●									●																			●						
	CCMT09T302	0.2		●	▲								●													●	●	●	●									
	CCMT09T304	0.4	●	●	▲								●					●						●		●	●	●	●			●						
	CCMT09T308	0.8	●	●	▲								●					●						●		●	●	●	●			●						
	CCMT120404	0.4	●	●	▲								●					●						●		●	●	●	●			●						
	CCMT120408	0.8	●	●	▲								●					●						●		●	●	●				●						
Medium Cutting	CCMT120412	1.2		●	▲								●					●									●											
MV	CCMH060202-MV	0.2			▲		●					▲	●											●		●	●	●	●		●							C022 D008 E006 E030 E034
 Medium Cutting	CCMH060204-MV	0.4			▲		●					▲	●			●								●		●	●	●	●		●							
* MW	CCMT060204-MW	0.4			▲	●	●					▲														●		●		●								C022 D008 E006 E030 E034
	CCMT060208-MW	0.8		●	▲	●	●					▲														●		●		●								
	CCMT09T304-MW	0.4		●	▲	●	●					▲														●		●		●								
	CCMT09T308-MW	0.8		●	▲	●	●					▲														●		●		●								
	CCMT120404-MW	0.4		●	▲	●	●					▲						●								●				●								
Medium Cutting (Wiper)	CCMT120408-MW	0.8		●	▲	●	●					▲						●								●				●								

* 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)

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

Work Material			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
Work 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																						Cermet		Coated Cermet				Carbide						Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	
R/L-SR	CCET0602V3R-SR	0.03																						●		●								●				C022 D008 E006 E030 E034
	CCET0602V3L-SR	0.03																						●		●								●				
	CCET060201R-SR	0.1																						●		●								●				
	CCET060201L-SR	0.1																						●		●								●				
	CCET060202R-SR	0.2																						●		●								●				
	CCET060202L-SR	0.2																						●		●								●				
	CCET060204R-SR	0.4																						●		●								●				
	CCET060204L-SR	0.4																						●		●								●				
	CCET09T3V3R-SR	0.03																						●		●								●				
	CCET09T3V3L-SR	0.03																						●		●								●				
	CCET09T301R-SR	0.1																						●		●								●				
	CCET09T301L-SR	0.1																						●		●								●				
	CCET09T302R-SR	0.2																						●		●								●				
	CCET09T302L-SR	0.2																						●		●								●				
	CCET09T304R-SR	0.4																						●		●								●				
Medium Cutting	CCET09T304L-SR	0.4																						●		●								●				
R/L-SN	CCGT0602V3R-SN	0.03																						●														C022 D008 E006 E030 E034
	CCGT060201R-SN	0.1																						●														
	CCGT060201L-SN	0.1																						●														
	CCGT060202R-SN	0.2																						●														
	CCGT060202L-SN	0.2																						●														
	CCGT09T3V3R-SN	0.03																						●														
	CCGT09T3V3L-SN	0.03																						●														
	CCGT09T301R-SN	0.1																						●														
	CCGT09T301L-SN	0.1																						●														
	CCGT09T302R-SN	0.2																						●														
	CCGT09T302L-SN	0.2																						●														
	CCGT09T304R-SN	0.4																						●														
	CCGT09T304L-SN	0.4																						●														
	CCGT060201MR-SN	0.08							●																													C022 D008 E006 E030 E034
	NEW CCGT060201ML-SN	0.08							● (NEW)																													
	CCGT060202MR-SN	0.18							●																													
	NEW CCGT060202ML-SN	0.18							● (NEW)																													
	CCGT09T301MR-SN	0.08							●																													
	NEW CCGT09T301ML-SN	0.08							● (NEW)																													
	CCGT09T302MR-SN	0.18							●																													
	NEW CCGT09T302ML-SN	0.18							● (NEW)																													
	CCGT09T304MR-SN	0.38							●																													
Medium Cutting	NEW CCGT09T304ML-SN	0.38							● (NEW)																													

● = NEW

CHIP BREAKERS ➢ A060
GRADES ➢ A030
IDENTIFICATION ➢ A002

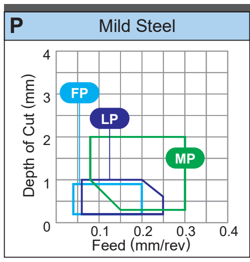
80° CC TYPE INSERTS WITH HOLE

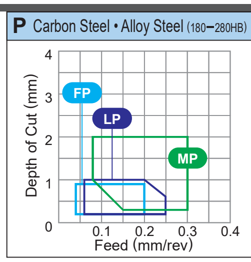
CCET 06 02 00 R SN
Size · Thickness · Corner Radius · R/L · Chip Breaker

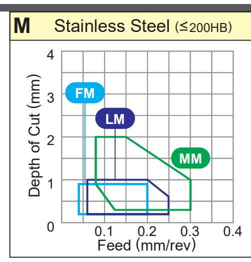
* Please refer to page A002.

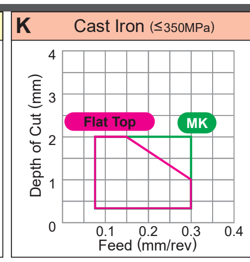
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---









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

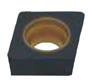
Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
Work Material	P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●	
Work Material	M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣						
Work Material	K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●	
Work Material	N	Non-ferrous Metal																																◐			●	
Work Material	S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✣										◐	◐	●		
R/L-SN	CCET060200R-SN	0																					●		●								●				C022 D008 E006 E030 E034
	CCET060200L-SN	0																					●		●								●				
	CCET0602V3R-SN	0.03																					●		●								●				
	CCET0602V3L-SN	0.03																					●		●								●				
	CCET060201R-SN	0.1																					●		●								●				
	CCET060201L-SN	0.1																					●		●								●				
	CCET060202R-SN	0.2																					●		●								●				
	CCET060202L-SN	0.2																					●		●								●				
	CCET060204R-SN	0.4																					●		●								●				
	CCET060204L-SN	0.4																					●		●								●				
	CCET09T300R-SN	0																					●		●								●				
	CCET09T300L-SN	0																					●		●								●				
	CCET09T3V3R-SN	0.03																					●		●								●				
	CCET09T3V3L-SN	0.03																					●		●								●				
	CCET09T301R-SN	0.1																					●		●								●				
	CCET09T301L-SN	0.1																					●		●								●				
	CCET09T302R-SN	0.2																					●		●								●				
	CCET09T302L-SN	0.2																					●		●								●				
	CCET09T304R-SN	0.4																					●		●								●				
Medium Cutting	CCET09T304L-SN	0.4																					●		●								●				
R/LW-SN *	CCET0602V3RW-SN	0.03																					●														C022 D008 E006 E030 E034
	CCET0602V3LW-SN	0.03																					●														
	CCET09T3V3RW-SN	0.03																					●														
Medium Cutting (Wiper)	CCET09T3V3LW-SN	0.03																					●														
SMG	CCGT060201M-SMG	0.08							●																												C022 D008 E006 E030 E034
	CCGT060202M-SMG	0.18							●														●														
	CCGT060204M-SMG	0.38							●														●														
	CCGT09T301M-SMG	0.08							●																												
	CCGT09T302M-SMG	0.18							●																												
Medium Cutting	CCGT09T304M-SMG	0.38							●																												

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

● = NEW

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

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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
Work Material	P	Steel	●	◐	✤	◐	✤	✤	●														✤	✤	●	◐	◐	●	●	◐	✤					●	
	M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤						
	K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●	
	N	Non-ferrous Metal																																◐			●	
	S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✤										◐	◐	●		
Flat Top 	CCMW060202	0.2																														●				C022 D008 E006 E030 E034
	CCMW060204	0.4													●	●	●	●													●		●				
	CCMW060208	0.8													●	●																					
	CCMW09T304	0.4													●	●	●	●															●				
	CCMW09T308	0.8													●	●	●	●													●		●				
	CCMW09T312	1.2													●	●																					
	CCMW120404	0.4													●	●	●	●															●				
	CCMW120408	0.8													●	●	●	●															●				
	CCMW120412	1.2													●	●		●																			
Flat Top 	CCGW060200	0																							●												C022 D008 E006 E030 E034
	CCGW0602V5	0.05																							●												
	CCGW09T300	0																							●												
	CCGW09T3V5	0.05																							●												

● = NEW

CHIP BREAKERS ➤ A060
GRADES ➤ A030
IDENTIFICATION ➤ A002

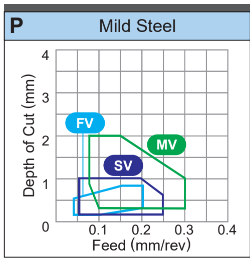
80° CP TYPE INSERTS WITH HOLE

CPMH 08 02 02- FV
Size / Thickness / Corner Radius / Chip Breaker
* Please refer to page A002.

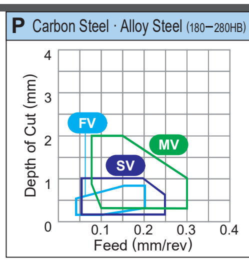
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---

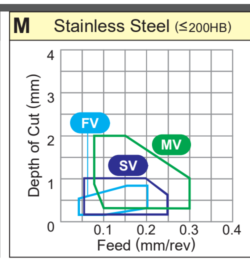
P Mild Steel



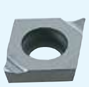
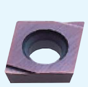
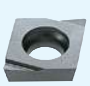
P Carbon Steel · Alloy Steel (180−280HB)



M Stainless Steel (≤200HB)



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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
Work Material	P Steel		●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●	
	M Stainless Steel									◐	✤	●	✤										◐	✤	✤	●			●	●		✤						
	K Cast Iron														●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●	
	N Non-ferrous Metal																																	◐			●	
	S Heat-resistant Alloy, Titanium Alloy													●						●	◐	●	◐	✤										◐	◐	●		
FV 	CPMH080202-FV	0.2			▲																			●		●	●	●										
	CPMH080204-FV	0.4			▲																			●		●	●	●										
	CPMH090302-FV	0.2			▲																			●		●	●	●										E006
	CPMH090304-FV	0.4			▲																			●		●	●	●										
Finish Cutting	CPMH090308-FV	0.8			▲																			●		●	●	●										
Standard 	CPGT080202	0.2																																●				
	CPGT080204	0.4																																●				
	CPGT090302	0.2																																●				–
	CPGT090304	0.4																																●				
Finish Cutting																																						
R/L-F 	CPMH080204R-F	0.4																						●		●								●				
	CPMH080204L-F	0.4																						●		●								●				
	CPMH090304R-F	0.4																						●		●								●				E006
	CPMH090304L-F	0.4																						●		●			●					●				
Finish Cutting																																						
R/L-F 	CPGT080204R-F	0.4																								●												
	CPGT080204L-F	0.4																								●												
	CPGT090302R-F	0.2																								●												–
	CPGT090302L-F	0.2																								●												
	CPGT090304R-F	0.4																								●												
Finish Cutting	CPGT090304L-F	0.4																								●												
SV 	CPMH080202-SV	0.2			▲		●					▲	●											●		●	●	●			●							
	CPMH080204-SV	0.4			▲		●					▲	●											●		●	●	●			●							
	CPMH090302-SV	0.2			▲		●					▲	●											●		●	●	●			●							E006
	CPMH090304-SV	0.4			▲		●					▲	●											●		●	●	●			●							
Light Cutting	CPMH090308-SV	0.8			▲		●					▲	●											●		●	●	●			●							
Standard 	CPMX080204	0.4		●																					●													
	CPMX080208	0.8		●																					●													
	CPMX090304	0.4		●																					●	●						●						–
	CPMX090308	0.8		●	▲																				●							●						
Medium Cutting																																						
MV 	CPMH080204-MV	0.4			▲		●					▲	●			●								●		●	●	●	●		●							
	CPMH080208-MV	0.8			▲		●					▲	●			●								●		●	●	●	●		●							
	CPMH090304-MV	0.4			▲		●					▲	●			●								●		●	●	●	●		●							E006
	CPMH090308-MV	0.8			▲		●					▲	●			●								●		●	●	●	●		●							
Medium Cutting																																						

● = NEW

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

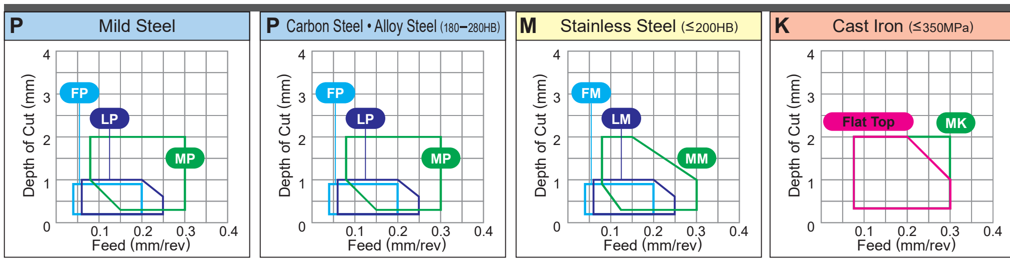
CHIP BREAKERS ➤ A068

55° DC TYPE INSERTS WITH HOLE

DCMT 07 02 02- FP
Size Thickness Corner Radius Chip Breaker
＊Please refer to page A002.

