HOW TO READ THE STANDARD OF TURNING INSERTS

●How this section page is organized

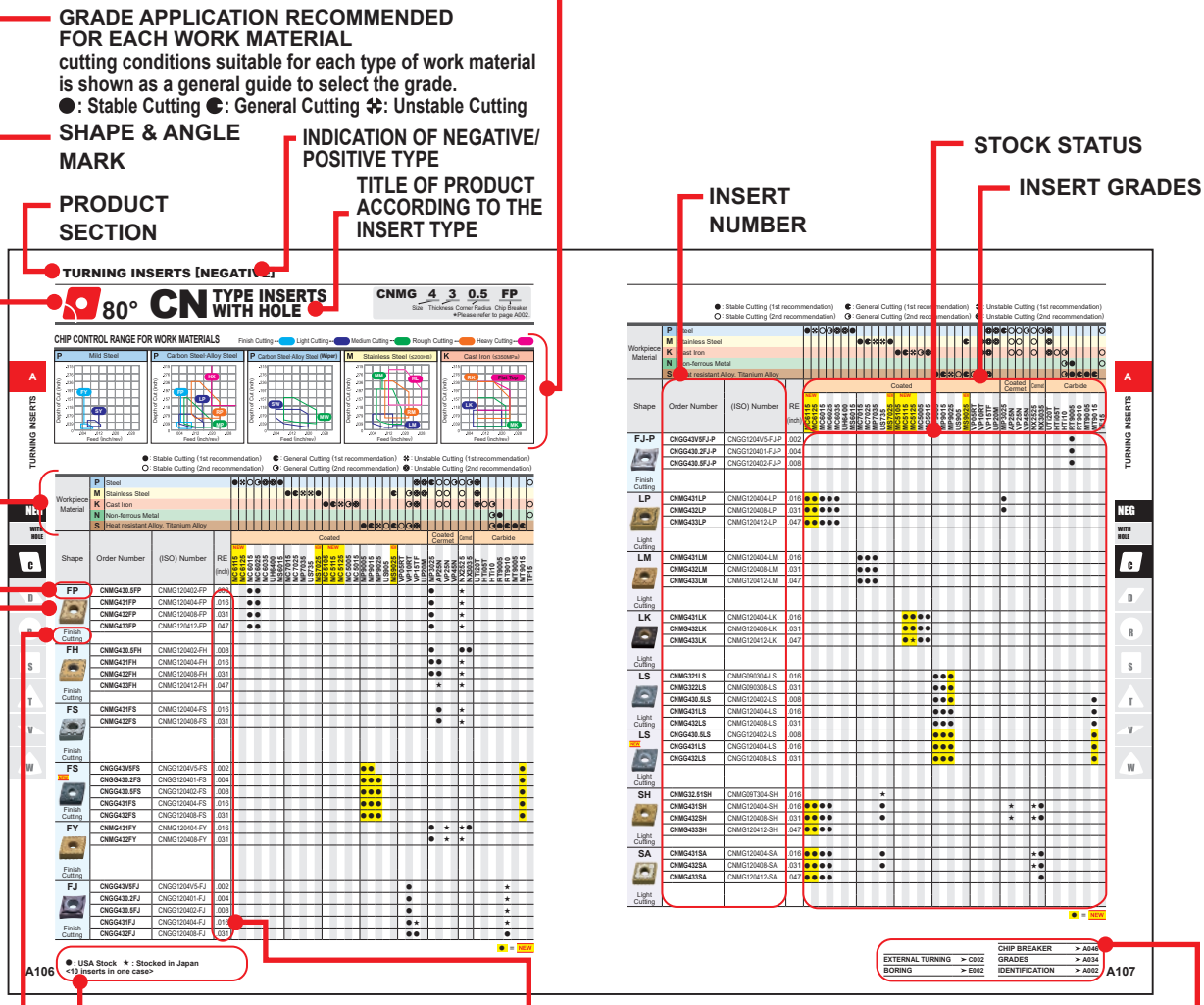
①Organized according to turning insert shape.
(Refer to the index on the next page.)
②Inserts are arranged in order of :
- Negative inserts (with hole→without hole)
- Positive inserts (with hole→without hole)

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 :



●To Order : Please specify insert number and grade.

TURNING TOOLS

INSERT STANDARDS
INSERT GRADES

IDENTIFICATION ····· A002
HOLE GEOMETRY ····· A004
PRECISION BREAKER STANDARD ····· A008
TOOL NAVI ····· A013
OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING ··· A014
PRECISION BREAKER SYSTEM ····· A030
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GRADES FOR TURNING ····· A034
TURNING APPLICATION RANGE ····· A035
COATED CARBIDE (CVD) ····· A038
COATED CARBIDE (PVD) ····· A040
CERMET ····· A041
COATED CERMET ····· A042
CEMENTED CARBIDE ····· A043
MICRO-GRAIN CEMENTED CARBIDE ····· A044
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STANDARD OF INSERTS

NEGATIVE INSERTS WITH HOLE

CN○○TYPE···RHOMBIC 80° ····· A106
DN○○TYPE···RHOMBIC 55° ····· A114
RN○○TYPE···ROUND ····· A122
SN○○TYPE···SQUARE 90° ····· A123
TN○○TYPE···TRIANGULAR 60° ····· A130
VN○○TYPE···RHOMBIC 35° ····· A138
WN○○TYPE···TRIGON 80° ····· A142

NEGATIVE INSERTS WITHOUT HOLE

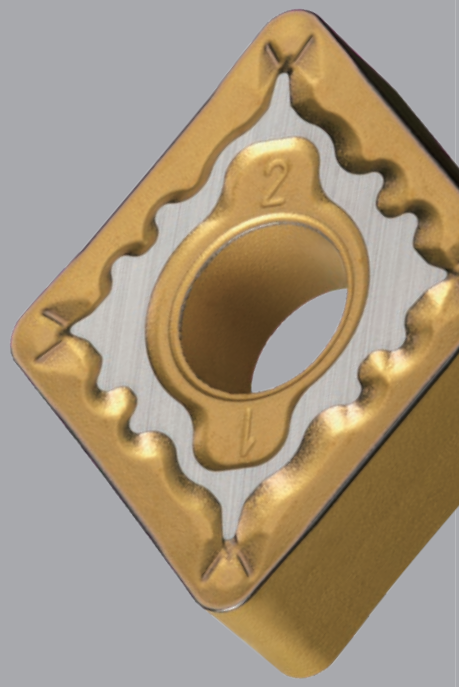
KN○○TYPE···PARALLELOGRAM 55°··· A148
CN○○TYPE···RHOMBIC 80° ····· A149
SN○○TYPE···SQUARE 90° ····· A150
TN○○TYPE···TRIANGULAR 60° ····· A151

POSITIVE INSERTS WITH HOLE

CC○○TYPE···RHOMBIC 80° ····· A152
CP○○TYPE···RHOMBIC 80° ····· A162
DC○○TYPE···RHOMBIC 55° ····· A164
DE○○TYPE···RHOMBIC 55° ····· A172
RC○○TYPE···ROUND ····· A173
SC○○TYPE···SQUARE 90° ····· A174
SP○○TYPE···SQUARE 90° ····· A176
TC○○TYPE···TRIANGULAR 60° ····· A177
TE○○TYPE···TRIANGULAR 60° ····· A181
TP○○TYPE···TRIANGULAR 60° ····· A182
VB○○TYPE···RHOMBIC 35° ····· A186
VC○○TYPE···RHOMBIC 35° ····· A190
VD○○TYPE···RHOMBIC 35° ····· A193
VP○○TYPE···RHOMBIC 35° ····· A194
WB○○TYPE···TRIGON 80° ····· A195
WC○○TYPE···TRIGON 80° ····· A196
WP○○TYPE···TRIGON 80° ····· A198
XC○○TYPE···RHOMBIC 25° ····· A199

POSITIVE INSERTS WITHOUT HOLE

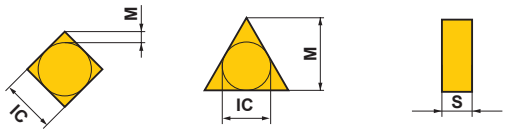
RTG TYPE ····· A200
SP○○TYPE···SQUARE 90° ····· A201
TC○○TYPE···TRIANGULAR 60° ····· A202
TP○○TYPE···TRIANGULAR 60° ····· A203



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

① Symbol for Insert Shape





Triangular insert with a facet (Secondary Cutting Edge)

③ Symbol for Tolerance Class

Symbol	Tolerance of Nose Height **M** (inch)	Tolerance of Inscribed Circle **IC** (inch)	Tolerance of Thickness **S** (inch)
A	±.0002	±.001	±.001
F	±.0002	±.0005	±.001
C	±.0005	±.001	±.001
H	±.0005	±.0005	±.001
E	±.001	±.001	±.001
G	±.001	±.001	±.005
J	±.002	±.002	±.005
K*	±.0005	±.002 – ±.006	±.001
L*	±.001	±.002 – ±.006	±.001
M*	±.003 – ±.007	±.002 – ±.006	±.005
N*	±.003 – ±.007	±.002 – ±.006	±.001
U*	±.005 – ±.015	±.003 – ±.01	±.005

*As a rule, the sides of these inserts are as sintered. Tolerance differs with insert size. For the accuracy of class M, refer to the table on the right.

Detail of M Class Insert Tolerance

●Tolerance of Nose Height **M** (inch)

I.C.	Triangular	Square	Rhombic 80°	Rhombic 55°	Rhombic 35°	Round
.250	±.003	±.003	±.003	±.004	±.0063	–
.375	±.003	±.003	±.003	±.004	±.0063	–
.500	±.005	±.005	±.005	±.006	–	–
.625	±.006	±.006	±.006	±.007	–	–
.750	±.006	±.006	±.006	±.007	–	–
1.000	–	±.007	–	–	–	–
1.250	–	±.008	–	–	–	–

●Tolerance of Inscribed Circle **IC** (inch)

I.C.	Triangular	Square	Rhombic 80°	Rhombic 55°	Rhombic 35°	Round
.250	±.002	±.002	±.002	±.002	±.002	–
.375	±.002	±.002	±.002	±.002	±.002	±.002
.500	±.003	±.003	±.003	±.003	–	±.003
.625	±.004	±.004	±.004	±.004	–	±.004
.750	±.004	±.004	±.004	±.004	–	±.004
1.000	–	±.005	–	–	–	±.005
1.250	–	±.006	–	–	–	±.006

③ Symbol for Tolerance Class

	①		③	
INCH	T	N	M	G
METRIC	T	N	M	G
		②		④

② Symbol for Relief Angle

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

Major Relief Angle

④ Symbol for Chipbreaker and Clamping System

Inch			Metric									
Figure	I.C. .250" and over	I.C. under .250"	Symbol	Hole	Hole Configuration	Chip Breaker	Figure	Symbol	Hole	Hole Configuration	Chip Breaker	Figure
	A	D	W	With Hole	Cylindrical Hole + One Countersink (40—60°)	No		A	With Hole	Cylindrical Hole	No	
	M	P	T	With Hole		One Sided		M	With Hole	Cylindrical Hole	One Sided	
	G	K	Q	With Hole	Cylindrical Hole + Double Countersink (40—60°)	No		G	With Hole	Cylindrical Hole	Double Sided	
	N	E	U	With Hole		Double Sided		N	Without Hole	–	No	
	R	S	B	With Hole	Cylindrical Hole + One Countersink (70—90°)	No		R	Without Hole	–	One Sided	
	F	L	H	With Hole		One Sided		F	Without Hole	–	Double Sided	
Special Design	X	X	C	With Hole	Cylindrical Hole + Double Countersink (70—90°)	No		X	–	–	–	Special Design
			J	With Hole		Double Sided						

Inch		Diameter of Inscribed Circle (inch)	Metric						
I.C. .250" and over	I.C. under .250"		R	W	V	D	C	S	T
	1.2	.156		02		04	03	03	06
	1.5	.187		L3	08	05	04	04	08
	1.8	.219		03	09	06	05	05	09
2		.250		04	11	07	06	06	11
2.5		.313		05	13	09	08	07	13
3		.375	09	06	16	11	09	09	16
4		.500	12	08	22	15	12	12	22
5		.625		10		19	16	15	27
6		.750	19	13		23	19	19	33
7		.875				27	22	22	38
8		1.000	25			31	25	25	44
10		1.250	31			38	32	31	54
		6.00mm	06						
		8.00mm	08						
		10.00mm	10						
		12.00mm	12						
		16.00mm	16						
		20.00mm	20						
		25.00mm	25						
		32.00mm	32						

⑤ Symbol for Insert Size



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

Inch		Thickness (inch)	Metric
I.C. .250" and over	I.C. under .250"		
–	0.9	.055	S1
–	1	.063	01
–	1.1	.070	T0
–	1.2	.078	T1
–	1.5	.094	02
–	1.8	.109	T2
2	–	.125	03
2.5	–	.156	T3
3	–	.187	04
3.5	–	.219	05
4	–	.25	06
5	–	.313	07
6	–	.375	09

⑥ Symbol for Insert Thickness

⑤	⑥	⑦	⑧	⑨	⑩
4	3	2	(E)	(N)	- MP
22	04	08	(E)	(N)	- MP

⑦ Symbol for Insert Corner Configuration

Inch	Corner Radius (inch)	Metric
V0	Sharp Nose	00
V3	.0012	V3
V5	.002	V5
0.2	.004	01
0.5	.008	02
1	.016	04
2	.031	08
3	.047	12
4	.063	16
5	.079	20
6	.094	24
7	.110	28
8	.126	32
00	Round Insert	M0