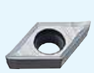
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---



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

Work Material			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
	P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●
	M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣					
	K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●
	N	Non-ferrous Metal																																◐			●
	S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✣										◐	◐	●	

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
FP  Finish Cutting	DCMT070202-FP	0.2		●		●	●																			●		●										C023 D009 D026 E008 E009 E029 E031
	DCMT070204-FP	0.4		●		●	●																			●		●										
	DCMT11T302-FP	0.2		●		●	●																			●		●										
	DCMT11T304-FP	0.4		●		●	●																			●		●										
	DCMT11T308-FP	0.8		●		●	●																			●		●										
FM  Finish Cutting	DCMT070202-FM	0.2																						●														C023 D009 D026 E008 E009 E029 E031
	DCMT070204-FM	0.4																						●														
	DCMT11T302-FM	0.2																						●														
	DCMT11T304-FM	0.4																						●														
	DCMT11T308-FM	0.8																						●														
FS NEW  Finish Cutting	DCGT070201M-FS	0.08																		●	●																	C023 D009 D026 E008 E009 E029 E031
	DCGT070202M-FS	0.18																		●	●																	
	DCGT11T301M-FS	0.08																		●	●																	
	DCGT11T302M-FS	0.18																		●	●																	
FS-P NEW  Finish Cutting	DCGT070201M-FS-P	0.08																																		●		C023 D009 D026 E008 E009 E029 E031
	DCGT070202M-FS-P	0.18																																		●		
	DCGT11T301M-FS-P	0.08																																		●		
	DCGT11T302M-FS-P	0.18																																		●		
FV  Finish Cutting	DCMT070202-FV	0.2		●	▲																			●		●	●		●									C023 D009 D026 E008 E009 E029 E031
	DCMT070204-FV	0.4		●	▲																			●		●	●		●									
	DCMT070208-FV	0.8			▲																			●		●	●											
	DCMT11T302-FV	0.2			▲																			●		●	●											
	DCMT11T304-FV	0.4		●	▲																			●		●	●		●									
	DCMT11T308-FV	0.8		●	▲																			●		●	●		●									
AZ  Medium Cutting – Finish Cutting	DCGT070202-AZ	0.2																																●				C023 D009 D026 E008 E009 E029 E031
	DCGT070204-AZ	0.4																																●				
	DCGT11T302-AZ	0.2																																●				
	DCGT11T304-AZ	0.4																																●				
	DCGT11T308-AZ	0.8																																●				

● = NEW

55° DC TYPE INSERTS WITH HOLE

DCGT 07 02 02 R-F

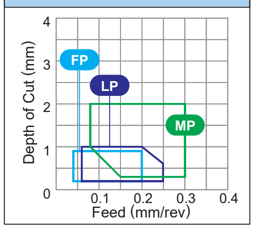
Size Thickness Corner Radius R/L Chip Breaker

* Please refer to page A002.

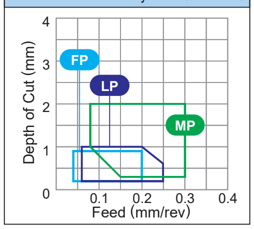
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---

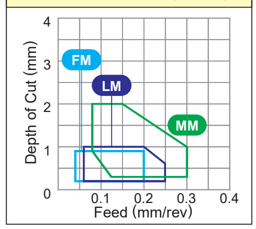
P Mild Steel



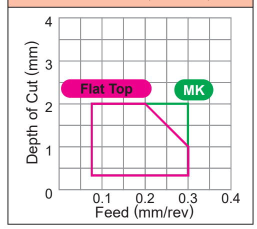
P Carbon Steel • Alloy Steel (180–280HB)



M Stainless Steel (≤200HB)

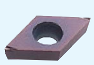
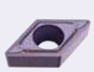


K Cast Iron (≤350MPa)



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

Work Material			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
	P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●
	M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣					
	K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●
	N	Non-ferrous Metal																																◐			●
	S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✣										◐	◐	●	

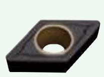
Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
R/L-F	DCGT070202R-F	0.2																						●		●								●				C023 D009 D026 E008 E009 E029 E031
	DCGT070202L-F	0.2																						●		●			●					●				
	DCGT070204R-F	0.4																						●		●								●				
	DCGT070204L-F	0.4																						●		●			●					●				
	DCGT11T302R-F	0.2																						●		●								●				
	DCGT11T302L-F	0.2																						●		●			●					●				
	DCGT11T304R-F	0.4																						●		●								●				
Finish Cutting	DCGT11T304L-F	0.4																						●		●			●					●				
LP	DCMT070204-LP	0.4		●		●	●																			●		●										C023 D009 D026 E008 E009 E029 E031
	DCMT070208-LP	0.8		●		●	●																			●		●										
	DCMT11T304-LP	0.4		●		●	●																			●		●										
	DCMT11T308-LP	0.8		●		●	●																			●		●										
Light Cutting																																						
LM	DCMT070204-LM	0.4								●	●													●														C023 D009 D026 E008 E009 E029 E031
	DCMT070208-LM	0.8								●	●													●														
	DCMT11T304-LM	0.4								●	●													●														
	DCMT11T308-LM	0.8								●	●													●														
Light Cutting																																						
LS NEW	DCMT070202-LS	0.2																		●	●															●		C023 D009 D026 E008 E009 E029 E031
	DCMT070204-LS	0.4																		●	●															●		
	DCMT11T302-LS	0.2																		●	●															●		
	DCMT11T304-LS	0.4																		●	●															●		
Light Cutting	DCMT11T308-LS	0.8																		●	●															●		
LS NEW	DCGT070201M-LS	0.08																		●	●																	C023 D009 D026 E008 E009 E029 E031
	DCGT070202M-LS	0.18																		●	●																	
	DCGT070204M-LS	0.38																		●	●																	
	DCGT11T301M-LS	0.08																		●	●																	
	DCGT11T302M-LS	0.18																		●	●																	
Light Cutting	DCGT11T304M-LS	0.38																		●	●																	
LS-P NEW	DCGT070201M-LS-P	0.08							●																											●		C023 D009 D026 E008 E009 E029 E031
	DCGT070202M-LS-P	0.18							●																											●		
	DCGT070204M-LS-P	0.38							●																											●		
	DCGT11T301M-LS-P	0.08							●																											●		
	DCGT11T302M-LS-P	0.18							●																											●		
Light Cutting	DCGT11T304M-LS-P	0.38							●																											●		

● = NEW

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

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

			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	NEW MH515	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
Work Material	P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●
	M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣					
	K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●
	N	Non-ferrous Metal																																◐			●
	S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✣										◐	◐	●	

			Coated																							Cermet		Coated Cermet				Carbide						
Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	NEW MH515	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
SV  Light Cutting	DCMT070202-SV	0.2			▲							▲	●											●		●	●				●							C023 D009 D026 E008 E009 E029 E031
	DCMT070204-SV	0.4		●	▲							▲	●											●		●	●				●							
	DCMT070208-SV	0.8		●	▲							▲	●											●		●	●				●							
	DCMT11T302-SV	0.2		●	▲							▲	●											●		●	●				●							
	DCMT11T304-SV	0.4		●	▲							▲	●											●		●	●				●							
	DCMT11T308-SV	0.8		●	▲							▲	●											●		●	●				●							
R/L-SS  Light Cutting	DCGT0702V3R-SS	0.03																						●														C023 D009 D026 E008 E009 E029 E031
	DCGT0702V3L-SS	0.03																						●														
	DCGT070201R-SS	0.1																						●														
	DCGT070201L-SS	0.1																						●														
	DCGT070202R-SS	0.2																						●														
	DCGT070202L-SS	0.2																						●														
	DCGT11T3V3R-SS	0.03																						●														
	DCGT11T301R-SS	0.1																						●														
	DCGT11T302R-SS	0.2																						●														
	DCGT070201MR-SS	0.08							●																													C023 D009 D026 E008 E009 E029 E031
	NEW DCGT070201ML-SS	0.08							●																													
	DCGT070202MR-SS	0.18							●																													
	NEW DCGT070202ML-SS	0.18							●																													
	DCGT11T301MR-SS	0.08							●																													
	NEW DCGT11T301ML-SS	0.08							●																													
	DCGT11T302MR-SS	0.18							●																													
	NEW DCGT11T302ML-SS	0.18							●																													
	DCGT11T304MR-SS	0.38							●																													
	NEW DCGT11T304ML-SS	0.38							●																													
MP  Medium Cutting	DCMT070204-MP	0.4		●		●	●																			●		●										C023 D009 D026 E008 E009 E029 E031
	DCMT070208-MP	0.8		●		●	●																			●		●										
	DCMT11T304-MP	0.4		●		●	●																			●		●										
	DCMT11T308-MP	0.8		●		●	●																			●		●										
	DCMT150404-MP	0.4		●		●	●																			●		●										
	DCMT150408-MP	0.8		●		●	●																			●		●										
MM  Medium Cutting	DCMT070204-MM	0.4								●	●													●														C023 D009 D026 E008 E009 E029 E031
	DCMT070208-MM	0.8								●	●													●														
	DCMT11T304-MM	0.4								●	●													●														
	DCMT11T308-MM	0.8								●	●													●														
	DCMT150404-MM	0.4								●	●													●														
	DCMT150408-MM	0.8								●	●													●														
MK  Medium Cutting	DCMT070204-MK	0.4													●	●																						C023 D009 D026 E008 E009 E029 E031
	DCMT070208-MK	0.8													●	●																						
	DCMT11T304-MK	0.4													●	●																						
	DCMT11T308-MK	0.8													●	●																						
	DCMT150404-MK	0.4													●	●																						
	DCMT150408-MK	0.8													●	●																						

● = NEW

CHIP BREAKERS ➤ A060
GRADES ➤ A030
IDENTIFICATION ➤ A002

55° DC TYPE INSERTS WITH HOLE

DCMT 07 02 04- MS

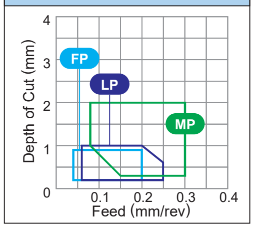
Size Thickness Corner Radius Chip Breaker

* Please refer to page A002.