⑧ Symbol for Cutting Edge Condition

Figure	Cutting Edge	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 Symbol for Cutting Direction

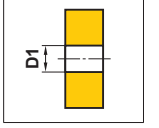
Figure	Hand	Symbol
	Right	R
	Left	L
	Neutral	N

⑩ Symbol for Chip Breaker

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

HOLE GEOMETRY

Type A



NEGATIVE

Insert Number		(ISO) Number		Dimension (inch)	Hole Type
				D1	
CNGA CNGG CNMA CNMG CNMM CNMP	32◌	CNGA CNGG CNMA CNMG CNMM CNMP	0903◌◌	.150	A
	32.5◌		09T3◌◌	.150	A
	33◌		0904◌◌	.150	A
	43◌		1204◌◌	.203	A
	54◌		1606◌◌	.250	A
	64◌		1906◌◌	.312	A
	86◌		2509◌◌	.359	A
DNGA DNGG DNGM DNMA DNMG DNMM DNMX	33◌	DNGA DNGG DNGM DNMA DNMG DNMM DNMX	1104◌◌	.150	A
	43◌		1504◌◌	.203	A
	44◌		1506◌◌	.203	A
SNGA SNGG SNMA SNMG SNMM	32◌	SNGA SNGG SNMA SNMG SNMM	0903◌◌	.150	A
	43◌		1204◌◌	.203	A
	54◌		1506◌◌	.250	A
	64◌		1906◌◌	.312	A
	85◌		2507◌◌	.359	A
	86◌		2509◌◌	.359	A
TNGA TNGG TNMA TNMG TNMM TNMX	22◌	TNGA TNGG TNMA TNMG TNMM TNMX	1103◌◌	.089	A
	32◌		1603◌◌	.150	A
	33◌		1604◌◌	.150	A
	43◌		2204◌◌	.203	A
	54◌		2706◌◌	.250	A
	66◌		3309◌◌	.312	A
VNGA VNGG VNGM VNMG VNMM	33◌	VNGA VNGG VNGM VNMG VNMM	1604◌◌	.150	A
WNMA WNMG	32◌	WNMA WNMG	0603◌◌	.150	A
	32.5◌		06T3◌◌	.150	A
	33◌		0604◌◌	.150	A
	43◌		0804◌◌	.203	A
	54◌		1006◌◌	.250	A
RNMG	43	RNMG	120400	.203	A

Type B	Type C	Type D
		

POSITIVE

Insert Number		(ISO) Number		Dimension (inch)	Hole Type
				D1	
CCET CCGT CCGW	21.5○	CCET CCGT CCGW	0602○○	.110	B
	32.5○		09T3○○	.173	B
	43○		1204○○	.217	B
CCGH CCMH	21.5○	CCGH CCMH	0602○○	.110	B
CCGT	03S1○○	CCGT	03S1○○	.079	B
	04T0○○		04T0○○	.094	B
CCMT	21.5○	CCMT	0602○○	.110	B
	2.52○		0803○○	.134	B
	32.5○		09T3○○	.173	B
	43○		1204○○	.217	B
CCMW	21.5○	CCMW	0602○○	.110	B
	32.5○		09T3○○	.173	B
	43○		1204○○	.217	B
CPGT	2.51.5○	CPGT	0802○○	.134	B
	32○		0903○○	.173	B
CPMH	2.51.5○	CPMH	0802○○	.138	D
	32○		0903○○	.177	D
CPMT	21.5○	CPMT	0602○○	.110	B
	32.5○		09T3○○	.173	B
CPMX	2.51.5○	CPMX	0802○○	.138	D
	32○		0903○○	.181	D
DCET DCGT DCGW	21.5○	DCET DCGT DCGW	0702○○	.110	B
	32.5○		11T3○○	.173	B
DCMT DCMW	21.5○	DCMT DCMW	0702○○	.110	B
	32.5○		11T3○○	.173	B
	43○		1504○○	.217	B
DEGX	43○	DEGX	1504○○	.201	C
RCMX	1003M0	RCMX	1003M0	.142	D
	1204M0		1204M0	.165	D
	1606M0		1606M0	.205	D
	2006M0		2006M0	.256	D
	2507M0		2507M0	.283	D
	3209M0		3209M0	.374	D

HOLE GEOMETRY

Type B	Type C	Type D
		

POSITIVE

Insert Number		(ISO) Number		Dimension (inch)	Hole Type
				D1	
RCMX	1606M0-○○	RCMX	1606M0-○○	.205	D
	2006M0-○○		2006M0-○○	.256	D
	2507M0-○○		2507M0-○○	.283	D
	3209M0-○○		3209M0-○○	.374	D
RCGT RCMT	0602M0	RCGT RCMT	0602M0	.110	B
	0803M0		0803M0	.134	B
	10T3M0		10T3M0	.173	B
SCMT SCMW	32.5○	SCMT SCMW	09T3○○	.173	B
	43○		1204○○	.217	B
SPGX	32○	SPGX	0903○○	.189	C
	42○		1203○○	.232	C
SPMT	32○	SPMT	0903○○	.173	B
	42○		1203○○	.217	B
SPMW	32○	SPMW	0903○○	.181	B
	42○		1203○○	.224	B
TCGT	1.21○	TCGT	0601○○	.091	B
	21.5○		1102○○	.110	B
	32.5○		16T3○○	.173	B
TCMT	1.51.5○	TCMT	0802○○	.091	B
	1.81.5○		0902○○	.098	B
	21.5○		1102○○	.110	B
	2.52○		1303○○	.134	B
	32.5○		16T3○○	.173	B
TCMW	21.5○	TCMW	1102○○	.110	B
	2.52○		1303○○	.134	B
	32.5○		16T3○○	.173	B
TEGX	32○	TEGX	1603○○	.169	D
TPGH	1.51.5○	TPGH	0802○○	.094	D
	1.81.5○		0902○○	.114	D
	22○		1103○○	.134	D
	32○		1603○○	.173	D
TPGX	1.51.5○	TPGX	0802○○	.098	C
	1.81.5○		0902○○	.118	C
	22○		1103○○	.138	C
	32○		1603○○	.189	D

Type B	Type C	Type D
		

POSITIVE

Insert Number		(ISO) Number		Dimension (inch)	Hole Type
				D1	
TPMH	1.51.5○	TPMH	0802○○	.098	D
	1.81.5○		0902○○	.114	D
	22○		1103○○	.134	D
	32○		1603○○	.173	B
TPMT	1.81.5○	TPMT	0902○○	.098	B
	21.5○		1102○○	.110	B
	32.5○		16T3○○	.173	B
TPMX	1.81.5○L	TPMX	0902○○L	.126	C
	22○L		1103○○L	.146	C
	22○		1103○○	.138	C
VBET	22○	VBET	1103○○	.115	B
VBGT	22○	VBGT	1103○○	.115	B
	33○		1604○○	.178	B
VBMT	22○	VBMT	1103○○	.115	B
	33○		1604○○	.173	B
VCGT	1.51.5○	VCGT	0802○○	.097	B
	22○		1103○○	.115	B
	2.520○		1303○○	.134	B
	33○		1604○○	.173	B
VCMT	1.51.5○	VCMT	0802○○	.097	B
	22○		1103○○	.110	B
	33○		1604○○	.173	B
VCMW	22○	VCMW	1103○○	.110	B
	33○		1604○○	.173	B
VDGX	32○	VDGX	1603○○	.177	D
WBGT	1.21○○	WBGT	0201○○	.091	B
	1.51.5○○		L302○○	.091	B
WCGT	1.21○○	WCGT	0201○○	.091	B
	1.51.5○○		L302○○	.091	B
	21.5○		0402○○	.110	B
	32.5○		06T3○○	.173	B
WCMT	1.21○○	WCMT	0201○○	.091	B
	1.51.5○○		L302○○	.091	B
	21.5○○		0402○○	.110	B
	32.5○○		06T3○○	.173	B
WPGT **WPMT**	21.5○	WPGT WPMT	0402○○	.110	B
	32○		0603○○	.173	B
XCMT	22○	XCMT	1503○○	.110	B

PRECISION BREAKER STANDARD

STANDARD FOR LEFT AND RIGHT HAND INSERTS

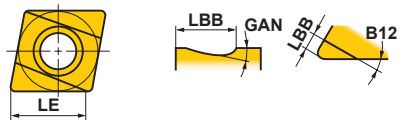
● NEGATIVE INSERTS

Unit : inch

Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 Right hand insert shown.	**DNGG431R/L**	DNGG150404R/L	.110	.587	15°	–
	DNGG432R/L	DNGG150408R/L	.110	.563	15°	–
	DNGG441R/L	DNGG150604R/L	.110	.587	15°	–
	DNGG442R/L	DNGG150608R/L	.110	.563	15°	–
 Right hand insert shown.	**SNGG321R/L**	SNGG090304R/L	.071	.063	15°	–
	SNGG322R/L	SNGG090308R/L	.071	.063	15°	–
	SNGG431R/L	SNGG120404R/L	.091	.146	15°	–
	SNGG432R/L	SNGG120408R/L	.091	.146	15°	–
 Right hand insert shown.	**TNGG220.5R/L**	TNGG110302R/L	.051	.126	15°	–
	TNGG221R/L	TNGG110304R/L	.051	.118	15°	–
	TNGG222R/L	TNGG110308R/L	.051	.106	15°	–
	TNGG321R/L	TNGG160304R/L	.091	.213	15°	–
	TNGG330.5R/L	TNGG160402R/L	.051	.343	15°	–
	TNGG331R/L	TNGG160404R/L	.091	.213	15°	–
	TNGG332R/L	TNGG160408R/L	.091	.201	15°	–
	TNGG431R/L	TNGG220404R/L	.110	.370	15°	–
	TNGG432R/L	TNGG220408R/L	.110	.358	15°	–

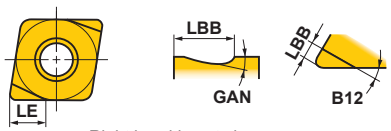
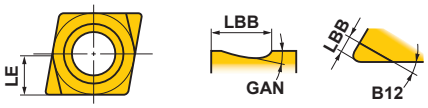
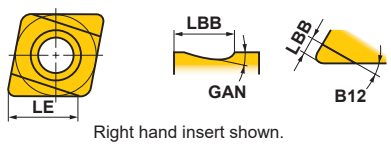
● POSITIVE INSERTS

Unit : inch

Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 Right hand insert shown.	**CCET21.5V3R/LSR**	CCET0602V3R/L-SR	.087	.252	30°	20°
	CCET21.50.2R/LSR	CCET060201R/L-SR	.087	.248	30°	20°
	CCET21.50.5R/LSR	CCET060202R/L-SR	.087	.244	30°	20°
	CCET21.51R/LSR	CCET060204R/L-SR	.087	.236	30°	20°
	CCET32.5V3R/LSR	CCET09T3V3R/L-SR	.126	.378	30°	20°
	CCET32.50.2R/LSR	CCET09T301R/L-SR	.126	.374	30°	20°
	CCET32.50.5R/LSR	CCET09T302R/L-SR	.126	.370	30°	20°
	CCET32.51R/LSR	CCET09T304R/L-SR	.126	.362	30°	20°
 Right hand insert shown.	**CCET21.5V0R/LSN**	CCET060200R/L-SN	.039	.252	20°	–
	CCET21.5V3R/LSN	CCET0602V3R/L-SN	.039	.252	20°	–
	CCET21.50.2R/LSN	CCET060201R/L-SN	.039	.248	20°	–
	CCET21.50.5R/LSN	CCET060202R/L-SN	.039	.244	20°	–
	CCET21.51R/LSN	CCET060204R/L-SN	.039	.236	20°	–
	CCET32.5V0R/LSN	CCET09T300R/L-SN	.059	.378	20°	–
	CCET32.5V3R/LSN	CCET09T3V3R/L-SN	.059	.378	20°	–
	CCET32.50.2R/LSN	CCET09T301R/L-SN	.059	.374	20°	–
	CCET32.50.5R/LSN	CCET09T302R/L-SN	.059	.370	20°	–
	CCET32.51R/LSN	CCET09T304R/L-SN	.059	.362	20°	–

● POSITIVE INSERTS

Unit : inch

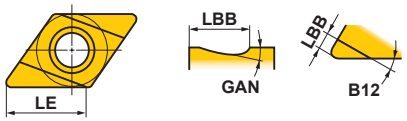
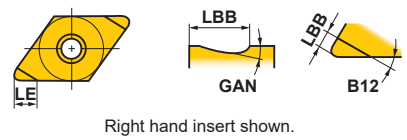
Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 Right hand insert shown.	**CCET21.5V3R/LWSN**	CCET0602V3R/LW-SN	.039	.252	20°	–
	CCET32.5V3R/LWSN	CCET09T3V3R/LW-SN	.059	.378	20°	–
 Right hand insert shown.	**CCGH21.50.5(M)R/LF**	CCGH060202(M)R/L-F	.047	.142	15°	20°
	CCGH21.51(M)R/LF	CCGH060204(M)R/L-F	.055	.173	15°	20°
 Right hand insert shown.	**CCGT21.5V3RSN**	CCGT0602V3R-SN	.039	.118	20°	–
	CCGT21.50.2(M)R/LSN	CCGT060201(M)R/L-SN	.039	.118	20°	–
	CCGT21.50.5(M)R/LSN	CCGT060202(M)R/L-SN	.039	.118	20°	–
	CCGT32.5V3R/LSN	CCGT09T3V3R/L-SN	.059	.197	20°	–
	CCGT32.50.2(M)R/LSN	CCGT09T301(M)R/L-SN	.059	.197	20°	–
	CCGT32.50.5(M)R/LSN	CCGT09T302(M)R/L-SN	.059	.197	20°	–
	CCGT32.51(M)R/LSN	CCGT09T304(M)R/L-SN	.059	.197	20°	–
 Left hand insert only.	**CCGT03S1V3L-F**	CCGT03S1V3L-F	.031	.055	17°	35°
	CCGT03S101(M)R/L-F	CCGT03S101(M)R/L-F	.031	.055	17°	35°
	CCGT03S102(M)R/L-F	CCGT03S102(M)R/L-F	.031	.059	17°	35°
	CCGT03S104(M)R/L-F	CCGT03S104(M)R/L-F	.031	.063	17°	35°
	CCGT04T0V3L-F	CCGT04T0V3L-F	.039	.067	17°	35°
	CCGT04T001(M)R/L-F	CCGT04T001(M)R/L-F	.039	.071	17°	35°
	CCGT04T002(M)R/L-F	CCGT04T002(M)R/L-F	.039	.071	17°	35°
	CCGT04T004(M)R/L-F	CCGT04T004(M)R/L-F	.039	.079	17°	35°
 Right hand insert shown.	**CCGT21.5V3R/LSS**	CCGT0602V3R/L-SS	.039	.118	14°	–
	CCGT21.50.2(M)R/LSS	CCGT060201(M)R/L-SS	.039	.118	14°	–
	CCGT21.50.5(M)R/LSS	CCGT060202(M)R/L-SS	.039	.118	14°	–
	CCGT32.5V3R/LSS	CCGT09T3V3R/L-SS	.039	.197	14°	–
	CCGT32.50.2(M)R/LSS	CCGT09T301(M)R/L-SS	.039	.197	14°	–
	CCGT32.50.5(M)R/LSS	CCGT09T302(M)R/L-SS	.039	.197	14°	–
	CCGT32.51MR/L-SS	CCGT09T304MR/L-SS	.039	.197	14°	–
 Right hand insert shown.	**CPGT2.51.51R/LF**	CPGT080204R/L-F	.071	.217	15°	20°
	CPGT320.5R/LF	CPGT090302R/L-F	.071	.213	15°	20°
	CPGT321R/LF	CPGT090304R/L-F	.071	.217	15°	20°

PRECISION BREAKER STANDARD

STANDARD FOR LEFT AND RIGHT HAND INSERTS

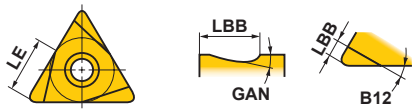
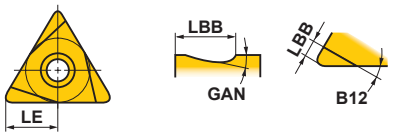
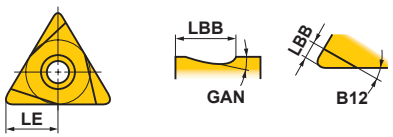
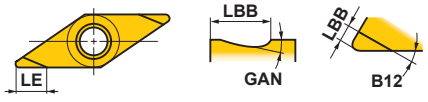
● POSITIVE INSERTS

Unit : inch

Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 Right hand insert shown.	**DCET21.5V3R/LSR**	DCET0702V3R/L-SR	.098	.303	30°	20°
	DCET21.50.2R/LSR	DCET070201R/L-SR	.098	.299	30°	20°
	DCET21.50.5R/LSR	DCET070202R/L-SR	.098	.291	30°	20°
	DCET21.51R/LSR	DCET070204R/L-SR	.098	.280	30°	20°
	DCET32.5V3R/LSR	DCET11T3V3R/L-SR	.146	.457	30°	20°
	DCET32.50.2R/LSR	DCET11T301R/L-SR	.146	.449	30°	20°
	DCET32.50.5R/LSR	DCET11T302R/L-SR	.146	.445	30°	20°
	DCET32.51R/LSR	DCET11T304R/L-SR	.146	.433	30°	20°
 Right hand insert shown.	**DCET21.5V0R/LSN**	DCET070200R/L-SN	.039	.303	20°	–
	DCET21.5V3R/LSN	DCET0702V3R/L-SN	.039	.303	20°	–
	DCET21.50.2R/LSN	DCET070201R/L-SN	.039	.299	20°	–
	DCET21.50.5R/LSN	DCET070202R/L-SN	.039	.291	20°	–
	DCET21.51R/LSN	DCET070204R/L-SN	.039	.280	20°	–
	DCET32.5V0R/LSN	DCET11T300R/L-SN	.059	.457	20°	–
	DCET32.5V3R/LSN	DCET11T3V3R/L-SN	.059	.457	20°	–
	DCET32.50.2R/LSN	DCET11T301R/L-SN	.059	.449	20°	–
	DCET32.50.5R/LSN	DCET11T302R/L-SN	.059	.445	20°	–
	DCET32.51R/LSN	DCET11T304RL-SN	.059	.433	20°	–
 Right hand insert shown.	**DCET21.5V3R/LWSN**	DCET0702V3R/LW-SN	.039	.303	20°	–
	DCET32.5V3R/LWSN	DCET11T3V3R/LW-SN	.059	.457	20°	–
 Right hand insert shown.	**DCGT21.5V3RSN**	DCGT0702V3R-SN	.039	.138	20°	–
	DCGT21.50.2(M)R/LSN	DCGT070201(M)R/L-SN	.039	.138	20°	–
	DCGT21.50.5(M)R/LSN	DCGT070202(M)R/L-SN	.039	.138	20°	–
	DCGT32.5V3R/LSN	DCGT11T3V3R/L-SN	.059	.256	20°	–
	DCGT32.50.2(M)R/LSN	DCGT11T301(M)R/L-SN	.059	.256	20°	–
	DCGT32.50.5(M)R/LSN	DCGT11T302(M)R/L-SN	.059	.256	20°	–
	DCGT32.51(M)R/LSN	DCGT11T304(M)R/L-SN	.059	.256	20°	–
 Right hand insert shown.	**DCGT21.50.5R/LF**	DCGT070202R/L-F	.039	.118	17°	20°
	DCGT21.51R/LF	DCGT070204R/L-F	.039	.126	17°	20°
	DCGT32.50.5R/LF	DCGT11T302R/L-F	.039	.118	14°	20°
	DCGT32.51R/LF	DCGT11T304R/L-F	.039	.126	14°	20°
 Right hand insert shown.	**DCGT21.5V3R/LSS**	DCGT0702V3R/L-SS	.039	.138	14°	–
	DCGT21.50.2R/LSS	DCGT070201R/L-SS	.039	.138	14°	–
	DCGT21.50.5(M)R/LSS	DCGT070202(M)R/L-SS	.039	.138	14°	–
	DCGT32.5V3RSS	DCGT11T3V3R-SS	.039	.256	14°	–
	DCGT32.50.2(M)R/LSS	DCGT11T301(M)R/L-SS	.039	.256	14°	–
	DCGT32.50.5(M)R/LSS	DCGT11T302(M)R/L-SS	.039	.256	14°	–
	DCGT32.51MR/LSS	DCGT11T304MR/L-SS	.039	.256	14°	–

● POSITIVE INSERTS

Unit : inch

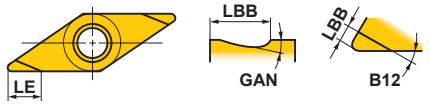
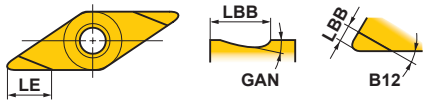
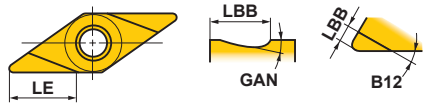
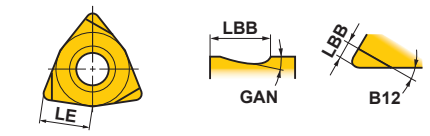
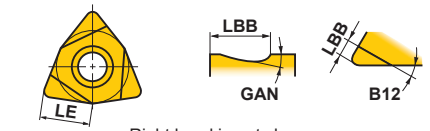
Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 Right hand insert shown.	**DEGX430.5R/L**	DEGX150402R/L	.110	.598	20°	–
	DEGX431R/L	DEGX150404R/L	.110	.587	20°	–
	DEGX432R/L	DEGX150408R/L	.110	.576	20°	–
 Left hand insert only.	**TCGT1.21V3LF**	TCGT0601V3L-F	.039	.114	14°	20°
	TCGT1.210.2LF	TCGT060101L-F	.039	.118	14°	20°
	TCGT1.210.5R/LF	TCGT060102R/L-F	.039	.118	14°	20°
	TCGT1.211R/LF	TCGT060104R/L-F	.039	.126	14°	20°
 Right hand insert shown.	**TEGX320.5R/L**	TEGX160302R/L	.079	.236	20°	–
	TEGX321R/L	TEGX160304R/L	.079	.236	20°	–
 Right hand insert shown.	**TPGH1.51.50.5R/LFS**	TPGH080202R/L-FS	.035	.106	15°	20°
	TPGH1.51.51R/LFS	TPGH080204R/L-FS	.035	.114	15°	20°
	TPGH1.81.50.5R/LFS	TPGH090202R/L-FS	.039	.118	15°	20°
	TPGH1.81.51R/LFS	TPGH090204R/L-FS	.039	.126	15°	20°
	TPGH220.5R/LFS	TPGH110302R/L-FS	.055	.165	15°	20°
	TPGH221R/LFS	TPGH110304R/L-FS	.055	.173	15°	20°
	TPGH321R/LFS	TPGH160304R/L-FS	.079	.240	14°	20°
	TPGH322R/LFS	TPGH160308R/L-FS	.079	.256	14°	20°
 Right hand insert shown.	**TPGX1.51.50.5R/L**	TPGX080202R/L	.051	.154	10°	20°
	TPGX1.51.51R/L	TPGX080204R/L	.051	.161	10°	20°
	TPGX1.81.50.5R/L	TPGX090202R/L	.063	.189	10°	20°
	TPGX1.81.51R/L	TPGX090204R/L	.063	.197	10°	20°
	TPGX1.81.52R/L	TPGX090208R/L	.055	.185	10°	20°
	TPGX220.5L	TPGX110302L	.071	.213	10°	20°
	TPGX221R/L	TPGX110304R/L	.071	.217	10°	20°
	TPGX222R/L	TPGX110308R/L	.071	.232	10°	20°
 Right hand insert shown.	**VCGT1.51.50.5R/LF**	VCGT080202R/L-F	.031	.098	13°	20°
	VCGT1.51.51R/LF	VCGT080204R/L-F	.031	.102	13°	20°

PRECISION BREAKER STANDARD

STANDARD FOR LEFT AND RIGHT HAND INSERTS

● POSITIVE INSERTS

Unit : inch

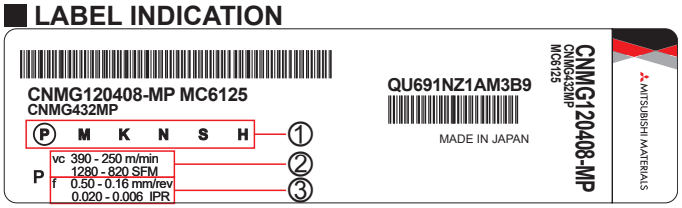
Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 Right hand insert shown.	**VDGX320.5R/L**	VDGX160302R/L	.079	.236	25°	20°
	VDGX321R/L	VDGX160304R/L	.079	.240	25°	20°
 Right hand insert shown.	**VBGT220.5R/LF**	VBGT110302R/L-F	.039	.118	13°	20°
	VBGT221R/LF	VBGT110304R/L-F	.039	.126	13°	20°
	VBGT330.5R/LF	VBGT160402R/L-F	.059	.177	13°	20°
	VBGT331R/LF	VBGT160404R/L-F	.059	.185	13°	20°
 Right hand insert shown.	**VBET22V3R/LSR**	VBET1103V3R/L-SR	.098	.287	30°	20°
	VBET220.2R/LSR	VBET110301R/L-SR	.098	.287	30°	20°
	VBET220.5R/LSR	VBET110302R/L-SR	.098	.291	30°	20°
	VBET221R/LSR	VBET110304R/L-SR	.098	.299	30°	20°
 Right hand insert shown.	**VBET22V0R/LSN**	VBET110300R/L-SN	.039	.433	20°	—
	VBET22V3R/LSN	VBET1103V3R/L-SN	.039	.433	20°	—
	VBET220.2R/LSN	VBET110301R/L-SN	.039	.425	20°	—
	VBET220.5R/LSN	VBET110302R/L-SN	.039	.413	20°	—
	VBET221R/LSN	VBET110304R/L-SN	.039	.433	20°	—
 Right hand insert shown.	**VBET22V3R/LWSN**	VBET1103V3R/LW-SN	.039	.433	20°	—
 Left hand insert shown.	**WBGT1.21V3LF**	WBGT0201V3L-F	.039	.079	13°	30°
	WBGT1.210.2LF	WBGT020101L-F	.039	.079	13°	30°
	WBGT1.210.5LF	WBGT020102L-F	.039	.083	13°	30°
	WBGT1.211LF	WBGT020104L-F	.039	.087	13°	30°
	WBGT1.51.5V3LF	WBGTL302V3L-F	.039	.079	13°	30°
	WBGT1.51.50.2LF	WBGTL30201L-F	.039	.079	13°	30°
	WBGT1.51.50.5R/LF	WBGTL30202R/L-F	.039	.083	13°	30°
	WBGT1.51.51R/LF	WBGTL30204R/L-F	.039	.087	13°	30°
 Right hand insert shown.	**WCGT1.210.5R/L**	WCGT020102R/L	.039	.083	15°	30°
	WCGT1.211R/L	WCGT020104R/L	.039	.087	15°	30°
	WCGT1.51.50.5L	WCGTL30202L	.039	.083	15°	30°
	WCGT1.51.51L	WCGTL30204L	.039	.087	15°	30°

TOOL NAVI

OUTLINE

TOOL NAVI supports our customers with information and supplies suitable cutting conditions for each work material by selecting 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.