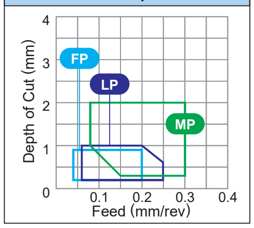
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---

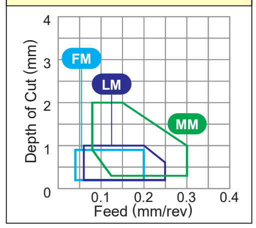
P Mild Steel



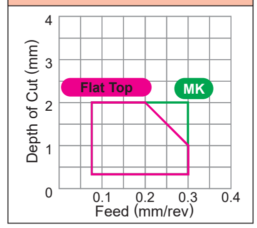
P Carbon Steel • Alloy Steel (180–280HB)



M Stainless Steel (≤200HB)



K Cast Iron (≤350MPa)



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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●
M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣					
K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●
N	Non-ferrous Metal																																◐			●
S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✣										◐	◐	●	

Coated: UE6105–UP20M; Cermet: NX2525, NX3035; Coated Cermet: MP3025, AP25N, VP25N, VP45N; Carbide: UTi20T, HTi05T, HTi10, RT9010, MT9005, TF15

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
MS NEW	DCMT070204-MS	0.4																		●	●															●		C023 D009 D026 E008 E009 E029 E031
	DCMT070208-MS	0.8																		●	●															●		
	DCMT11T304-MS	0.4																		●	●															●		
	DCMT11T308-MS	0.8																		●	●															●		
Medium Cutting	DCMT11T312-MS	1.2																		●	●															●		
Standard	DCMT070202	0.2		●	▲								●													●	●	●	●			●						C023 D009 D026 E008 E009 E029 E031
	DCMT070204	0.4	●	●	▲								●					●						●		●	●	●	●			●					
	DCMT070208	0.8		●									●					●								●	●	●	●										
	DCMT11T302	0.2		●	▲								●													●	●	●	●			●					
	DCMT11T304	0.4	●	●	▲								●					●						●		●	●	●	●			●					
	DCMT11T308	0.8	●	●	▲								●					●						●		●	●	●	●			●					
	DCMT11T312	1.2		●																																			
	DCMT150404	0.4		●	▲								●					●								●	●	●	●			●					
	DCMT150408	0.8		●	▲								●					●								●	●	●				●					
Medium Cutting	DCMT150412	1.2		●																																			
MV	DCMT070202-MV	0.2		●	▲		●					▲	●											●		●	●	●	●		●							C023 D009 D026 E008 E009 E029 E031
	DCMT070204-MV	0.4		●	▲		●					▲	●			●							●		●	●	●	●		●						
	DCMT070208-MV	0.8		●	▲		●					▲	●			●							●		●	●	●	●		●						
	DCMT11T302-MV	0.2		●	▲		●					▲	●											●		●	●	●	●		●						
	DCMT11T304-MV	0.4		●	▲		●					▲	●			●							●		●	●	●	●		●						
Medium Cutting	DCMT11T308-MV	0.8		●	▲		●					▲	●			●							●		●	●	●	●		●						
R/L-SR	DCET0702V3R-SR	0.03																						●		●								●				C023 D009 D026 E008 E009 E029 E031
	DCET0702V3L-SR	0.03																						●		●								●				
	DCET070201R-SR	0.1																						●		●								●				
	DCET070201L-SR	0.1																						●		●								●				
	DCET070202R-SR	0.2																						●		●								●				
	DCET070202L-SR	0.2																						●		●								●				
	DCET070204R-SR	0.4																						●		●								●				
	DCET070204L-SR	0.4																						●		●								●				
	DCET11T3V3R-SR	0.03																						●		●								●				
Medium Cutting	DCET11T3V3L-SR	0.03																						●		●								●				

● = NEW

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

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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
Work Material	P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●	
	M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣						
	K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●	
	N	Non-ferrous Metal																																◐			●	
	S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✣										◐	◐	●		
			Coated																							Cermet		Coated Cermet				Carbide						
R/L-SR	DCET11T301R-SR	0.1																						●		●								●				C023 D009 D026 E008 E009 E029 E031
	DCET11T301L-SR	0.1																						●		●								●				
	DCET11T302R-SR	0.2																						●		●								●				
	DCET11T302L-SR	0.2																						●		●								●				
	DCET11T304R-SR	0.4																						●		●								●				
Medium Cutting	DCET11T304L-SR	0.4																						●		●								●				
R/L-SN	DCGT0702V3R-SN	0.03																						●														C023 D009 D026 E008 E009 E029 E031
	DCGT070201R-SN	0.1																						●														
	DCGT070202R-SN	0.2																						●														
	DCGT070202L-SN	0.2																						●														
	DCGT11T3V3R-SN	0.03																						●														
	DCGT11T3V3L-SN	0.03																						●														
	DCGT11T301R-SN	0.1																						●														
	DCGT11T301L-SN	0.1																						●														
	DCGT11T302R-SN	0.2																						●														
	DCGT11T302L-SN	0.2																						●														
	DCGT11T304R-SN	0.4																						●														
	DCGT11T304L-SN	0.4																						●														
	DCGT070201MR-SN	0.08							●																													C023 D009 D026 E008 E009 E029 E031
	NEW DCGT070201ML-SN	0.08							●																													
	DCGT070202MR-SN	0.18							●																													
	NEW DCGT070202ML-SN	0.18							●																													
	DCGT11T301MR-SN	0.08							●																													
	NEW DCGT11T301ML-SN	0.08							●																													
	DCGT11T302MR-SN	0.18							●																													
	NEW DCGT11T302ML-SN	0.18							●																													
	DCGT11T304MR-SN	0.38							●																													
Medium Cutting	NEW DCGT11T304ML-SN	0.38							●																													
R/L-SN	DCET0702V3R-SN	0.03																						●		●								●				C023 D009 D026 E008 E009 E029 E031
	DCET0702V3L-SN	0.03																						●		●								●				
	DCET070200R-SN	0																						●		●								●				
	DCET070200L-SN	0																						●		●								●				
	DCET070201R-SN	0.1																						●		●								●				
	DCET070201L-SN	0.1																						●		●								●				
	DCET070202R-SN	0.2																						●		●								●				
	DCET070202L-SN	0.2																						●		●								●				
	DCET070204R-SN	0.4																						●		●								●				
	DCET070204L-SN	0.4																						●		●								●				
	DCET11T3V3R-SN	0.03																						●		●								●				
	DCET11T3V3L-SN	0.03																						●		●								●				
	DCET11T300R-SN	0																						●		●								●				
	DCET11T300L-SN	0																						●		●								●				
	DCET11T301R-SN	0.1																						●		●								●				
Medium Cutting	DCET11T301L-SN	0.1																						●		●								●				

● = NEW

A

TURNING INSERTS

POSI 7°

WITH HOLE

C D R S T V W X

CHIP BREAKERS ➤ A060

GRADES ➤ A030

IDENTIFICATION ➤ A002

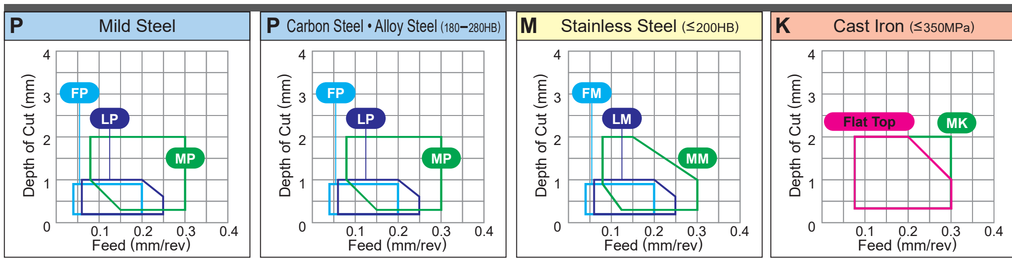
55° DC TYPE INSERTS WITH HOLE

DCET 11 T3 02 R-SN
Size / Thickness / Corner Radius / R/L / Chip Breaker
* Please refer to page A002.

A
TURNING INSERTS
POSI 7°
WITH HOLE
C D R S T V W X

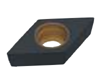
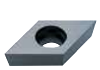
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---



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

	Work Material	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●
M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣					
K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●
N	Non-ferrous Metal																																◐			●
S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✣										◐	◐	●		

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
R/L-SN 	DCET11T302R-SN	0.2																						●		●								●				C023, D009, D026, E008, E009, E029, E031
	DCET11T302L-SN	0.2																						●		●								●				
	DCET11T304R-SN	0.4																						●		●								●				
	DCET11T304L-SN	0.4																						●		●								●				
Medium Cutting																																						
R/LW-SN * 	DCET0702V3RW-SN	0.03																						●														C023, D009, D026, E008, E009, E029, E031
	DCET0702V3LW-SN	0.03																						●														
	DCET11T3V3RW-SN	0.03																						●														
	DCET11T3V3LW-SN	0.03																						●														
Medium Cutting (Wiper)																																						
SMG 	DCGT070201M-SMG	0.08							●																													C023, D009, D026, E008, E009, E029, E031
	DCGT070202M-SMG	0.18							●															●														
	DCGT070204M-SMG	0.38							●															●														
	DCGT11T301M-SMG	0.08							●																													
	DCGT11T302M-SMG	0.18							●															●														
Medium Cutting	DCGT11T304M-SMG	0.38							●															●														
Flat Top 	DCMW070204	0.4													●	●	●	●																●				C023, D009, D026, E008, E009, E029, E031
	DCMW11T304	0.4													●	●	●	●														●		●				
	DCMW11T308	0.8													●	●	●	●																●				
	DCMW150404	0.4																																●				
	DCMW150408	0.8																																●				
Flat Top 	DCGW070200	0																								●												C023, D009, D026, E008, E009, E029, E031
	DCGW0702V5	0.05																								●												
	DCGW11T300	0																								●												
	DCGW11T3V5	0.05																								●												

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

● = NEW

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

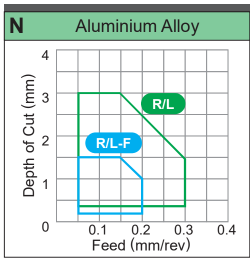
CHIP BREAKERS ➤ A060

55° DE TYPE INSERTS WITH HOLE

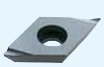
DEGX 15 04 02 R-F
Size Thickness Corner Radius R/L Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Medium Cutting---



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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
Work Material	**P**	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●	
	M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣						
	K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●	
	N	Non-ferrous Metal																																◐			●	
	S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✣										◐	◐	●		
R/L-F  Finish Cutting (For Aluminium Alloy)	**DEGX150402R-F**	0.2																														●				
	DEGX150402L-F	0.2																														●				
	DEGX150404R-F	0.4																														●				C032
	DEGX150404L-F	0.4																														●				
R/L  Medium Cutting (For Aluminium Alloy)	**DEGX150402R**	0.2																														●				
	DEGX150402L	0.2																														●				
	DEGX150404R	0.4																														●				C032
	DEGX150404L	0.4																														●				

● = NEW

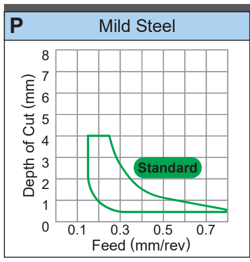
CHIP BREAKERS ➤ A072
GRADES ➤ A030
IDENTIFICATION ➤ A002

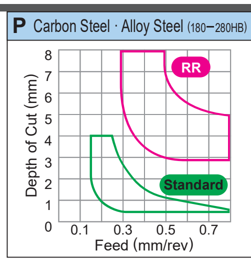
RC TYPE INSERTS WITH HOLE

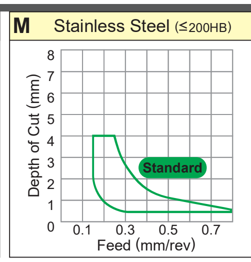
RCGT 08 03 M0- AZ
Size / Thickness / Corner Radius / Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting--- Heavy Cutting---







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

			Coated																							Cermet		Coated Cermet				Carbide						
Shape	Order Number	IC (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
Work Material	P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●	
	M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣						
	K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●	
	N	Non-ferrous Metal																																◐			●	
	S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✣										◐	◐	●		
AZ  Medium Cutting – Finish Cutting	RCGT0803M0-AZ	8.0																																●				C025
	RCGT10T3M0-AZ	10.0																																●				
Standard  Medium Cutting	RCMT0602M0	6.0		●																						●	●	●				●						C025
	RCMT0803M0	8.0		●									●													●	●	●				●						
Standard  Medium Cutting	RCMX1003M0	10.0		●	▲		●						●									●				●	●	●										C024 H012
	RCMX1204M0	12.0	●	●	▲		●						●	●		●		●				●	●			●	●	●										
	RCMX1606M0	16.0	●	●	▲		●	●					●	●								●	●															
	RCMX2006M0	20.0	●	●	▲		●	●					●																									
	RCMX2507M0	25.0	●	●	▲		●																															
	RCMX3209M0	32.0	●	●	▲																																	
RR  Heavy Cutting	RCMX1606M0-RR	16.0		●	▲		●	●					●																									C024
	RCMX2006M0-RR	20.0		●	▲		●	●					●																									
	RCMX2507M0-RR	25.0		●	▲		●	●					●																									
	RCMX3209M0-RR	32.0		●	▲																																	

● = NEW

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

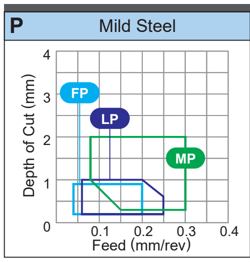
CHIP BREAKERS ➤ A060

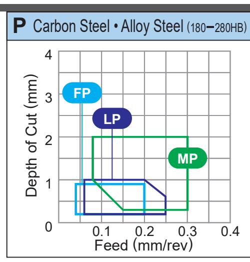
90° SC TYPE INSERTS WITH HOLE

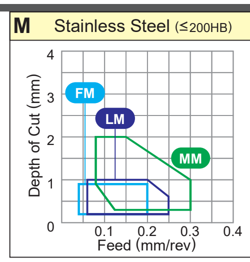
SCMT 09 T3 04- FP
Size / Thickness / Corner Radius / Chip Breaker
* Please refer to page A002.