①Work 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 : Aluminum alloy, Non-ferrous metal
S : Material reference : Titanium alloy 320HB, Ni, Co-based alloy 400HB
H : Hardened steel 60HRC

②Cutting speed standards

Work Material	Tool Life		Work Material	Hardness
	Life	Performance		
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

③Feed 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 conditions 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=0.3 mm
H • • • VB=0.1 mm

TOOL LIFE

Cutting speed has a large affect on tool life. **TOOL NAVI** is based on Taylor's equation (relationship vc x Tn=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 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 the new cutting speed.

● P Grade (Steel) cutting speed coefficient values.

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

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

Grade \ Tool life	15min	30min	45min	60min	90min
MC5115	1.00	0.79	0.69	0.62	0.54
MC5125	1.00	0.76	0.65	0.58	0.50

(ex.) Medium cutting of steel
The 1st recommendation : MC6125
Indexable inserts : CNMG432MA
Recommended cutting speed : vc = 1280 SFM
(Tool life : 15min.)

⬇

Tool life required by the customer : 30min.
1280×0.83≒1062 SFM

● 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

HARDNESS OF WORKPIECE

Hardness of the work material also affects tool life. Mitsubishi's **TOOL NAVI** suggests cutting speed variations when hardness of the work material differs. Obtain the suitable coefficient value for each work material from the chart below. Multiply the coefficient value by the recommended cutting speed of the grade you use to calculate the new cutting speed.

Work Material	Soft ← (Hardness of work material) → 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

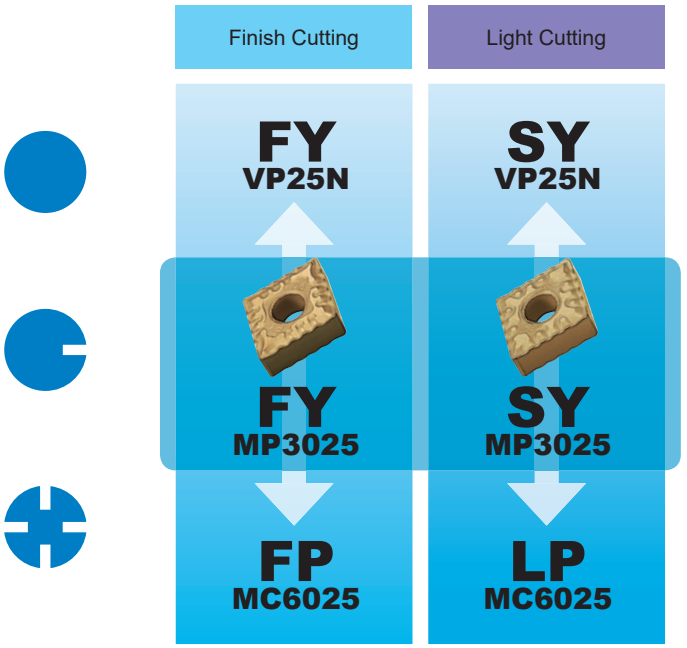
● Selection of optimum inserts for turning
The following diagrams show for each work material, the optimal combination of suitable grades and chip breakers for each application area in turning.

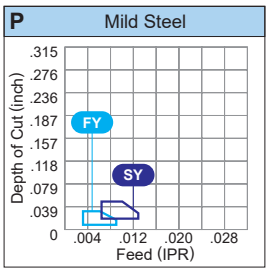
■ CUTTING CONDITIONS

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

■ CUTTING AREA

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



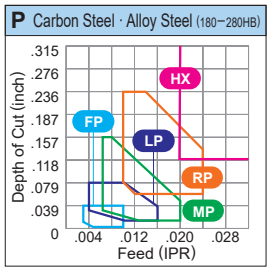


P Mild Steel (EX. : ASTM A283, AISI 1010)

NEGATIVE INSERTS

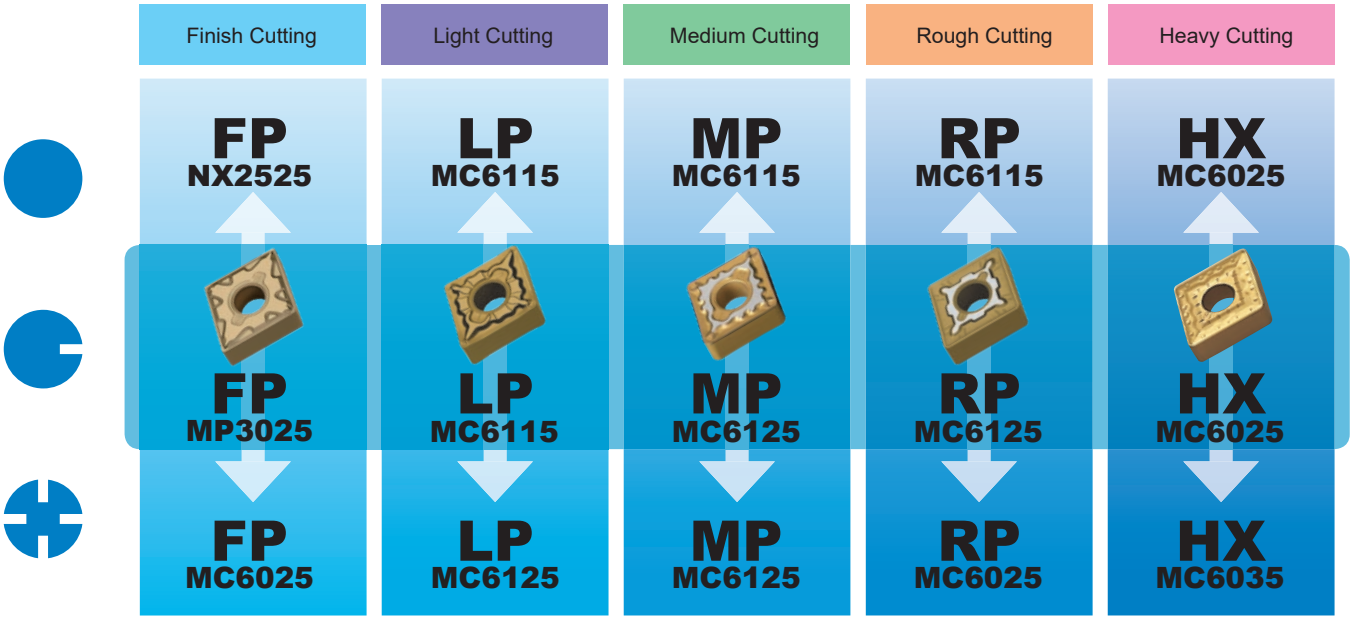
vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
● Stable Cutting	F	**FY**	**VP25N**	935—1475	.004—.009	.008—.031
	L	**SY**	**VP25N**	850—1345	.006—.013	.020—.047
◕ General Cutting	F	**FY**	**MP3025**	900—1395	.004—.009	.008—.031
	L	**SY**	**MP3025**	835—1260	.006—.013	.020—.047
✚ Unstable Cutting	F	**FY**	**MC6025**	1030—1670	.003—.010	.004—.040
	L	**SY**	**MC6025**	935—1580	.004—.016	.012—.079



Stable Cutting
General Cutting
Unstable Cutting

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



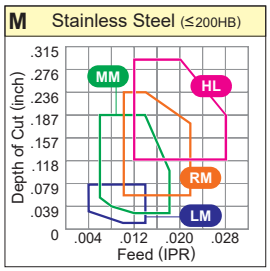
P Carbon Steel • Alloy Steel (EX. : AISI 1045, AISI 4140)

NEGATIVE INSERTS

vc : Cutting speed
f : Feed
ap : Depth of cut.

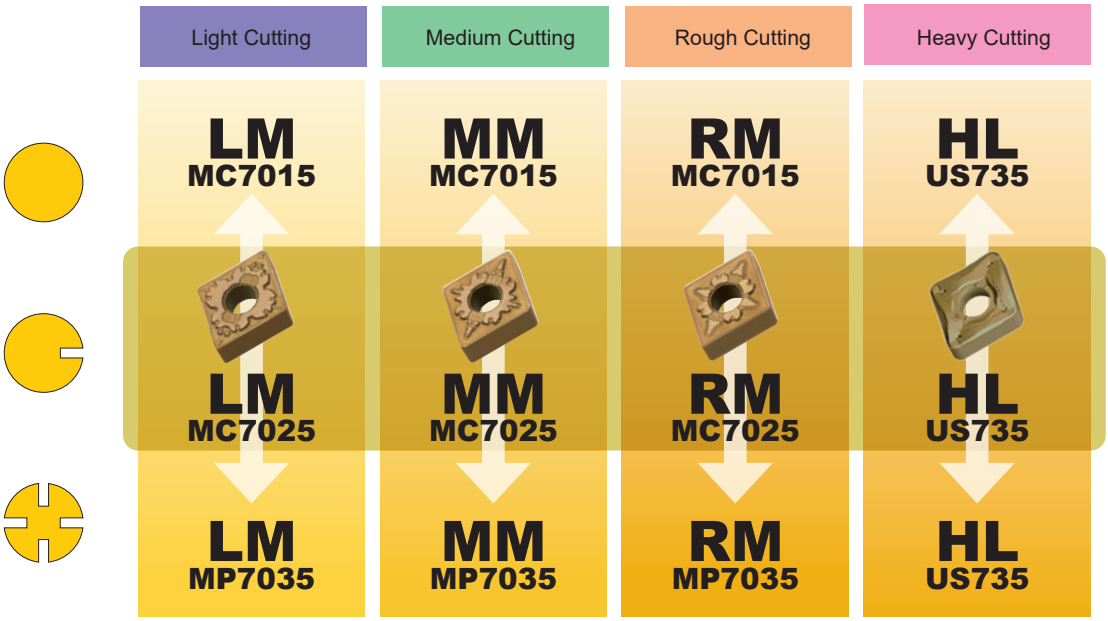
	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	FP	NX2525	690—985	.003—.010	.004—.039
	L	LP	MC6115	820—1575	.004—.016	.012—.079
	M	MP	MC6115	755—1445	.006—.020	.012—.157
	R	RP	MC6115	705—1360	.010—.024	.059—.236
	H	HX	MC6025	540—870	.020—.050	.119—.434
General Cutting	F	FP	MP3025	705—1080	.003—.010	.004—.039
	L	LP	MC6115	820—1575	.004—.016	.012—.079
	M	MP	MC6125	820—1280	.006—.020	.012—.157
	R	RP	MC6125	770—1215	.010—.024	.059—.236
	H	HX	MC6025	540—870	.020—.050	.119—.434
Unstable Cutting	F	FP	MC6025	755—1230	.004—.010	.004—.040
	L	LP	MC6125	900—1395	.004—.016	.012—.079
	M	MP	MC6125	820—1280	.006—.020	.012—.157
	R	RP	MC6025	605—970	.010—.024	.060—.237
	H	HX	MC6035	460—655	.020—.050	.119—.434

OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING



- Stable Cutting
- General Cutting
- Unstable Cutting

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

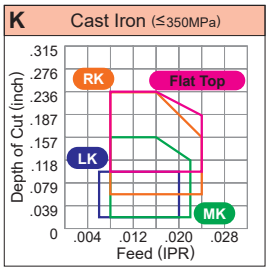


M Stainless Steel (EX. : AISI 304, AISI 316)

NEGATIVE INSERTS

vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	L	LM	MC7015	590—935	.004—.014	.012—.079
	M	MM	MC7015	540—850	.006—.018	.028—.197
	R	RM	MC7015	510—805	.010—.022	.059—.236
	H	HL	US735	245—460	.012—.028	.118—.295
General Cutting	L	LM	MC7025	540—720	.004—.014	.012—.079
	M	MM	MC7025	490—655	.006—.018	.028—.197
	R	RM	MC7025	460—620	.010—.022	.059—.236
	H	HL	US735	245—460	.012—.028	.118—.295
Unstable Cutting	L	LM	MP7035	310—510	.004—.014	.012—.079
	M	MM	MP7035	295—475	.006—.018	.028—.197
	R	RM	MP7035	280—440	.010—.022	.059—.236
	H	HL	US735	245—460	.012—.028	.118—.295



Stable Cutting
General Cutting
Unstable Cutting

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



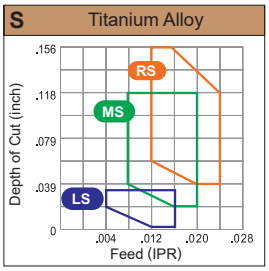
K Cast Iron • Ductile Cast Iron (EX. : AISI No 45 B)

NEGATIVE INSERTS

vc : Cutting speed
f : Feed
ap : Depth of cut.

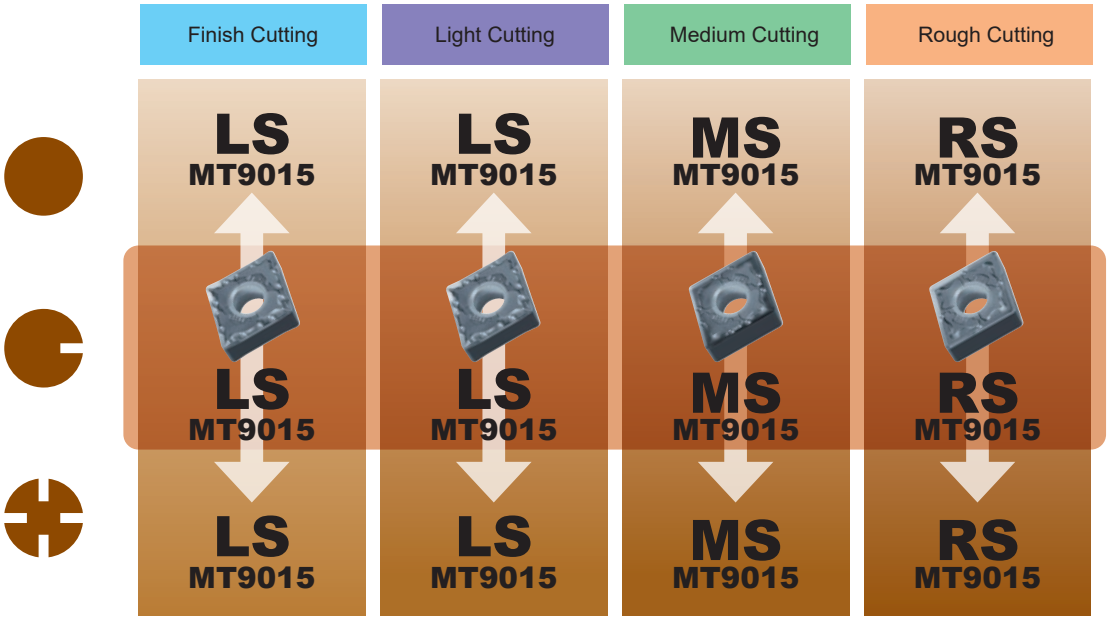
	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	L	LK	MC5005	755—1200	.004—.016	.012—.079
	M	MK	MC5105	690—2100	.008—.022	.020—.157
	R	RK	MC5105	640—1985	.008—.024	.059—.236
	H	Flat Top	MC5105	640—1985	.008—.024	.098—.236
General Cutting	L	LK	MC5015	670—1100	.004—.016	.012—.079
	M	MK	MC5105	690—2100	.008—.022	.020—.157
	R	RK	MC5105	640—1985	.008—.024	.059—.236
	H	Flat Top	MC5105	640—1985	.008—.024	.098—.236
Unstable Cutting	L	LK	MC5115	670—1260	.004—.020	.020—.098
	M	MK	MC5115	620—1150	.008—.022	.020—.157
	R	RK	MC5115	590—1080	.008—.024	.059—.236
	H	Flat Top	MC5115	590—1080	.008—.024	.098—.236

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

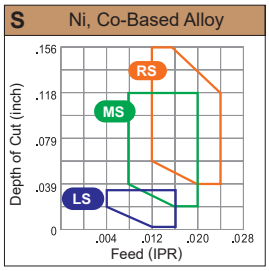


S Titanium Alloy (EX. : Ti-6Al-4V)

NEGATIVE INSERTS

vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	LS	MT9015	130—280	.004—.010	.008—.031
	L	LS	MT9015	130—280	.004—.010	.008—.031
	M	MS	MT9015	130—260	.006—.012	.020—.118
	R	RS	MT9015	115—245	.008—.014	.039—.157
General Cutting	F	LS	MT9015	130—280	.004—.010	.008—.031
	L	LS	MT9015	130—280	.004—.010	.008—.031
	M	MS	MT9015	130—260	.006—.012	.020—.118
	R	RS	MT9015	115—245	.008—.014	.039—.157
Unstable Cutting	F	LS	MT9015	130—280	.004—.010	.008—.031
	L	LS	MT9015	130—280	.004—.010	.008—.031
	M	MS	MT9015	130—260	.006—.012	.020—.118
	R	RS	MT9015	115—245	.008—.014	.039—.157



Stable Cutting
General Cutting
Unstable Cutting

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

	Finish Cutting	Light Cutting	Medium Cutting	Rough Cutting
Stable Cutting	LS MP9005	LS MP9005	MS MP9005	RS MP9015
General Cutting	LS MP9015	LS MP9015	MS MP9015	RS MP9015
Unstable Cutting	LS MP9025	LS MP9025	MS MP9025	RS MP9025

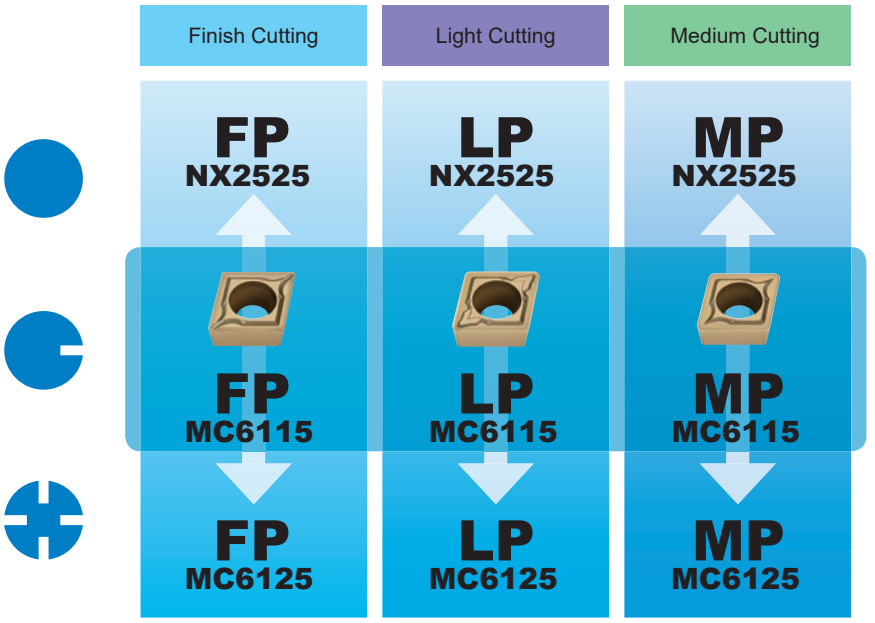
S Ni, Co-Based Alloy (EX. : Inconel718)

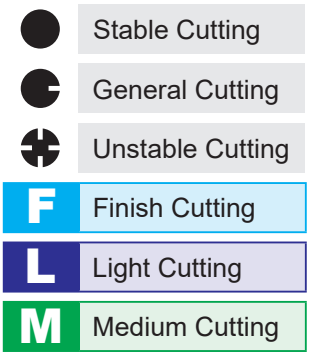
NEGATIVE INSERTS

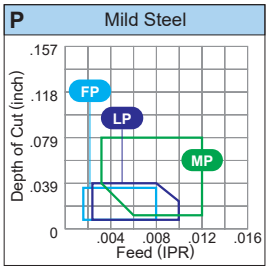
vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	LS	MP9005	180—360	.004—.010	.008—.031
	L	LS	MP9005	180—360	.004—.010	.008—.031
	M	MS	MP9005	165—330	.006—.012	.020—.118
	R	RS	MP9015	115—245	.008—.014	.039—.157
General Cutting	F	LS	MP9015	130—280	.004—.010	.008—.031
	L	LS	MP9015	130—280	.004—.010	.008—.031
	M	MS	MP9015	130—260	.006—.012	.020—.118
	R	RS	MP9015	115—245	.008—.014	.039—.157
Unstable Cutting	F	LS	MP9025	100—150	.004—.010	.008—.031
	L	LS	MP9025	100—150	.004—.010	.008—.031
	M	MS	MP9025	100—150	.006—.012	.020—.118
	R	RS	MP9025	80—130	.008—.014	.039—.157

OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING





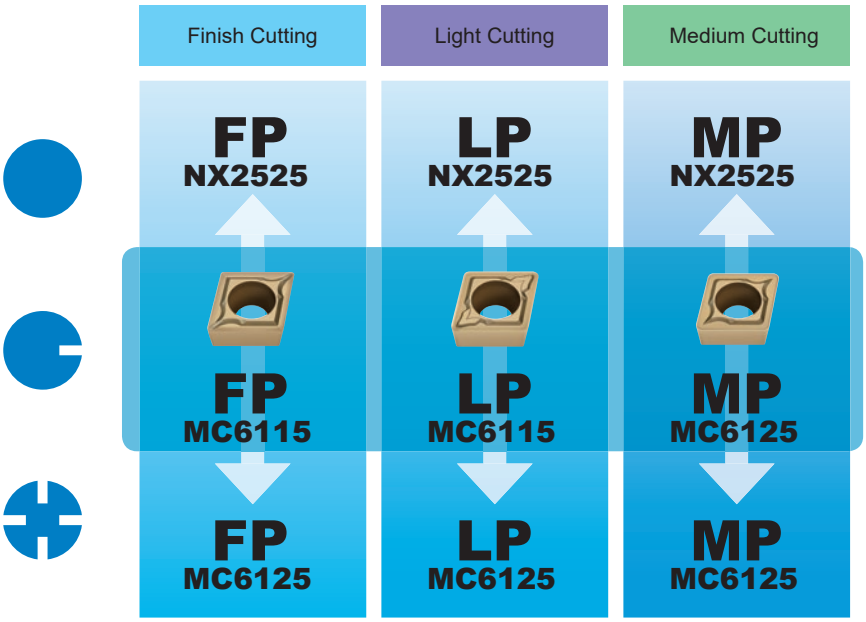


P Mild Steel (EX. : ASTM A283, AISI 1010)

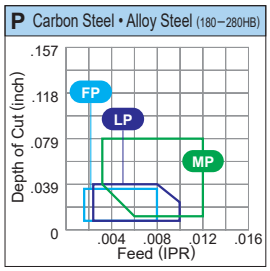
7° POSITIVE INSERTS WITH HOLE

vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	FP	NX2525	740—1050	.002—.008	.008—.035
	L	LP	NX2525	740—1050	.002—.010	.008—.039
	M	MP	NX2525	605—885	.003—.012	.012—.079
General Cutting	F	FP	MC6115	970—1870	.002—.008	.008—.035
	L	LP	MC6115	970—1870	.002—.010	.008—.039
	M	MP	MC6115	805—1560	.003—.012	.012—.079
Unstable Cutting	F	FP	MC6125	1050—1655	.002—.008	.008—.035
	L	LP	MC6125	1050—1655	.002—.010	.008—.039
	M	MP	MC6125	885—1380	.003—.012	.012—.079



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



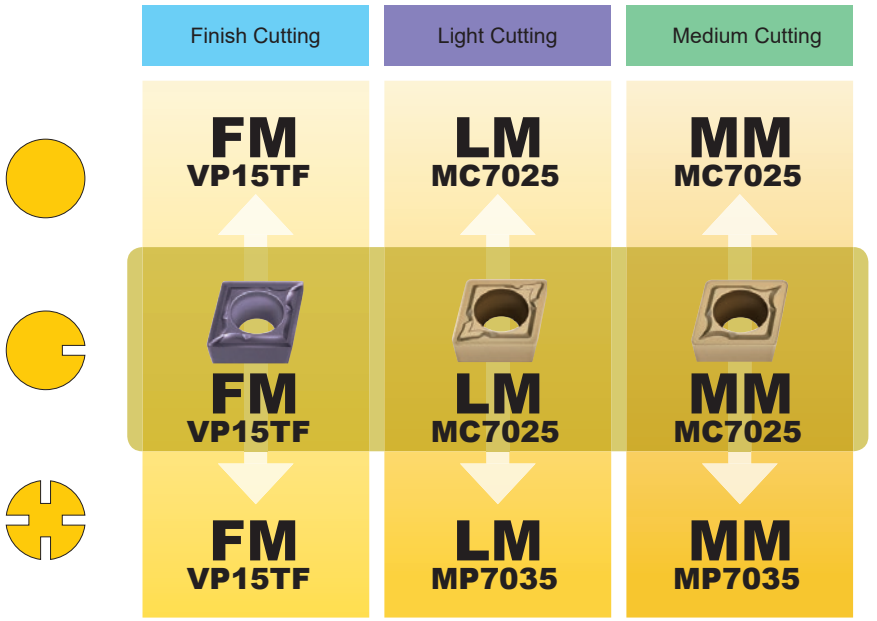
P Carbon Steel • Alloy Steel (EX. : AISI 1045, AISI 4140)

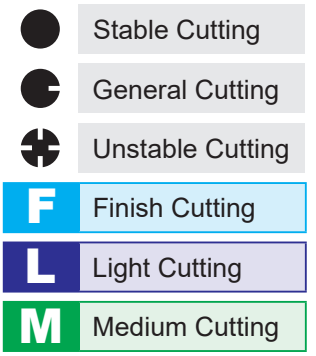
7° POSITIVE INSERTS WITH HOLE

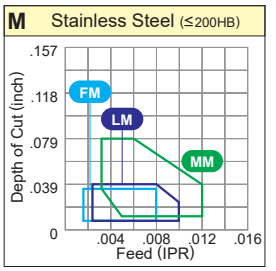
vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	FP	NX2525	540—785	.002—.008	.008—.035
	L	LP	NX2525	540—785	.002—.010	.008—.039
	M	MP	NX2525	460—655	.003—.012	.012—.079
General Cutting	F	FP	MC6115	720—1380	.002—.008	.008—.035
	L	LP	MC6115	720—1380	.002—.010	.008—.039
	M	MP	MC6125	655—1015	.003—.012	.012—.079
Unstable Cutting	F	FP	MC6125	785—1215	.002—.008	.008—.035
	L	LP	MC6125	785—1215	.002—.010	.008—.039
	M	MP	MC6125	655—1015	.003—.012	.012—.079

OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING





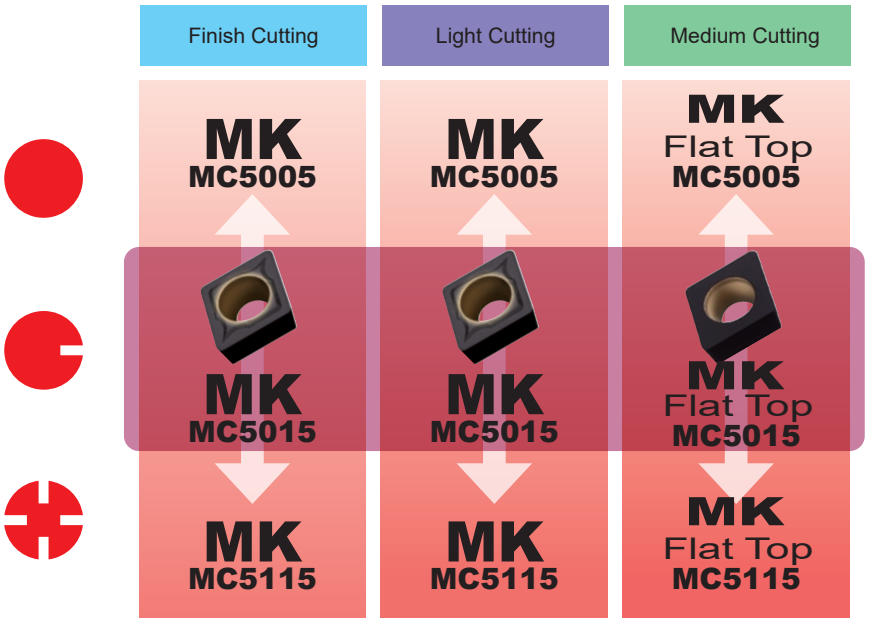


M Stainless Steel (EX. : AISI 304, AISI 316)

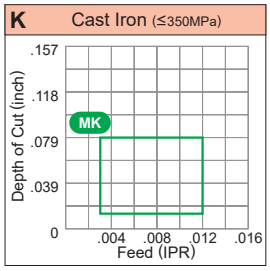
7° POSITIVE INSERTS WITH HOLE

vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	FM	VP15TF	245—410	.002—.008	.008—.035
	L	LM	MC7025	460—620	.002—.010	.008—.039
	M	MM	MC7025	395—525	.003—.012	.012—.079
General Cutting	F	FM	VP15TF	245—410	.002—.008	.008—.035
	L	LM	MC7025	460—620	.002—.010	.008—.039
	M	MM	MC7025	395—525	.003—.012	.012—.079
Unstable Cutting	F	FM	VP15TF	245—410	.002—.008	.008—.035
	L	LM	MP7035	280—440	.002—.010	.008—.039
	M	MM	MP7035	230—375	.003—.012	.012—.079



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



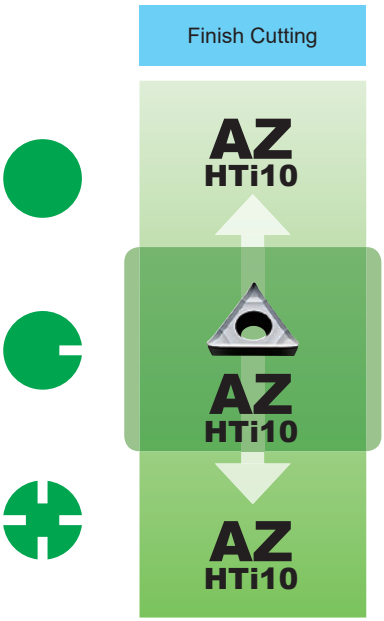
K Cast Iron • Ductile Cast Iron (EX. : AISI No 45 B)

7° POSITIVE INSERTS WITH HOLE

vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	MK	MC5005	540—870	.004—.012	.012—.079
	L	MK	MC5005	540—870	.004—.012	.012—.079
	M	MK, Flat Top	MC5005	540—870	.004—.012	.012—.079
General Cutting	F	MK	MC5015	490—745	.004—.012	.012—.079
	L	MK	MC5015	490—745	.004—.012	.012—.079
	M	MK, Flat Top	MC5015	490—745	.004—.012	.012—.079
Unstable Cutting	F	MK	MC5115	590—1100	.002—.010	.008—.039
	L	MK	MC5115	590—1100	.002—.010	.008—.039
	M	MK, Flat Top	MC5115	490—920	.003—.012	.012—.079

OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING



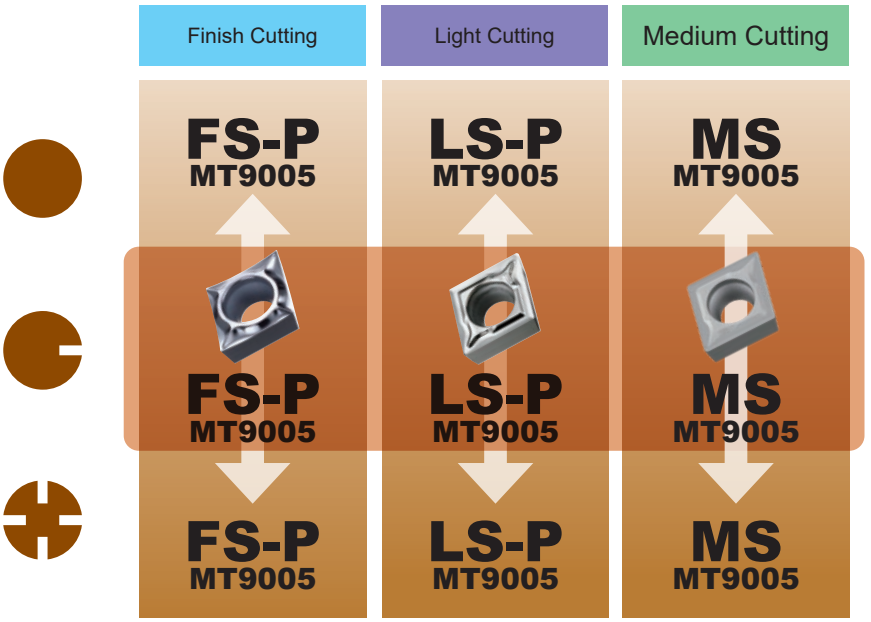
- Stable Cutting
- General Cutting
- Unstable Cutting
- F Finish Cutting

N Aluminum Alloy (EX. : A6061, A7075)

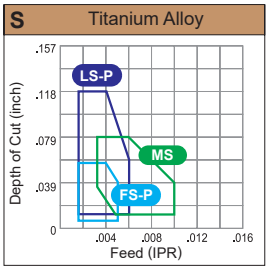
7° POSITIVE INSERTS WITH HOLE

vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	AZ	HTi10	985—2295	.004—.016	.008—.118
General Cutting	F	AZ	HTi10	985—2295	.004—.016	.008—.118
Unstable Cutting	F	AZ	HTi10	985—2295	.004—.016	.008—.118



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



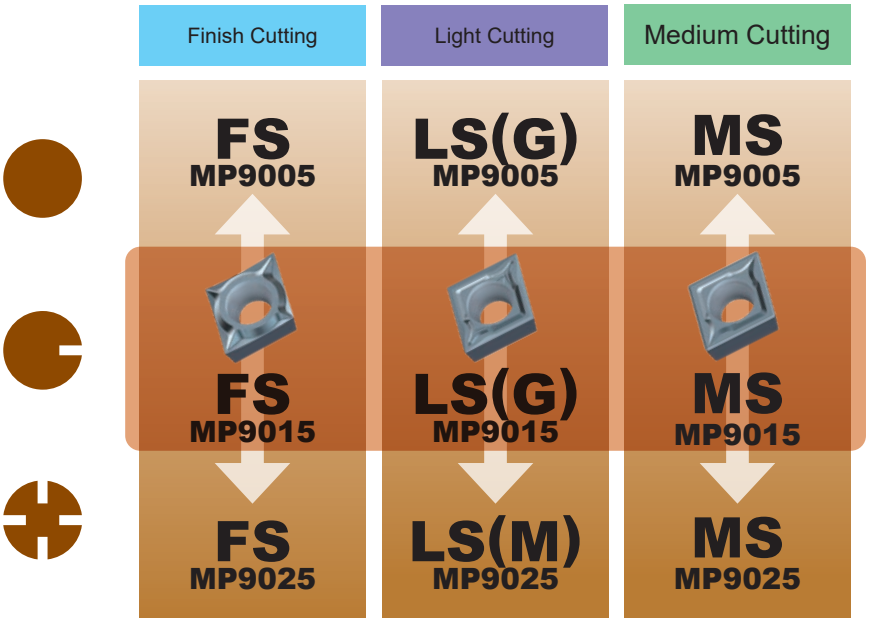
S Titanium Alloy (EX. : Ti-6Al-4V)

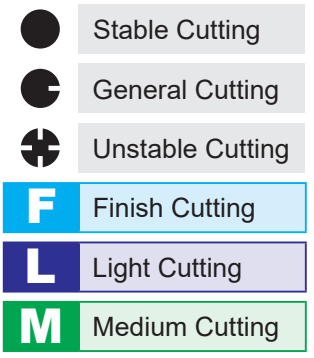
7° POSITIVE INSERTS WITH HOLE

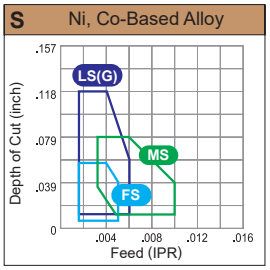
vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	FS-P	MT9005	130—260	.002—.005	.008—.055
	L	LS-P	MT9005	130—260	.002—.006	.012—.118
	M	MS	MT9005	115—210	.003—.010	.012—.079
General Cutting	F	FS-P	MT9005	130—260	.002—.005	.008—.055
	L	LS-P	MT9005	130—260	.002—.006	.012—.118
	M	MS	MT9005	115—210	.003—.010	.012—.079
Unstable Cutting	F	FS-P	MT9005	130—260	.002—.005	.008—.055
	L	LS-P	MT9005	130—260	.002—.006	.012—.118
	M	MS	MT9005	115—210	.003—.010	.012—.079

OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING







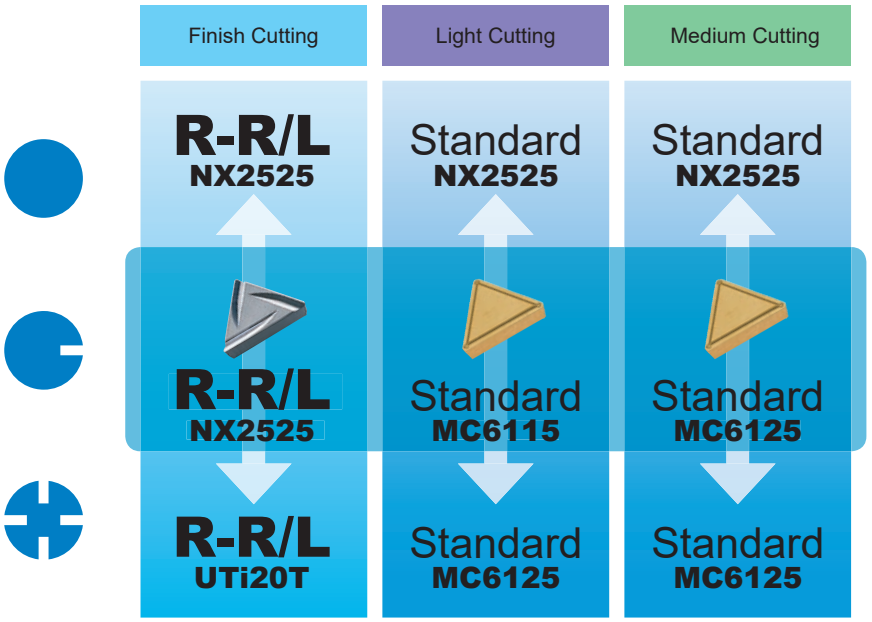
S Ni, Co-Based Alloy (EX. : Inconel718)

7° POSITIVE INSERTS WITH HOLE

vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	1st Recommendation Grade	vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	FS	MP9005	150—310	.002—.005	.008—.055
	L	LS(G)	MP9005	150—310	.002—.006	.012—.118
	M	MS	MP9005	130—260	.003—.010	.012—.079
General Cutting	F	FS	MP9015	115—245	.002—.005	.008—.055
	L	LS(G)	MP9015	115—245	.002—.006	.012—.118
	M	MS	MP9015	100—195	.003—.010	.012—.079
Unstable Cutting	F	FS	MP9025	80—130	.002—.005	.008—.055
	L	LS(M)	MP9025	80—130	.002—.008	.008—.039
	M	MS	MP9025	65—115	.003—.010	.012—.079

CLASSIFICATION ➤ A064



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

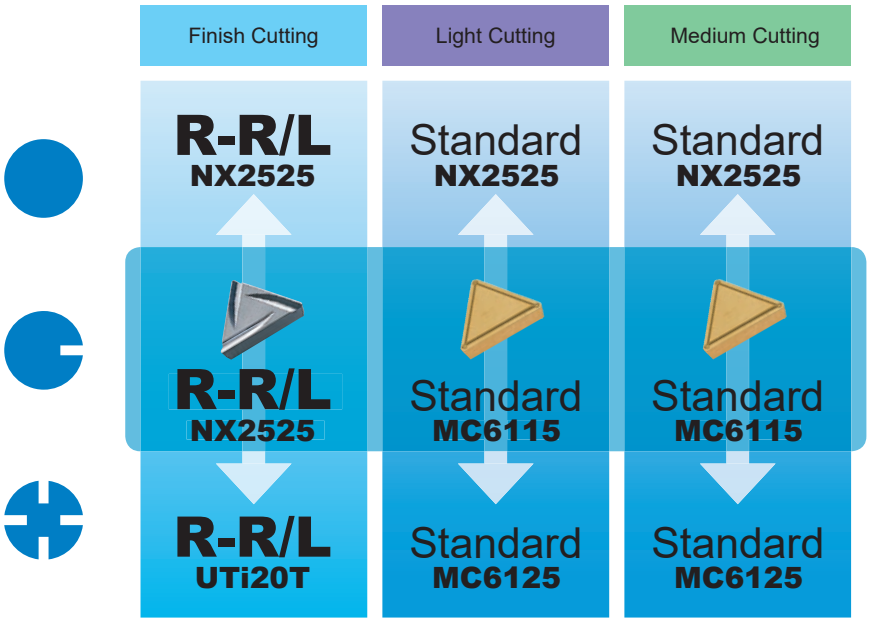
P Mild Steel (EX. : AISI ASTM A283, AISI 1010)