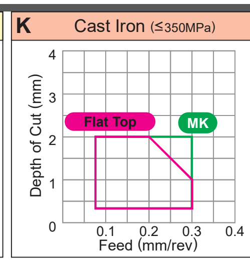
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---









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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																						Cermet		Coated Cermet				Carbide						
Work Material	P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●	
	M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤						
	K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●	
	N	Non-ferrous Metal																																◐			●	
	S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✤										◐	◐	●		
FP	SCMT09T304-FP	0.4		●		●	●																			●		●										C026 E033
 Finish Cutting	SCMT09T308-FP	0.8		●		●	●																			●		●										
FM	SCMT09T304-FM	0.4																						●														C026 E033
 Finish Cutting	SCMT09T308-FM	0.8																						●														
FV  Finish Cutting	SCMT09T304-FV	0.4			▲																					●	●		●		●							C026 E033
LP	SCMT09T304-LP	0.4		●		●	●																			●		●										C026 E033
 Light Cutting	SCMT09T308-LP	0.8		●		●	●																			●		●										
LM	SCMT09T304-LM	0.4								●	●													●														C026 E033
 Light Cutting	SCMT09T308-LM	0.8								●	●													●														
MP	SCMT09T304-MP	0.4		●		●	●																			●		●										C026 E033
	SCMT09T308-MP	0.8		●		●	●																			●		●										
	SCMT120404-MP	0.4		●		●	●																			●		●										
 Medium Cutting	SCMT120408-MP	0.8		●		●	●																			●		●										
MM	SCMT09T304-MM	0.4								●	●													●														C026 E033
	SCMT09T308-MM	0.8								●	●													●														
	SCMT120404-MM	0.4								●	●													●														
 Medium Cutting	SCMT120408-MM	0.8								●	●													●														

● = NEW

CHIP BREAKERS ➤ A060
GRADES ➤ A030
IDENTIFICATION ➤ A002

A TURNING INSERTS
POSI 7° WITH HOLE
C D R S T V W X

90° SC TYPE INSERTS WITH HOLE

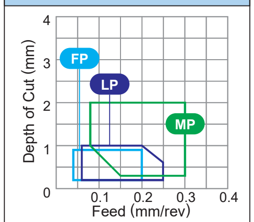
SCMT 09 T3 04- MK
Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

A
TURNING INSERTS
POSI 7°
WITH HOLE
C D R S T V W X

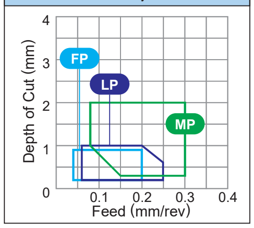
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---

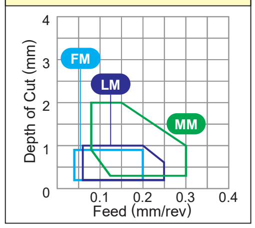
P Mild Steel



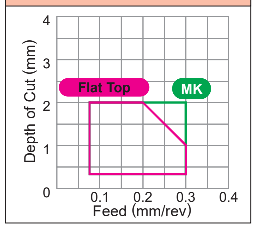
P Carbon Steel • Alloy Steel (180–280HB)



M Stainless Steel (≤200HB)



K Cast Iron (≤350MPa)



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

Work Material	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
	Coated																							Cermet		Coated Cermet				Carbide					
P Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●
M Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤					
K Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●
N Non-ferrous Metal																																◐			●
S Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✤										◐	◐	●	

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
MK  Medium Cutting	SCMT09T304-MK	0.4													●	●																						C026 E033
	SCMT09T308-MK	0.8													●	●																						
	SCMT120404-MK	0.4													●	●																						
	SCMT120408-MK	0.8													●	●																						
MS NEW  Medium Cutting	SCMT09T304-MS	0.4																		● NEW	● NEW															● NEW		C026 E033
	SCMT09T308-MS	0.8																		● NEW	● NEW															● NEW		
	SCMT120404-MS	0.4																		● NEW	● NEW															● NEW		
	SCMT120408-MS	0.8																		● NEW	● NEW															● NEW		
	SCMT120412-MS	1.2																		● NEW	● NEW															● NEW		
Standard  Medium Cutting	SCMT09T304	0.4	●	●	▲								●					●								●	●	●	●			●						C026 E033
	SCMT09T308	0.8	●	●	▲								●					●								●	●	●	●			●						
	SCMT120404	0.4	●	●	▲								●					●								●	●	●										
	SCMT120408	0.8	●	●	▲								●					●								●	●	●	●			●						
	SCMT120412	1.2		●																																		
Flat Top 	SCMW09T304	0.4													●	●		●														●		●				C026 E033
	SCMW09T308	0.8													●	●	●	●																				
	SCMW120408	0.8													●	●	●	●																				

● = NEW

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

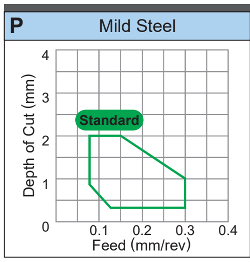
CHIP BREAKERS ➤ A060

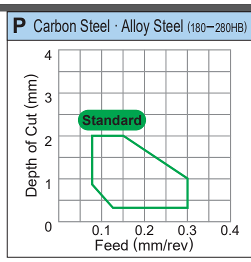
90° SP TYPE INSERTS WITH HOLE

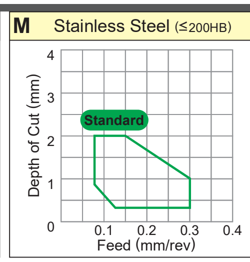
SPMT 09 03 04
Size — Thickness — Corner Radius
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting







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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●
M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤					
K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●
N	Non-ferrous Metal																																◐			●
S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✤										◐	◐	●	

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																					Cermet		Coated Cermet				Carbide						
Standard	SPMT090304	0.4																								●												
	SPMT090308	0.8																								●												
Medium Cutting	SPMT120308	0.8																								●						●						–
Flat Top	SPMW090304	0.4																					●	●	●						●		●				
	SPMW090308	0.8																					●	●	●						●		●				–
	SPMW120304	0.4																					●	●	●						●		●				
	SPMW120308	0.8																					●	●	●						●		●				
Flat Top	SPGX090304	0.4																							●								●				
	SPGX090308	0.8																															●				–
	SPGX120304	0.4																															●				
	SPGX120308	0.8																															●				

● = NEW

A TURNING INSERTS
POSI 11° WITH HOLE
C D R S T V W X

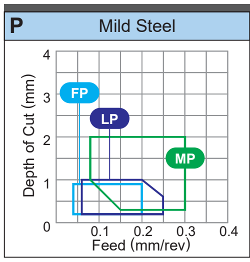
CHIP BREAKERS ➤ A068
GRADES ➤ A030
IDENTIFICATION ➤ A002

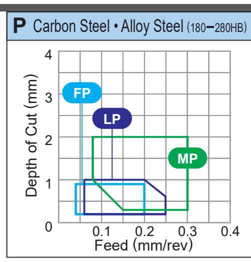
60° TC TYPE INSERTS WITH HOLE

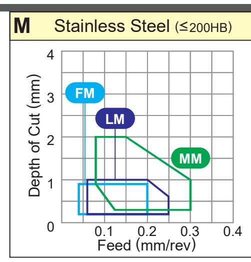
TCMT 09 02 02- FP
Size / Thickness / Corner Radius / Chip Breaker
* Please refer to page A002.

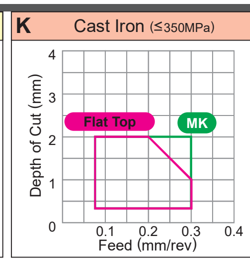
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---

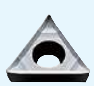








Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
Work Material	P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●	
Work Material	M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤						
Work Material	K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●	
Work Material	N	Non-ferrous Metal																																◐			●	
Work Material	S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✤										◐	◐	●		
			Coated																							Cermet		Coated Cermet				Carbide						
FP 	TCMT090202-FP	0.2		●		●	●																			●		●										C027 E028
	TCMT090204-FP	0.4		●		●	●																			●		●										
	TCMT110202-FP	0.2		●		●	●																			●		●										
	TCMT110204-FP	0.4		●		●	●																			●		●										
Finish Cutting	TCMT16T304-FP	0.4		●		●	●																			●		●										
FM 	TCMT090202-FM	0.2																					●															C027 E028
	TCMT090204-FM	0.4																					●															
	TCMT110202-FM	0.2																					●															
	TCMT110204-FM	0.4																					●															
Finish Cutting	TCMT16T304-FM	0.4																					●															
FV 	TCMT110204-FV	0.4			▲																					●	●		●		●							C027 E028
Finish Cutting	TCMT16T304-FV	0.4			▲																					●	●		●									
AZ 	TCGT110202-AZ	0.2																																●				C027 E028
	TCGT110204-AZ	0.4																																●				
	TCGT110208-AZ	0.8																																●				
	TCGT16T302-AZ	0.2																																●				
	TCGT16T304-AZ	0.4																																●				
Medium Cutting – Finish Cutting	TCGT16T308-AZ	0.8																																●				
R/L-F 	TCGT0601V3L-F	0.03																								●												E017
	TCGT060101L-F	0.1																					●			●												
	TCGT060102R-F	0.2																					●			●								●				
	TCGT060102L-F	0.2																					●			●								●				
	TCGT060104R-F	0.4																								●								●				
	TCGT060104L-F	0.4																					●			●								●				
	NEW TCGT060101MR-F	0.08							●																													E017
	NEW TCGT060101ML-F	0.08							●																													
	NEW TCGT060102MR-F	0.18							●																													
	NEW TCGT060102ML-F	0.18							●																													
	NEW TCGT060104MR-F	0.38							●																													
Finish Cutting	NEW TCGT060104ML-F	0.38							●																													

● = NEW

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

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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●
M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤					
K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●
N	Non-ferrous Metal																																◐			●
S	Heat-resistant Alloy, Titanium Alloy											●							●	◐	●	◐	✤										◐	◐	●	

Coated: UE6105–UP20M; Cermet: NX2525, NX3035; Coated Cermet: MP3025–VP45N; Carbide: UTi20T–TF15

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
LP Light Cutting	TCMT090204-LP	0.4		●		●	●																			●		●										C027 E028
	TCMT090208-LP	0.8		●		●	●																			●		●										
	TCMT110204-LP	0.4		●		●	●																			●		●										
	TCMT110208-LP	0.8		●		●	●																			●		●										
	TCMT16T304-LP	0.4		●		●	●																			●		●										
	TCMT16T308-LP	0.8		●		●	●																			●		●										
LM Light Cutting	TCMT090204-LM	0.4								●	●													●														C027 E028
	TCMT090208-LM	0.8								●	●													●														
	TCMT110204-LM	0.4								●	●													●														
	TCMT110208-LM	0.8								●	●													●														
	TCMT16T304-LM	0.4								●	●													●														
	TCMT16T308-LM	0.8								●	●													●														
LS NEW Light Cutting	TCMT090202-LS	0.2																		●	●															●		C027 E028
	TCMT110202-LS	0.2																		●	●															●		
MP Medium Cutting	TCMT090204-MP	0.4		●		●	●																			●		●										C027 E028
	TCMT090208-MP	0.8		●		●	●																			●		●										
	TCMT110204-MP	0.4		●		●	●																			●		●										
	TCMT110208-MP	0.8		●		●	●																			●		●										
	TCMT130304-MP	0.4		●		●	●																			●		●										
	TCMT16T304-MP	0.4		●		●	●																			●		●										
	TCMT16T308-MP	0.8		●		●	●																			●		●										
	TCMT16T312-MP	1.2		●		●	●																			●		●										
MM Medium Cutting	TCMT090204-MM	0.4								●	●													●														C027 E028
	TCMT090208-MM	0.8								●	●													●														
	TCMT110204-MM	0.4								●	●													●														
	TCMT110208-MM	0.8								●	●													●														
	TCMT130304-MM	0.4								●	●													●														
	TCMT16T304-MM	0.4								●	●													●														
	TCMT16T308-MM	0.8								●	●													●														
	TCMT16T312-MM	1.2								●	●													●														
MK Medium Cutting	TCMT110204-MK	0.4													●	●																						C027 E028
	TCMT110208-MK	0.8													●	●																						
	TCMT16T304-MK	0.4													●	●																						
	TCMT16T308-MK	0.8													●	●																						
	TCMT16T312-MK	1.2													●	●																						
MS NEW Medium Cutting	TCMT090204-MS	0.4																		●	●															●		C027 E028
	TCMT090208-MS	0.8																		●	●															●		
	TCMT110204-MS	0.4																		●	●																	
	TCMT110208-MS	0.8																		●	●																	
	TCMT16T304-MS	0.4																		●	●															●		
	TCMT16T308-MS	0.8																		●	●															●		
	TCMT16T312-MS	1.2																		●	●															●		

● = NEW

CHIP BREAKERS ➤ A060
GRADES ➤ A030
IDENTIFICATION ➤ A002

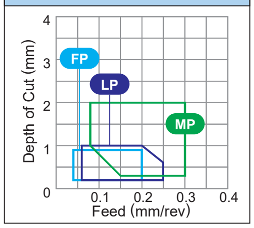
60° TC TYPE INSERTS WITH HOLE

TCMT 08 02 04
Size / Thickness / Corner Radius
＊ Please refer to page A002.

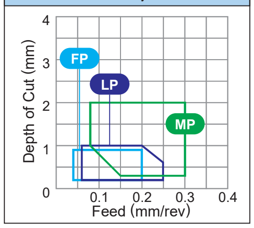
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---

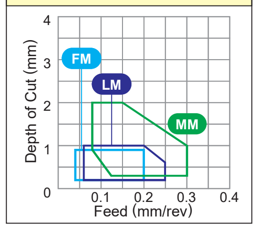
P Mild Steel



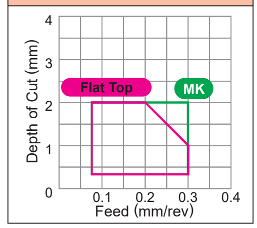
P Carbon Steel • Alloy Steel (180–280HB)



M Stainless Steel (≤200HB)

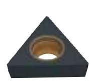


K Cast Iron (≤350MPa)



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

Work Material			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
	P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●
	M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤					
	K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●
	N	Non-ferrous Metal																																◐			●
	S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✤											◐	◐	●	

Shape	Order Number	RE (mm)	Coated																							Cermet		Coated Cermet				Carbide						Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	
Standard	**TCMT080204**	0.4																									●	●				●						
	**TCMT090204**	0.4		●	▲								●													●	●	●	●			●						
	TCMT110202	0.2		●	▲								●											●		●	●	●	●									
	TCMT110204	0.4	●	●	▲								●					●						●		●	●	●	●			●						
	TCMT110208	0.8	●	●																				●				●										C027 E028
	TCMT130302	0.2																										●	●									
	TCMT130304	0.4		●									●														●	●										
	TCMT16T304	0.4	●	●	▲								●					●						●		●	●	●	●			●						
	TCMT16T308	0.8	●	●	▲								●					●						●		●	●	●	●			●						
Medium Cutting	**TCMT16T312**	1.2		●																																		
Flat Top	**TCMW110204**	0.4													●	●	●	●																●				
	**TCMW130304**	0.4																																●				
	TCMW16T304	0.4													●	●	●	●																●				C027 E028
	TCMW16T308	0.8													●	●	●	●																●				
	TCMW16T312	1.2													●	●																						

● = NEW

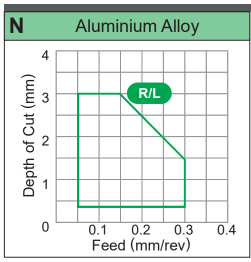
● : Inventory maintained in Japan. ▲ : Inventory maintained in Japan. To be replaced by new products.
(10 inserts in one case)

CHIP BREAKERS ➤ A060

TEGX 16 03 02 R
Size Thickness Corner Radius R/L
＊Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting---



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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●
M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤					
K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●
N	Non-ferrous Metal																																◐			●
S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✤										◐	◐	●	

Shape	Order Number	RE (mm)	Coated																							Cermet		Coated Cermet				Carbide						Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	
R/L Medium Cutting (For Aluminium Alloy)	TEGX160302R	0.2																																●				C033 E043
	TEGX160302L	0.2																																●				
	TEGX160304R	0.4																																●				
	TEGX160304L	0.4																																●				

● = NEW

CHIP BREAKERS ➢ A072
GRADES ➢ A030
IDENTIFICATION ➢ A002

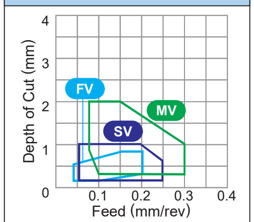
60° TP TYPE INSERTS WITH HOLE

TPMH 08 02 02- FV
Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

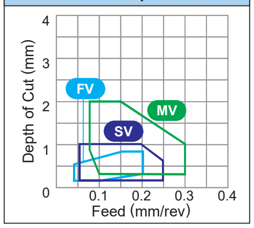
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---

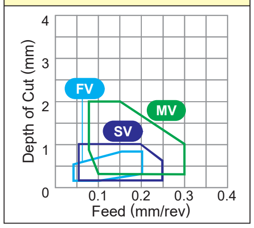
P Mild Steel



P Carbon Steel · Alloy Steel (180−280HB)



M Stainless Steel (≤200HB)



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

	Work Material	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 NEW	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●
M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤					
K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●
N	Non-ferrous Metal																																◐			●
S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✤										◐	◐	●	

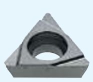
Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 NEW	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
FV	TPMH080202-FV	0.2			▲																			●		●	●	●										E007
	TPMH080204-FV	0.4			▲																			●		●	●	●										
	TPMH090202-FV	0.2			▲																			●		●	●	●										
	TPMH090204-FV	0.4			▲																			●		●	●	●										
	TPMH110302-FV	0.2			▲																			●		●	●	●										
	TPMH110304-FV	0.4			▲																			●		●	●	●										
	TPMH110308-FV	0.8			▲																			●		●	●	●										
	TPMH160302-FV	0.2			▲																			●		●	●	●										
	TPMH160304-FV	0.4			▲																			●		●	●	●										
Finish Cutting	TPMH160308-FV	0.8			▲																			●		●	●	●										
R/L-FS	TPGH080202R-FS	0.2																						●		●								●				E007
	TPGH080202L-FS	0.2																						●		●		●	●					●				
	TPGH080204R-FS	0.4																						●		●								●				
	TPGH080204L-FS	0.4																						●		●		●	●					●				
	TPGH090202R-FS	0.2																						●		●								●				
	TPGH090202L-FS	0.2																						●		●		●	●					●				
	TPGH090204R-FS	0.4																						●		●								●				
	TPGH090204L-FS	0.4																						●		●		●	●					●				
	TPGH110302R-FS	0.2																						●		●								●				
	TPGH110302L-FS	0.2																						●		●		●	●					●				
	TPGH110304R-FS	0.4																						●		●								●				
	TPGH110304L-FS	0.4																						●		●		●	●					●				
	TPGH160304R-FS	0.4																						●		●								●				
	TPGH160304L-FS	0.4																						●		●		●						●				
	TPGH160308R-FS	0.8																						●		●								●				
Finish Cutting	TPGH160308L-FS	0.8																						●		●		●						●				

● = NEW

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

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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●
M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤					
K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●
N	Non-ferrous Metal																																◐			●
S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✤										◐	◐	●	

Shape	Order Number	RE (mm)	Coated																							Cermet		Coated Cermet				Carbide						Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 NEW	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	
R/L  Finish Cutting	TPGX080202R	0.2																								●												E025
	TPGX080202L	0.2																								●						●		●				E025
	TPGX080204R	0.4																								●								●				E025
	TPGX080204L	0.4																							●	●						●		●				E025
	TPGX090202R	0.2																								●												E025
	TPGX090202L	0.2																								●						●		●				E025
	TPGX090204R	0.4																								●								●				E025
	TPGX090204L	0.4																							●	●						●		●				E025
	TPGX090208R	0.8																																●				E025
	TPGX090208L	0.8																								●								●				E025
	TPGX110302L	0.2																								●						●		●				E025
	TPGX110304R	0.4																							●	●								●				E025
	TPGX110304L	0.4																							●	●						●		●				E025
	TPGX110308R	0.8																								●								●				E025
	TPGX110308L	0.8																							●	●						●	●	●				E025
L  Finish Cutting	TPMX090204L	0.4																								●												E025
	TPMX110304L	0.4																								●												E025
SV  Light Cutting	TPMH080202-SV	0.2			▲		●					▲	●											●		●	●	●										E007
	TPMH080204-SV	0.4			▲		●					▲	●											●		●	●	●			●							E007
	TPMH090202-SV	0.2			▲		●					▲	●											●		●	●	●										E007
	TPMH090204-SV	0.4			▲		●					▲	●											●		●	●	●			●							E007
	TPMH110302-SV	0.2			▲		●					▲	●											●		●	●	●			●							E007
	TPMH110304-SV	0.4			▲		●					▲	●											●		●	●	●			●							E007
	TPMH110308-SV	0.8			▲		●					▲	●											●		●	●	●			●							E007
	TPMH160302-SV	0.2			▲		●					▲	●											●		●	●	●			●							E007
	TPMH160304-SV	0.4			▲		●					▲	●											●		●	●	●			●							E007
	TPMH160308-SV	0.8			▲		●					▲	●											●		●	●	●			●							E007
Standard  Medium Cutting	TPMX110304	0.4																								●	●	●										E025
	TPMX110308	0.8																								●	●	●										E025
MV  Medium Cutting	TPMH080202-MV	0.2			▲		●					▲	●											●		●	●	●										E007
	TPMH080204-MV	0.4			▲		●					▲	●			●								●		●	●	●	●		●							E007
	TPMH090202-MV	0.2			▲		●					▲	●											●		●	●	●										E007
	TPMH090204-MV	0.4			▲		●					▲	●			●								●		●	●	●	●		●							E007
	TPMH090208-MV	0.8			▲		●									●								●			●	●										E007
	TPMH110302-MV	0.2			▲		●					▲	●											●		●	●	●	●		●							E007
	TPMH110304-MV	0.4			▲		●					▲	●			●								●		●	●	●	●		●							E007
	TPMH110308-MV	0.8			▲		●					▲	●			●								●		●	●	●	●		●							E007
	TPMH160304-MV	0.4			▲		●					▲	●			●								●		●	●	●	●		●							E007
	TPMH160308-MV	0.8			▲		●					▲	●			●								●		●	●	●	●		●							E007

● = NEW

CHIP BREAKERS ➤ A068
GRADES ➤ A030
IDENTIFICATION ➤ A002

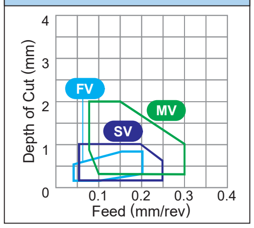
60° TP TYPE INSERTS WITH HOLE

TPGX 08 02 02
Size Thickness Corner Radius
* Please refer to page A002.