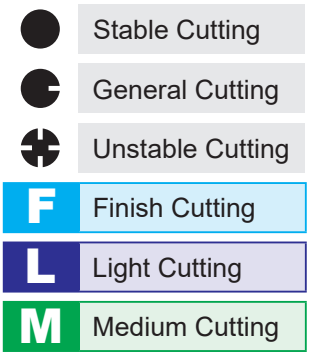
11° POSITIVE INSERTS WITHOUT HOLE

vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	**R-R/L**	**NX2525**	740—1050	.002—.010	.012—.059
	L	**Standard**	**NX2525**	605—885	.003—.012	.012—.079
	M	**Standard**	**NX2525**	605—885	.003—.012	.012—.079
General Cutting	F	**R-R/L**	**NX2525**	740—1050	.002—.010	.012—.059
	L	**Standard**	**MC6115**	805—1560	.003—.012	.012—.079
	M	**Standard**	**MC6125**	885—1380	.003—.012	.012—.079
Unstable Cutting	F	**R-R/L**	**UTi20T**	375—540	.002—.010	.012—.059
	L	**Standard**	**MC6125**	885—1380	.003—.012	.012—.079
	M	**Standard**	**MC6125**	885—1380	.003—.012	.012—.079

OPTIMUM GRADES AND CHIP BREAKERS FOR EXTERNAL TURNING



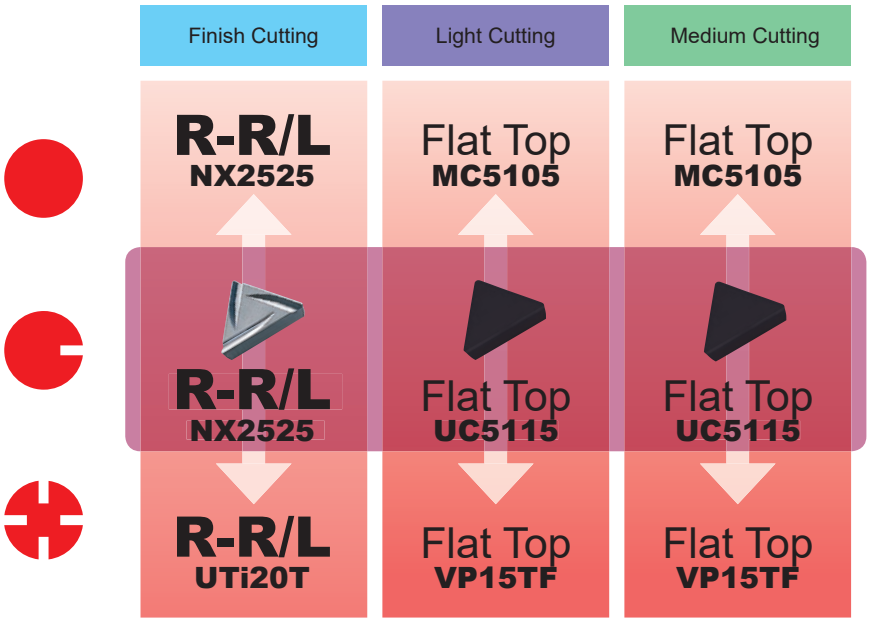


P Carbon Steel • Alloy Steel (EX. : AISI 1045, AISI 4140)

11° POSITIVE INSERTS WITHOUT HOLE

vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	**R-R/L**	**NX2525**	540—785	.002—.010	.012—.059
	L	**Standard**	**NX2525**	460—655	.003—.012	.012—.079
	M	**Standard**	**NX2525**	460—655	.003—.012	.012—.079
General Cutting	F	**R-R/L**	**NX2525**	540—785	.002—.010	.012—.059
	L	**Standard**	**MC6115**	590—1150	.003—.012	.012—.079
	M	**Standard**	**MC6115**	590—1150	.003—.012	.012—.079
Unstable Cutting	F	**R-R/L**	**UTi20T**	280—395	.002—.010	.012—.059
	L	**Standard**	**MC6125**	655—1015	.003—.012	.012—.079
	M	**Standard**	**MC6125**	655—1015	.003—.012	.012—.079



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

K Cast Iron • Ductile Cast Iron (EX. : AISI No 45 B)

11° POSITIVE INSERTS WITHOUT HOLE

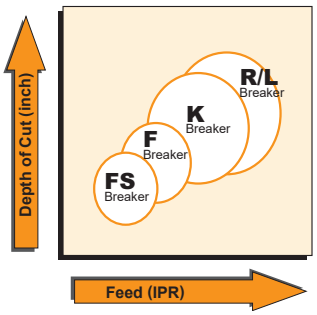
vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	**R-R/L**	**NX2525**	475—655	.002—.010	.012—.059
	L	**Flat Top**	**MC5105**	540—1670	.003—.012	.012—.079
	M	**Flat Top**	**MC5105**	540—1670	.003—.012	.012—.079
General Cutting	F	**R-R/L**	**NX2525**	475—655	.002—.010	.012—.059
	L	**Flat Top**	**UC5115**	425—785	.004—.012	.012—.079
	M	**Flat Top**	**UC5115**	425—785	.004—.012	.012—.079
Unstable Cutting	F	**R-R/L**	**UTi20T**	230—345	.002—.010	.012—.059
	L	**Flat Top**	**VP15TF**	375—525	.004—.012	.012—.079
	M	**Flat Top**	**VP15TF**	375—525	.004—.012	.012—.079

PRECISION BREAKER SYSTEM

ANGULAR AND PARALLEL CHIP BREAKERS (NEGATIVE INSERTS)

■CHIP CONTROL RANGE

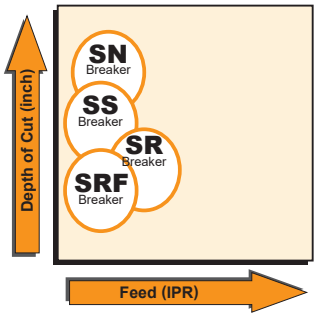


■FEATURES OF CHIP BREAKER

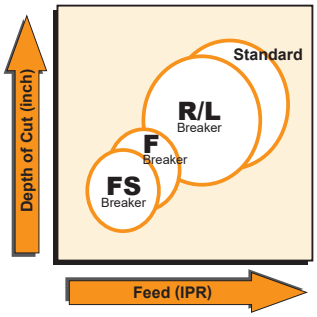
Breaker	Features	DNGG Type	SNGG Type	TNGG Type	VNGG Type
FS	● For precision finishing. ● Small width lead breaker for good chip control. ● Sharp cutting edge gives a good surface finish.	—	—		—
F	● For finish cutting. ● Lead breaker controls chip flow. ● Sharp cutting edge gives a good surface finish.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

■For turning small, high precision parts



■For general turning



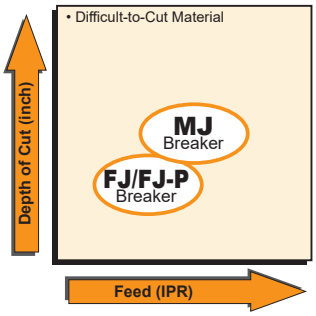
■FEATURES OF CHIP BREAKER

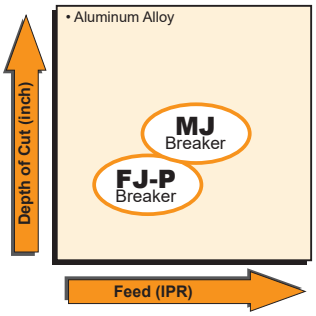
Breaker	Features	CCET Type	CCGT Type	DCET Type	DCGT Type	VBET Type
SRF	● The wide lead breaker for medium cutting is suitable for automatic lathe machining. ● The insert design for low resistance controls chip flow.	—	—	—		
SR	● The wide lead breaker for medium cutting is suitable for automatic lathe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

Breaker	Features	CCGH/CCGT Type	CPGT Type	DCGT Type	TPGH Type	TCGT Type	VBGT/VCGT Type	WBGT Type	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.	—		—	—	—	—	—	—	—

3D MOLDED CHIP BREAKERS (NEGATIVE INSERTS)

■CHIP CONTROL RANGE



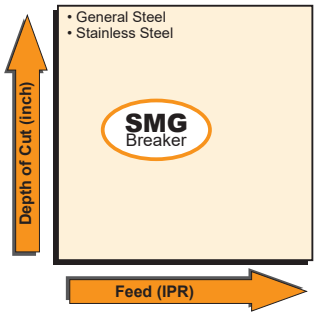


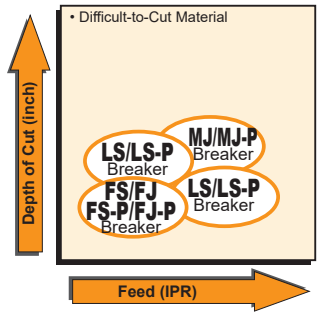
■FEATURES OF CHIP BREAKER

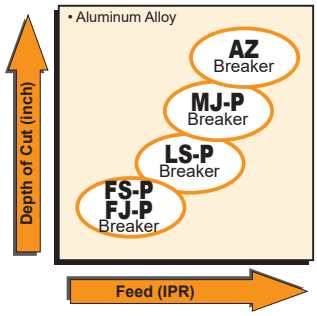
Breaker	Features	CNGG Type	DNGG/DNGM Type	VNGG/VNGM Type
FJ	● Ideal for heat-resistant alloy. ● The sharp edge produces good cutting surface.			
FJ-P	● Ideal for aluminum and copper. ● The sharp edge produces excellent surface finishes.		—	—
MJ	● Ideal for heat-resistant alloy and titanium alloy. ● The sharp edge produces excellent surface finishes.			

3D MOLDED CHIP BREAKERS (POSITIVE INSERTS)

■CHIP CONTROL RANGE







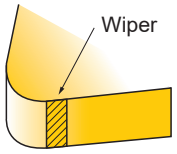
■FEATURES OF CHIP BREAKER

Breaker	Features	CCGT Type	DCGT Type	TCGT Type	VCGT Type	WCGT/RCGT Type
FS	● Ideal for heat-resistant alloys, titanium alloys, and cobalt chrome alloys. ● Sharp cutting edges provide excellent surface precision and finish.			—	—	—
FS-P	● Ideal for titanium alloys and copper alloys. ● Sharp cutting edges provide excellent surface precision and finish.			—	—	—
FJ	● The curved cutting edges support changes in cutting depth-smooth chip discharge and disposal. ● The large rake angle highly suitable for finishing difficult-to-cut materials.			—	—	—
FJ-P	● Ideal for aluminum and copper. ● The sharp edge produces excellent surface finishes.				—	
LS	● Ideal for heat-resistant alloy and titanium alloy and cobalt chrome alloy. ● Breaker protrusion suitable for depth of cut area achieves a wide range of chip control.			—		—
LS-P	● Ideal for aluminum and copper. ● The polished insert face prevents built up edge.			—		—
MJ	● The curved cutting edges support changes in cutting depth-smooth chip discharge and disposal. ● Large rake angle highly suitable for finish- light cutting difficult-to-cut materials.				—	
MJ-P	● Ideal for aluminum and copper. ● The sharp edge produces excellent surface finishes.				—	
SMG	● For medium cutting. ● 3D molded chipbreaker provides good chip control.Breaker geometry appropriate for copying and back turning.			—	—	—
AZ	● 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.					

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 work material 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.

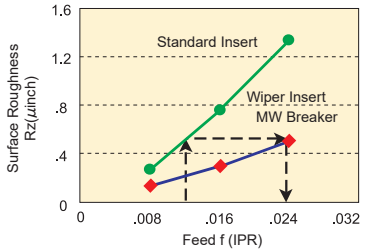
●Improving Chip Control
Under high feed conditions, the chips generated become thicker and are more easily broken, thus, chip control is improved.

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 Condition>
Work material : AISI 1045
Insert : CNMG432□□
Cutting Speed=655 SFM
Depth of Cut=.059 inch
Feed rate=.008—.024 IPR
with flood coolant

<Ex>The surface roughness does not deteriorate even if the feed rate is doubled (.012"→.024")!

■A wiper insert + machining at high feed rate
- Reduced machining time (per work material)
- Increased number of work material (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)

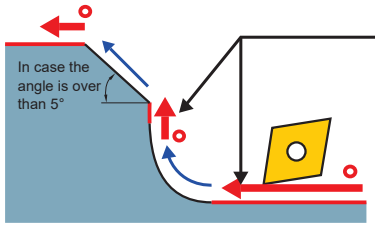
- Reducing cycle times
- Increased productivity
- Avoiding Line-Stoppage

<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.