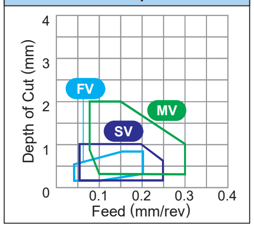
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting---FV Light Cutting---SV Medium Cutting---MV

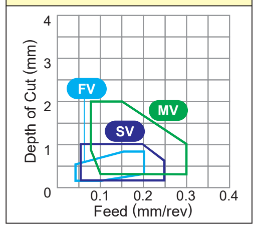
P Mild Steel



P Carbon Steel · Alloy Steel (180−280HB)



M Stainless Steel (≤200HB)



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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
Work Material	P	Steel	●	◐	✤	◐	✤	✤	●																							✤	✤	●	◐	◐	●	●	◐	✤					●	
Work Material	M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤						
Work Material	K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●	
Work Material	N	Non-ferrous Metal																																◐			●	
Work Material	S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✤										◐	◐	●		
			Coated																							Cermet		Coated Cermet				Carbide						
Flat Top	TPGX080202	0.2																														●				
Flat Top	TPGX080204	0.4																					●	●	●						●		●				
Flat Top	TPGX080208	0.8																							●						●		●				
Flat Top	TPGX090202	0.2																														●				
Flat Top	TPGX090204	0.4																						●	●						●		●				
Flat Top	TPGX090208	0.8																						●	●						●		●				E025
Flat Top	TPGX110302	0.2																														●				
Flat Top	TPGX110304	0.4																					●	●	●						●	●	●				
Flat Top	TPGX110308	0.8																						●	●						●	●	●				
Flat Top	TPGX160304	0.4																							●						●		●				
Flat Top	TPGX160308	0.8																													●		●				

● = NEW

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

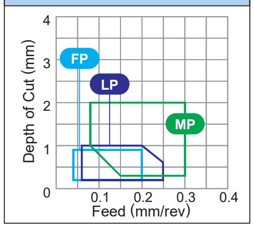
CHIP BREAKERS ➤ A068

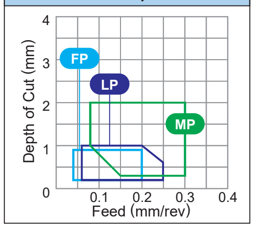
35° VB TYPE INSERTS WITH HOLE

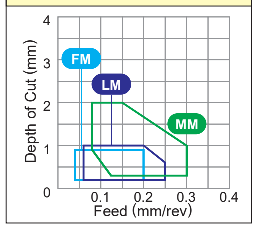
VBMT 11 03 02- FP
Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

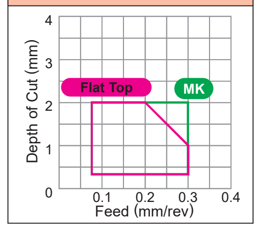
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---

P Mild Steel


P Carbon Steel • Alloy Steel (180–280HB)


M Stainless Steel (≤200HB)


K Cast Iron (≤350MPa)


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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
Work Material	P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●	
Work Material	M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤						
Work Material	K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●	
Work Material	N	Non-ferrous Metal																																◐			●	
Work Material	S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✤										◐	◐	●			
			Coated																						Cermet		Coated Cermet				Carbide						
FP  Finish Cutting	VBMT110302-FP	0.2		●		●	●																			●		●										D010
	VBMT110304-FP	0.4		●		●	●																			●		●										D011
	VBMT110308-FP	0.8		●		●	●																			●		●										E011
	VBMT160404-FP	0.4		●		●	●																			●		●										E012
	VBMT160408-FP	0.8		●		●	●																			●		●										H013
FM  Finish Cutting	VBMT110302-FM	0.2																						●														D010
	VBMT110304-FM	0.4																						●														D011
	VBMT110308-FM	0.8																						●														E011
	VBMT160404-FM	0.4																						●														E012
	VBMT160408-FM	0.8																						●														H013
FV  Finish Cutting	VBMT110304-FV	0.4			▲																			●		●	●											D010
	VBMT110308-FV	0.8			▲																			●		●	●											D011
	VBMT160404-FV	0.4			▲																			●		●	●											E011
	VBMT160408-FV	0.8			▲																			●		●	●											E012
																																						H013
R/L-F  Finish Cutting	VBGT110302R-F	0.2																						●		●		●	●					●				
	VBGT110302L-F	0.2																						●		●		●	●					●				
	VBGT110304R-F	0.4																						●		●			●					●				D010
	VBGT110304L-F	0.4																						●		●			●					●				D011
	VBGT160402R-F	0.2																						●		●			●					●				E011
	VBGT160402L-F	0.2																						●		●			●					●				E012
	VBGT160404R-F	0.4																						●		●			●					●				H013
	VBGT160404L-F	0.4																						●		●			●					●				
LP  Light Cutting	VBMT110304-LP	0.4		●		●	●																			●		●										D010
	VBMT110308-LP	0.8		●		●	●																			●		●										D011
	VBMT160404-LP	0.4		●		●	●																			●		●										E011
	VBMT160408-LP	0.8		●		●	●																			●		●										E012
																																						H013
LM  Light Cutting	VBMT110304-LM	0.4								●	●													●														D010
	VBMT110308-LM	0.8								●	●													●														D011
	VBMT160404-LM	0.4								●	●													●														E011
	VBMT160408-LM	0.8								●	●													●														E012
																																						H013

● = NEW

CHIP BREAKERS ➤ A054
GRADES ➤ A030
IDENTIFICATION ➤ A002

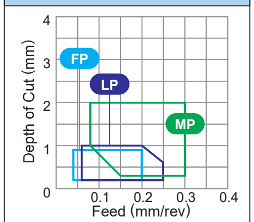
35° VB TYPE INSERTS WITH HOLE

VBMT 11 03 02- LS
Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

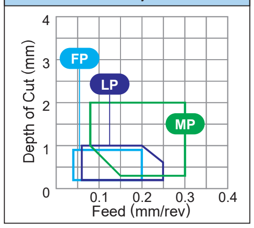
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---

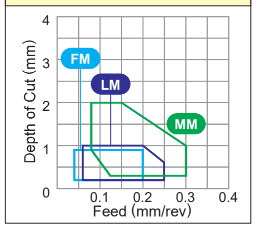
P Mild Steel



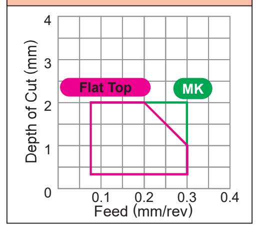
P Carbon Steel • Alloy Steel (180–280HB)



M Stainless Steel (≤200HB)



K Cast Iron (≤350MPa)



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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																					Cermet		Coated Cermet				Carbide						
Work Material	P Steel		●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●	
	M Stainless Steel									◐	✤	●	✤										◐	✤	✤	●			●	●		✤						
	K Cast Iron														●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●	
	N Non-ferrous Metal																																	◐			●	
	S Heat-resistant Alloy, Titanium Alloy													●						●	◐	●	◐	✤										◐	◐	●		
LS NEW  Light Cutting	VBMT110302-LS	0.2																		●	●															●		D010, D011, E011, E012, H013
	VBMT110304-LS	0.4																		●	●															●		
	VBMT110308-LS	0.8																		●	●															●		
	VBMT160404-LS	0.4																		●	●															●		
	VBMT160408-LS	0.8																		●	●															●		
SV  Light Cutting	VBMT110304-SV	0.4			▲																			●			●											D010, D011, E011, E012, H013
	VBMT110308-SV	0.8			▲																			●			●											
	VBMT160404-SV	0.4			▲																			●			●											
	VBMT160408-SV	0.8			▲																			●			●											
MP  Medium Cutting	VBMT160404-MP	0.4		●		●	●																			●		●										E011, H013
	VBMT160408-MP	0.8		●		●	●																			●		●										
MM  Medium Cutting	VBMT160404-MM	0.4								●	●													●														E011, H013
	VBMT160408-MM	0.8								●	●													●														
MK  Medium Cutting	VBMT160404-MK	0.4													●	●																						E011, H013
	VBMT160408-MK	0.8													●	●																						
MS NEW  Medium Cutting	VBMT160402-MS	0.2																		●	●															●		E011, H013
	VBMT160404-MS	0.4																		●	●															●		
	VBMT160408-MS	0.8																		●	●															●		
	VBMT160412-MS	1.2																		●	●															●		
Standard  Medium Cutting	VBMT160404	0.4		●																																		E011, H013
	VBMT160408	0.8		●																																		

● = NEW

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

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

			Coated																							Cermet		Coated Cermet				Carbide						
Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
Work Material	P Steel		●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●	
	M Stainless Steel									◐	✤	●	✤										◐	✤	✤	●			●	●		✤						
	K Cast Iron														●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●	
	N Non-ferrous Metal																																◐			●	
	S Heat-resistant Alloy, Titanium Alloy													●						●	◐	●	◐	✤										◐	◐	●		
MV	VBMT110304-MV	0.4			▲		●					▲	●			●								●		●	●	●	●		●							D010
	VBMT110308-MV	0.8			▲		●					▲	●			●								●		●	●	●	●		●							D011
	VBMT160404-MV	0.4			▲		●					▲	●			●								●		●	●	●	●		●							E011
	VBMT160408-MV	0.8			▲		●					▲	●			●								●		●	●	●	●		●							E012
Medium Cutting																																						H013
R/L-SR	VBET1103V3R-SR	0.03																					●		●								●				D010
	VBET1103V3L-SR	0.03																					●		●								●				D011
	VBET110301R-SR	0.1																					●		●								●				E011
	VBET110301L-SR	0.1																					●		●								●				E012
	VBET110302R-SR	0.2																					●		●								●				
	VBET110302L-SR	0.2																					●		●								●				
	VBET110304R-SR	0.4																					●		●								●				
Medium Cutting	VBET110304L-SR	0.4																					●		●								●				
R/L-SN	VBET1103V3R-SN	0.03																					●		●								●				D010
	VBET1103V3L-SN	0.03																					●		●								●				D011
	VBET110300R-SN	0																					●		●								●				E011
	VBET110300L-SN	0																					●		●								●				E012
	VBET110301R-SN	0.1																					●		●								●				
	VBET110301L-SN	0.1																					●		●								●				
	VBET110302R-SN	0.2																					●		●								●				
	VBET110302L-SN	0.2																					●		●								●				
	VBET110304R-SN	0.4																					●		●								●				
Medium Cutting	VBET110304L-SN	0.4																					●		●								●				
R/LW-SN *	VBET1103V3RW-SN	0.03																					●														D010
	VBET1103V3LW-SN	0.03																					●														D011
																																						E011
Medium Cutting (Wiper)																																						E012
Flat Top	VBMW160408	0.8													●	●																						E011
																																						H013

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

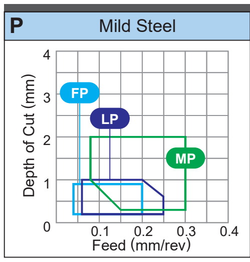
● = NEW

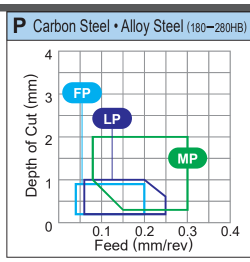
35° VC TYPE INSERTS WITH HOLE

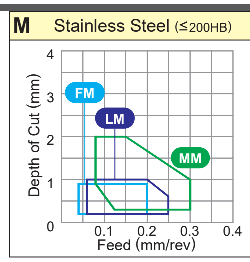
VCMT 11 03 02- FP
Size Thickness Corner Radius Chip Breaker
* Please refer to page A002.

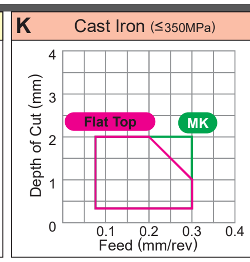
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Light Cutting--- Medium Cutting---









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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
Work Material	P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●	
	M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣						
	K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●	
	N	Non-ferrous Metal																																◐			●	
	S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✣										◐	◐	●		
FP  Finish Cutting	VCMT110302-FP	0.2		●		●	●																			●		●										C028 C029 D011 E032 E033
	VCMT110304-FP	0.4		●		●	●																			●		●										
	VCMT160404-FP	0.4		●		●	●																			●		●										
	VCMT160408-FP	0.8		●		●	●																			●		●										
FM  Finish Cutting	VCMT110302-FM	0.2																						●														C028 C029 D011 E032 E033
	VCMT110304-FM	0.4																						●														
	VCMT160404-FM	0.4																						●														
	VCMT160408-FM	0.8																						●														
FV  Finish Cutting	VCMT080202-FV	0.2			▲		●																	●		●	●	●										C028 C029 E011 E012 E032 E033
	VCMT080204-FV	0.4			▲		●																	●		●	●	●										
	VCMT160404-FV	0.4		●	▲																					●	●		●									
	VCMT160408-FV	0.8		●	▲																					●	●		●									
AZ  Medium Cutting – Finish Cutting	VCGT160404-AZ	0.4																																●				C028 C029 E032 E033
	VCGT160408-AZ	0.8																																●				
	VCGT160412-AZ	1.2																																●				
R/L-F  Finish Cutting	VCGT080202R-F	0.2																						●		●			●					●				E011 E012
	VCGT080202L-F	0.2																						●		●			●					●				
	VCGT080204R-F	0.4																						●		●			●					●				
	VCGT080204L-F	0.4																						●		●			●					●				
LP  Light Cutting	VCMT110304-LP	0.4		●		●	●																			●		●										C028 C029 D011 E032 E033
	VCMT110308-LP	0.8		●		●	●																			●		●										
	VCMT160404-LP	0.4		●		●	●																			●		●										
	VCMT160408-LP	0.8		●		●	●																			●		●										
LM  Light Cutting	VCMT110304-LM	0.4								●	●													●														C028 C029 D011 E032 E033
	VCMT110308-LM	0.8								●	●													●														
	VCMT160404-LM	0.4								●	●													●														
	VCMT160408-LM	0.8								●	●													●														

● = NEW

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

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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
Work Material	P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●	
	M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤						
	K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●	
	N	Non-ferrous Metal																																◐			●	
	S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✤										◐	◐	●		
LS NEW  Light Cutting	VCMT110302-LS	0.2																		●	●															●		C028 C029 D011 E032 E033
	VCMT110304-LS	0.4																		●	●															●		
	VCMT160404-LS	0.4																		●	●															●		
	VCMT160408-LS	0.8																		●	●															●		
LS NEW  Light Cutting	VCGT110301M-LS	0.08																		●	●																	C028 D011 E032 E033
	VCGT110302M-LS	0.18																		●	●																	
	VCGT110304M-LS	0.38																		●	●																	
	VCGT130301M-LS	0.08																		●	●																	
	VCGT130302M-LS	0.18																		●	●																	
	VCGT130304M-LS	0.38																		●	●																	
LS-P NEW  Light Cutting	VCGT110301M-LS-P	0.08																																		●		C028 D011 E032 E033
	VCGT110302M-LS-P	0.18																																		●		
	VCGT110304M-LS-P	0.38																																		●		
	VCGT130301M-LS-P	0.08																																		●		
	VCGT130302M-LS-P	0.18																																		●		
	VCGT130304M-LS-P	0.38																																		●		
SV  Light Cutting	VCMT080202-SV	0.2			▲		●																	●			●	●										E011 E012
	VCMT080204-SV	0.4			▲		●																	●			●	●										
MP  Medium Cutting	VCMT160404-MP	0.4		●		●	●																			●		●										C028 C029 E032 E033
	VCMT160408-MP	0.8		●		●	●																			●		●										
	VCMT160412-MP	1.2		●		●	●																			●		●										
MM  Medium Cutting	VCMT160404-MM	0.4								●	●													●														C028 C029 E032 E033
	VCMT160408-MM	0.8								●	●													●														
	VCMT160412-MM	1.2								●	●													●														
MK  Medium Cutting	VCMT160404-MK	0.4													●	●			●																			C028 C029 E032 E033
	VCMT160408-MK	0.8													●	●																						
MS NEW  Medium Cutting	VCMT110302-MS	0.2																		●	●																	C028 C029 D011 E032 E033
	VCMT110304-MS	0.4																		●	●															●		
	VCMT110308-MS	0.8																		●	●															●		
	VCMT160404-MS	0.4																		●	●															●		
	VCMT160408-MS	0.8																		●	●															●		

● = NEW

A

TURNING INSERTS

POSI 7°

WITH HOLE

C D R S T V W X

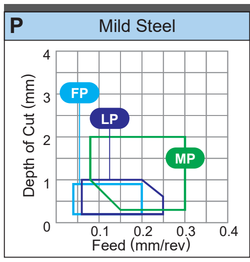
CHIP BREAKERS ➢ A060
GRADES ➢ A030
IDENTIFICATION ➢ A002

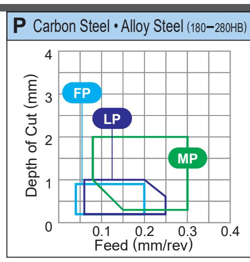
35° VC TYPE INSERTS WITH HOLE

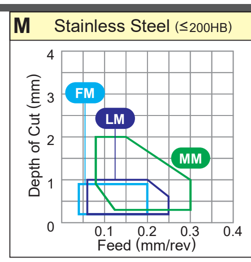
VCMT 11 03 04
Size Thickness Corner Radius
* Please refer to page A002.

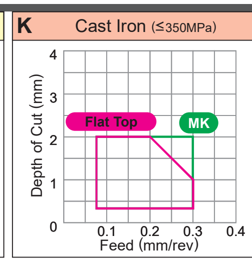
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting --- Light Cutting --- Medium Cutting ---









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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●
M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣					
K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●
N	Non-ferrous Metal																																◐			●
S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✣										◐	◐	●	

Coated: UE6105 – UP20M; Cermet: NX2525, NX3035; Coated Cermet: MP3025, AP25N; Carbide: VP25N – TF15 (as grouped in header: Coated | Cermet | Coated Cermet | Carbide). MH515: NEW

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
Standard  Medium Cutting	VCMT110304	0.4		●	▲								●											●		●	●	●	●			●		●				C028 C029 D011 E032 E033
	VCMT160404	0.4	●	●	▲								●					●						●		●	●	●	●			●		●				
	VCMT160408	0.8	●	●	▲								●					●						●		●	●	●	●			●						
	VCMT160412	1.2		●	▲								●													●	●											
MV  Medium Cutting	VCMT080202-MV	0.2			▲		●					▲	●											●		●	●	●	●		●							E011 E012
	VCMT080204-MV	0.4			▲		●					▲	●			●								●		●	●	●	●		●							
Flat Top 	VCMW110304	0.4																																●				C028 C029 E032 E033
	VCMW160404	0.4													●	●	●	●																●				
	VCMW160408	0.8													●	●	●	●	●															●				

● = NEW

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

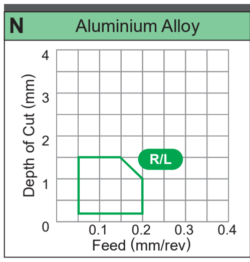
CHIP BREAKERS ➤ A060

35° VD TYPE INSERTS WITH HOLE

VDGX 16 03 02 R
Size / Thickness / Corner Radius / R/L
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting---



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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																					Cermet		Coated Cermet				Carbide						
Work Material	P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●	
	M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣						
	K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●	
	N	Non-ferrous Metal																																◐			●	
	S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✣										◐	◐	●		
R/L	VDGX160302R	0.2																																●				C034
	VDGX160302L	0.2																																●				C034
	VDGX160304R	0.4																																●				C034
Medium Cutting (For Aluminium)	VDGX160304L	0.4																																●				C034

● = NEW

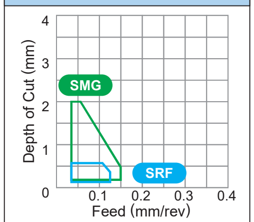
35° VP TYPE INSERTS WITH HOLE

VPGT 08 02 01 R-SRF
Size / Thickness / Corner Radius / R/L / Chip Breaker
* Please refer to page A002.

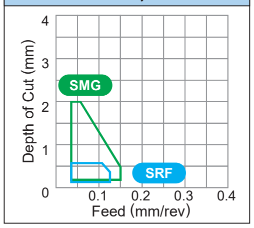
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Medium Cutting---

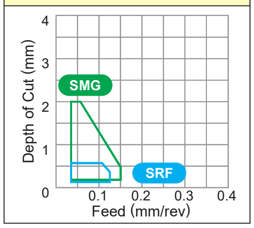
P Mild Steel



P Carbon Steel · Alloy Steel (180–280HB)



M Stainless Steel (≤200HB)



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

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
Work Material	P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●	
Work Material	M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣						
Work Material	K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●	
Work Material	N	Non-ferrous Metal																																◐			●	
Work Material	S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✣											◐	◐	●		
R/L-SRF 	VPET080201R-SRF	0.1																						●														D010 D011
	VPET080201L-SRF	0.1																						●														
	VPET080202R-SRF	0.2																						●														
	VPET080202L-SRF	0.2																						●														
	VPET1103V3R-SRF	0.03																						●														
	VPET1103V3L-SRF	0.03																						●														
	VPET110301R-SRF	0.1																						●														
	VPET110301L-SRF	0.1																						●														
	VPET110302R-SRF	0.2																						●														
Finish Cutting	VPET110302L-SRF	0.2																						●														
SMG 	VPGT080201M-SMG	0.1																						●														D010 D011
	VPGT080202M-SMG	0.2																						●														
	VPGT110301M-SMG	0.1																						●														
	VPGT110302M-SMG	0.2																						●														
Medium Cutting																																						

● = NEW

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

CHIP BREAKERS ➤ A068

80° WB TYPE INSERTS WITH HOLE

WBGT 02 01 V3 L-F
Size · Thickness · Corner Radius · R/L · Chip Breaker
* Please refer to page A002.

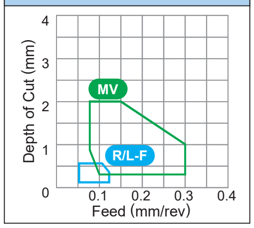
A
TURNING INSERTS

POSI 5°
WITH HOLE

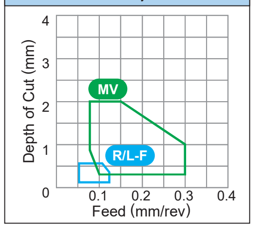
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Medium Cutting---

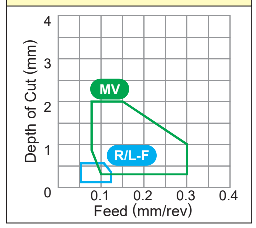
P Mild Steel



P Carbon Steel · Alloy Steel (180–280HB)

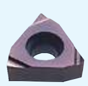


M Stainless Steel (≤200HB)



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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●
M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤					
K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●
N	Non-ferrous Metal																																◐			●
S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✤										◐	◐	●	

Shape	Order Number	RE (mm)	Coated																						Cermet		Coated Cermet				Carbide						Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	
R/L-F	WBGT0201V3L-F	0.03																						●		●												E010 E016
	WBGT020101L-F	0.1																						●		●												
	WBGT020102L-F	0.2																						●		●		●										
	WBGT020104L-F	0.4																						●		●		●										
	WBGTL302V3L-F	0.03																						●		●												
	WBGTL30201L-F	0.1																						●		●												
	WBGTL30202R-F	0.2																						●		●												
	WBGTL30202L-F	0.2																						●		●		●										
	WBGTL30204R-F	0.4																						●		●												
Finish Cutting	WBGTL30204L-F	0.4																						●		●		●										
R/L-MV	WBMTL30202R-MV	0.2			▲		●					▲												●		●	●	●			●							E010 E016
	WBMTL30202L-MV	0.2			▲		●					▲												●		●	●	●			●							
	WBMTL30204R-MV	0.4			▲		●					▲												●		●	●	●			●							
Medium Cutting	WBMTL30204L-MV	0.4			▲		●					▲												●		●	●	●			●							

● = NEW

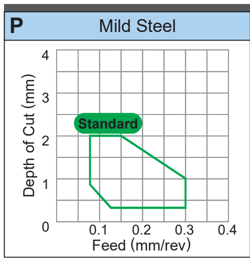
CHIP BREAKERS ➤ A054
GRADES ➤ A030
IDENTIFICATION ➤ A002

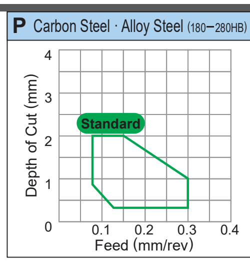
80° WC TYPE INSERTS WITH HOLE

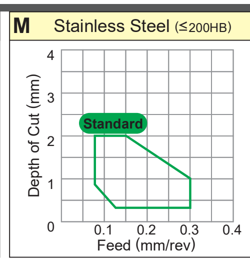
WCGT 02 01 02 R
Size · Thickness · Corner Radius · R/L
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting







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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
P	Steel	●	◐	✣	◐	✣	✣	●															✣	✣	●	◐	◐	●	●	◐	✣					●
M	Stainless Steel								◐	✣	●	✣										◐	✣	✣	●			●	●		✣					
K	Cast Iron													●	◐	●	◐	◐				◐	✣		●			●	●		✣	●	◐			●
N	Non-ferrous Metal																																◐			●
S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✣										◐	◐	●	

Coated: UE6105–UP20M; Cermet: NX2525, NX3035; Coated Cermet: MP3025, AP25N, VP25N, VP45N; Carbide: UTi20T, HTi05T, HTi10, RT9010, MT9005, TF15

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
R/L  Finish Cutting	WCGT020102R	0.2																								●												E027
	WCGT020102L	0.2																								●								●				
	WCGT020104R	0.4																								●												
	WCGT020104L	0.4																								●								●				
	WCGTL30202L	0.2																								●												
	WCGTL30204L	0.4																								●												
Standard  Medium Cutting	WCMT020102	0.2		●	▲								●													●	●	●	●			●						E027
	WCMT020104	0.4		●	▲								●													●	●	●	●			●						
	WCMTL30202	0.2		●									●													●	●	●	●			●						
	WCMTL30204	0.4		●									●													●	●	●	●			●						
	WCMT040202	0.2		●	▲								●													●	●	●	●			●						
	WCMT040204	0.4		●	▲								●													●	●	●	●			●						
	WCMT040208	0.8			▲																																	
	WCMT06T304	0.4		●	▲								●													●	●	●	●			●						
	WCMT06T308	0.8		●	▲								●													●	●	●	●			●						

● = NEW

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

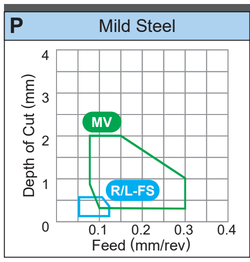
CHIP BREAKERS ➤ A060

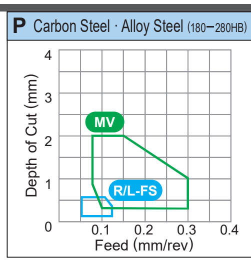
80° WP TYPE INSERTS WITH HOLE

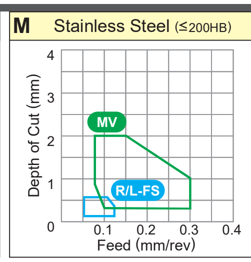
WPMT 04 02 04 R-FS
Size · Thickness · Corner Radius · R/L · Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

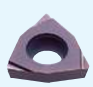
Finish Cutting--- (blue) Medium Cutting--- (green)







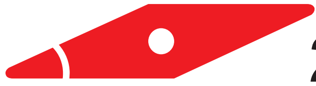
Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✤ : Unstable Cutting

Shape	Order Number	RE (mm)	Coated																							Cermet		Coated Cermet				Carbide						Applicable Holder Page
			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	
Work Material	P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●	
	M	Stainless Steel								◐	✤	●	✤											◐	✤	✤	●			●	●		✤						
	K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●	
	N	Non-ferrous Metal																																◐			●	
	S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✤										◐	◐	●		
R/L-FS	WPGT040204R-FS	0.4																						●		●												E010
	WPGT040204L-FS	0.4																						●		●												
	WPGT060304R-FS	0.4																						●		●												
Finish Cutting	WPGT060304L-FS	0.4																						●		●												
MV	WPMT040202-MV	0.2			▲		●					▲	●											●		●	●	●										E010
	WPMT040204-MV	0.4			▲		●					▲	●			●								●		●	●	●			●							
	WPMT060304-MV	0.4			▲		●					▲	●			●								●		●	●	●										
Medium Cutting	WPMT060308-MV	0.8			▲		●					▲	●			●								●		●	●	●			●							

● = NEW

A
TURNING INSERTS
POSI 11°
WITH HOLE
C D R S T V W X

CHIP BREAKERS ➤ A068
GRADES ➤ A030
IDENTIFICATION ➤ A002

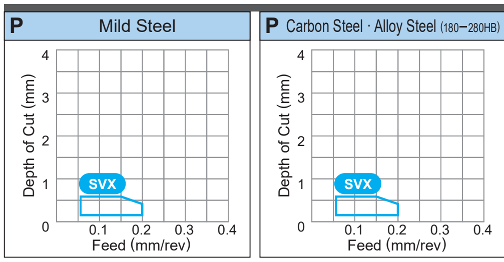


25° XC TYPE INSERTS WITH HOLE

XCMT 15 03 02- SVX
Size · Thickness · Corner Radius · Chip Breaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting---



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

			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
Work Material	P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●	
	M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤						
	K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●	
	N	Non-ferrous Metal																																◐			●	
	S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✤										◐	◐	●			
Shape	Order Number	RE (mm)																																				
SVX Finish Cutting	XCMT150302-SVX	0.2																						●														
	XCMT150304-SVX	0.4			▲																			●														
	XCMT150308-SVX	0.8			▲																			●														C030

● = NEW

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

CHIP BREAKERS ➤ A060

RTG TYPE INSERTS WITHOUT HOLE

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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●
M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤					
K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●
N	Non-ferrous Metal																																◐			●
S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✤										◐	◐	●	

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																							Cermet		Coated Cermet				Carbide						
 For Special Use (For TL Holder)	RTG05A	–																														●		●				C035
	RTG06A	–																														●		●				
	RTG07A	–																														●						
	RTG08A	–																														●		●				
	RTG10A	–																														●		●				

● = NEW

GRADES ➤ A030
IDENTIFICATION ➤ A002

90° SP TYPE INSERTS WITHOUT HOLE

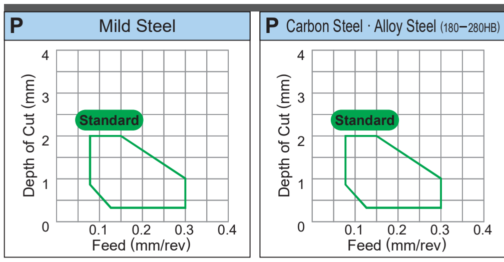
SPGR 09 03 04 R

Size · Thickness · Corner Radius · R/L

* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting---



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

			Coated																							Cermet		Coated Cermet				Carbide						
Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
Work Material	P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●	
Work Material	M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤						
Work Material	K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●	
Work Material	N	Non-ferrous Metal																																◐			●	
Work Material	S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✤										◐	◐	●		
R Finish Cutting	SPGR090304R	0.4																													●						–
Standard Medium Cutting	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																														●						
	SPMN190408	0.8																														●						
	SPMN190412	1.2																														●						
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																																●				

● = NEW

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

CHIP BREAKERS ➤ A074

60° TC TYPE INSERTS WITHOUT HOLE

TCGN 06 01 04
Size Thickness Corner Radius
* Please refer to page A002.

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

Work Material: P Steel; M Stainless Steel; K Cast Iron; N Non-ferrous Metal; S Heat-resistant Alloy, Titanium Alloy

Class	Grade	P	M	K	N	S	Flat Top TCGN060104 (RE 0.4 mm)	Flat Top TCGN090204 (RE 0.4 mm)
Coated	UE6105	●						
Coated	UE6110	◐						
Coated	UE6020	✤						
Coated	MC6015	◐						
Coated	MC6025	✤						
Coated	UH6400	✤						
Coated	MS6015	●						
Coated	MC7025		◐					
Coated	MP7035		✤					
Coated	US7020		●					
Coated	US735		✤					
Coated	US905					●		
Coated	MC5005			●				
Coated	MC5015			◐				
Coated	UC5105			●				
Coated	UC5115			◐				
Coated	MH515 (NEW)			◐				
Coated	MP9005					●		
Coated	MP9015					◐		
Coated	VP05RT					●		
Coated	VP10RT		◐	◐		◐		
Coated	VP15TF	✤	✤	✤		✤		
Coated	UP20M	✤	✤					
Cermet	NX2525	●	●	●				
Cermet	NX3035	◐						
Coated Cermet	MP3025	◐						
Coated Cermet	AP25N	●	●	●				
Coated Cermet	VP25N	●	●	●				
Coated Cermet	VP45N	◐						
Carbide	UTi20T	✤	✤	✤				
Carbide	HTi05T			●				
Carbide	HTi10			◐	◐	◐	●	●
Carbide	RT9010					◐		
Carbide	MT9005					●		
Carbide	TF15	●		●	●			

Applicable Holder Page: –

● = NEW

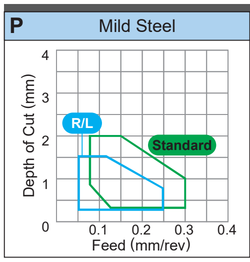
CHIP BREAKERS ➤ A074
GRADES ➤ A030
IDENTIFICATION ➤ A002

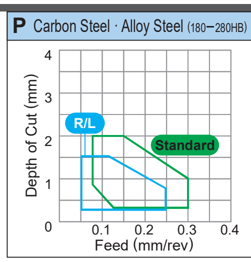
60° TP TYPE INSERTS WITHOUT HOLE

TPGR 11 03 04 R
Size · Thickness · Corner Radius · R/L
* Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

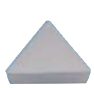
Finish Cutting--- Medium Cutting---





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

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15
P	Steel	●	◐	✤	◐	✤	✤	●															✤	✤	●	◐	◐	●	●	◐	✤					●
M	Stainless Steel								◐	✤	●	✤										◐	✤	✤	●			●	●		✤					
K	Cast Iron													●	◐	●	◐	◐				◐	✤		●			●	●		✤	●	◐			●
N	Non-ferrous Metal																																◐			●
S	Heat-resistant Alloy, Titanium Alloy											●						●	◐	●	◐	✤										◐	◐	●	

Shape	Order Number	RE (mm)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MS6015	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	MH515 (NEW)	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9010	MT9005	TF15	Applicable Holder Page
			Coated																					Cermet		Coated Cermet				Carbide						
R/L	TPGR110304R	0.4																								●								●				
	TPGR110304L	0.4																								●						●		●				
	TPGR160304R	0.4																								●						●		●				E026
	TPGR160304L	0.4																								●						●		●				
	TPGR160308R	0.8																								●												
Finish Cutting	TPGR160308L	0.8																								●						●		●				
Standard	TPMR090202	0.2																									●	●										
	TPMR090204	0.4																								●	●	●										
	TPMR090208	0.8																										●										
	TPMR110302	0.2																								●	●	●										
	TPMR110304	0.4		●	●																					●	●	●										E026
	TPMR110308	0.8		●	●																					●	●	●										
	TPMR160304	0.4		●	●																					●	●	●										
	TPMR160308	0.8		●	●																					●	●	●										
Medium Cutting	TPMR160312	1.2		●																							●	●										
Flat Top	TPMN110304	0.4		●											●	●	●	●							●	●						●		●				
	TPMN110308	0.8		●											●	●	●	●								●						●		●				
	TPMN160304	0.4		●											●	●	●	●						●	●	●						●		●				
	TPMN160308	0.8		●											●	●	●	●						●	●	●						●	●	●				
	TPMN160312	1.2		●											●	●	●	●							●									●				E026
	TPMN160320	2.0																														●						
	TPMN220404	0.4		●																												●						
	TPMN220408	0.8		●	●																			●	●							●		●				
	TPMN220412	1.2		●																				●								●		●				
Flat Top	TPGN110302	0.2																															●				
	TPGN110304	0.4																							●							●	●	●				
	TPGN110308	0.8																						●									●					
	TPGN160302	0.2																															●				
	TPGN160304	0.4																						●	●						●	●	●				
	TPGN160308	0.8																						●	●						●	●	●				E026
	TPGN160312	1.2																															●				
	TPGN160316	1.6																															●				
	TPGN160408	0.8																													●						
	TPGN220404	0.4																						●									●				
	TPGN220408	0.8																						●									●				

● = NEW

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

CHIP BREAKERS ➢ A074
GRADES ➢ A030
IDENTIFICATION ➢ A002

Memo