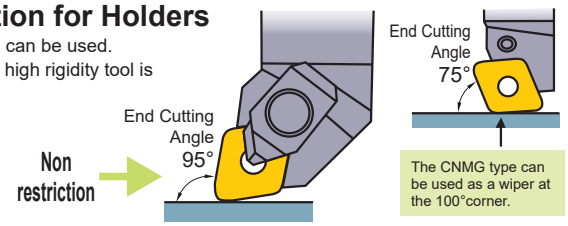
Rz(W)=Rz×0.5

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

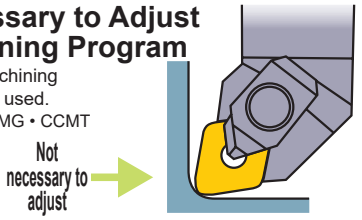
Effective uses of a wiper insert
Non effective uses of a wiper insert

■ 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.)



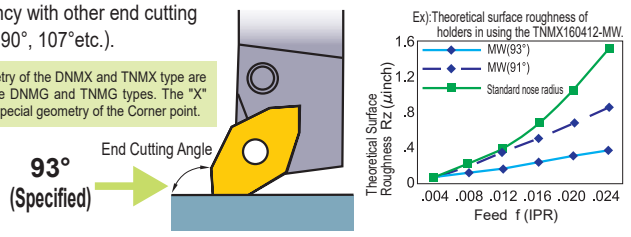
●Not Necessary to Adjust the Machining Program
Conventional machining programs can be used.
(The CNMG • WNMG • CCMT types are based on the ISO/ANSI.)



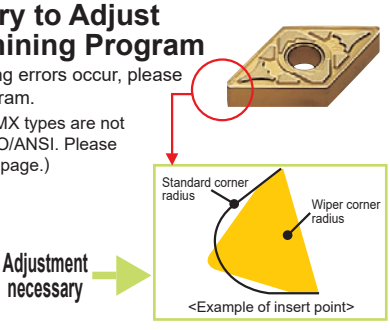
■ Special attention is necessary when using the DNMX • TNMX types due to the special top face geometry

●Restriction for Holders
Use a holder with 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.



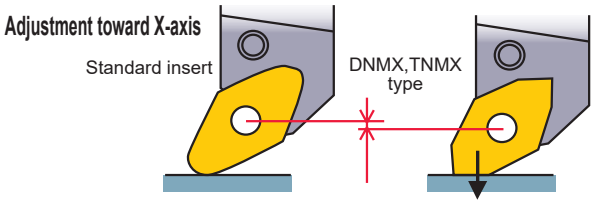
●Necessary to Adjust the Machining Program
When machining errors occur, please adjust the program.
(The DNMX•TNMX types are not based on the ISO/ANSI. Please refer to the next page.)



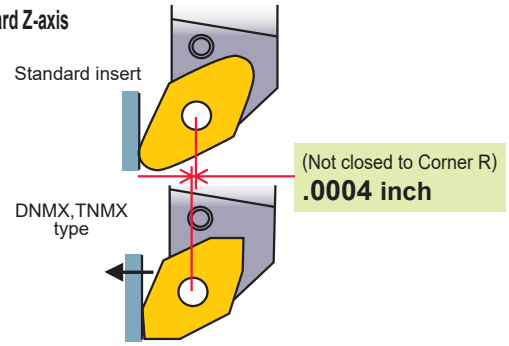
■Adjustment of machining programs for DNMX • TNMX types

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

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



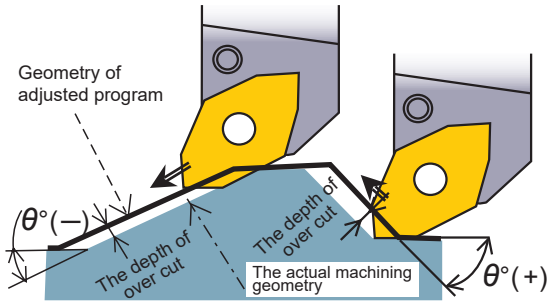
Corner radius .016",.031" : **.0016 inch**
Corner radius .047" : **.0020 inch**



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

Nose Radius	Taper Angle θ°															
	-25—-15	-10	-5	**0**	5	10	15	20—35	40	45	50	55	60—65	70	75—85	**90**
.047	.0016	.0012	.0004	**0**	.0008	.0012	.0016	.0020	.0016	.0016	.0008	.0004	-.0004	0	.0004	**0**
.031	.0012	.0008	.0004	**0**	.0004	.0008	.0012	.0016	.0012	.0012	.0008	0	-.0004	0	.0004	**0**
.016	.0008	.0004	.0004	**0**	.0004	.0004	.0008	.0008	.0008	.0004	.0004	0	-.0004	-.0004	0	**0**

Values→+numbers:adjustment of relief angle, -numbers:adjustment of plunge in angle (inch)

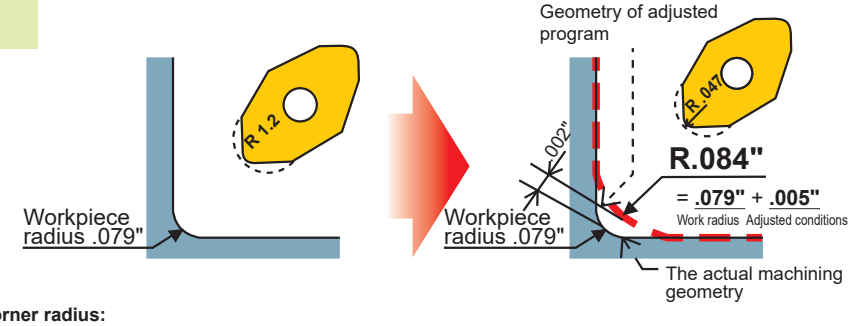
B) Adjusting a Corner R ⁎Necessary to maintain a correct corner radius.

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 .016" →	Work Radius**+.0020"**
Corner Radius .031" →	Work Radius**+.0043"**
Corner Radius .047" →	Work Radius**+.0055"**

Ex) : In case of machining R .079" when using a corner R .047" type insert.



The Easy-to-correct Method

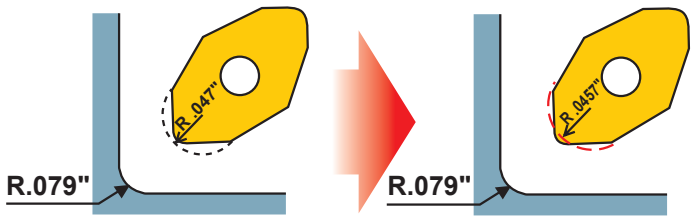
In correcting corner radius:
It is not necessary to adjust the machining program, however, machining errors can occur within max. ± .0012" due to correcting by an approximate number.

Corner Radius Correction Input the correction number of each corner radius.

The value of corrected corner radius
= approximation
⁎No adjustment required in machining program.

The corner radius of a insert	The value of corrected corner radius = approximation
Corner Radius .016" →	**R.0142"**
Corner Radius .031" →	**R.0299"**
Corner Radius .047" →	**R.0457"**

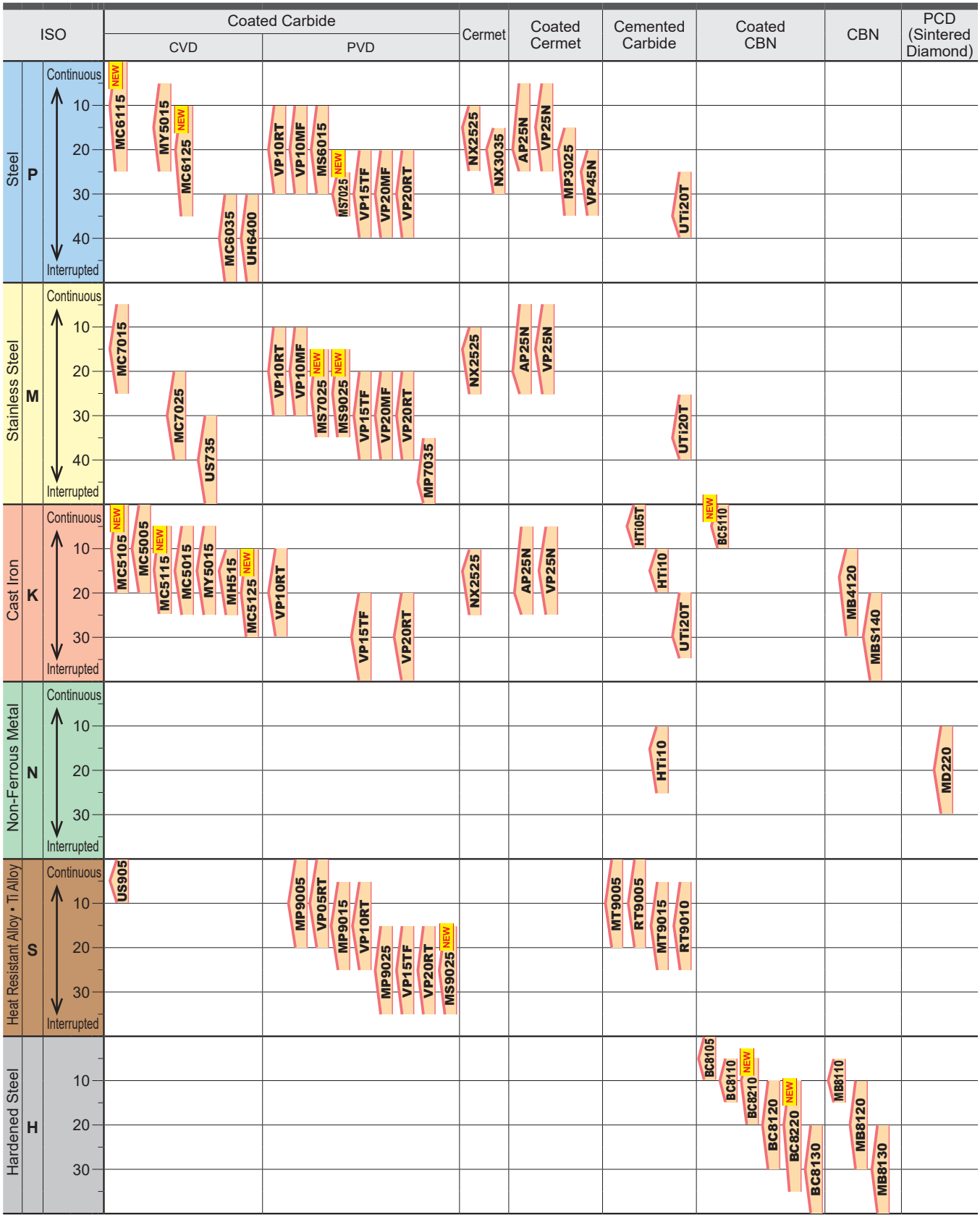
Ex):In the case of machining a corner with a radius R .079" when using an insert with a corner radius R .047".



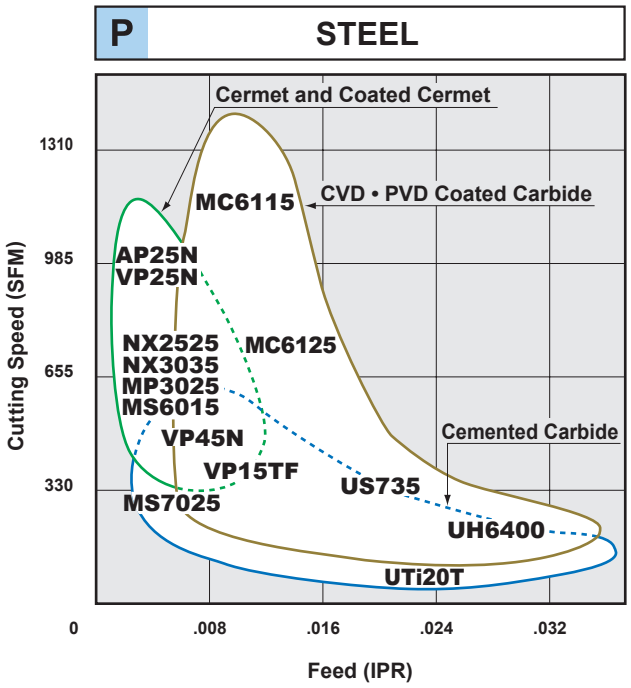
Others) The value of correction is same for both DNMX and TNMX. Discriminate them by the size of corner radius.

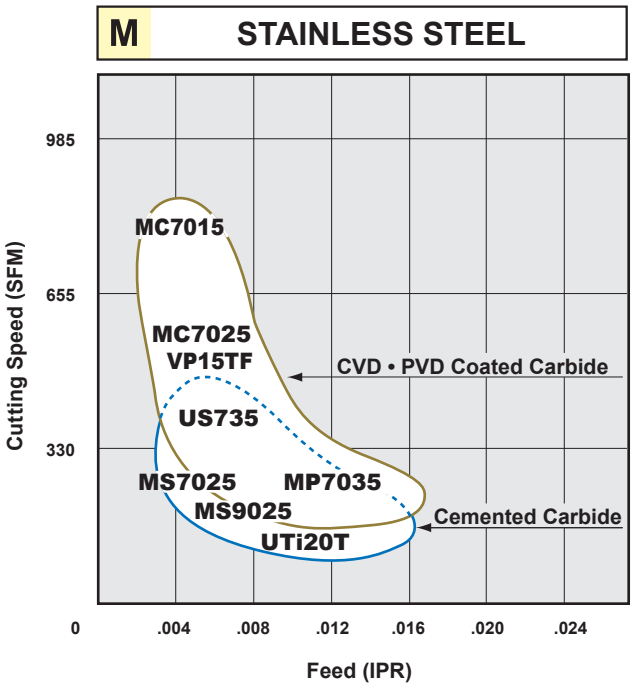
GRADES FOR TURNING

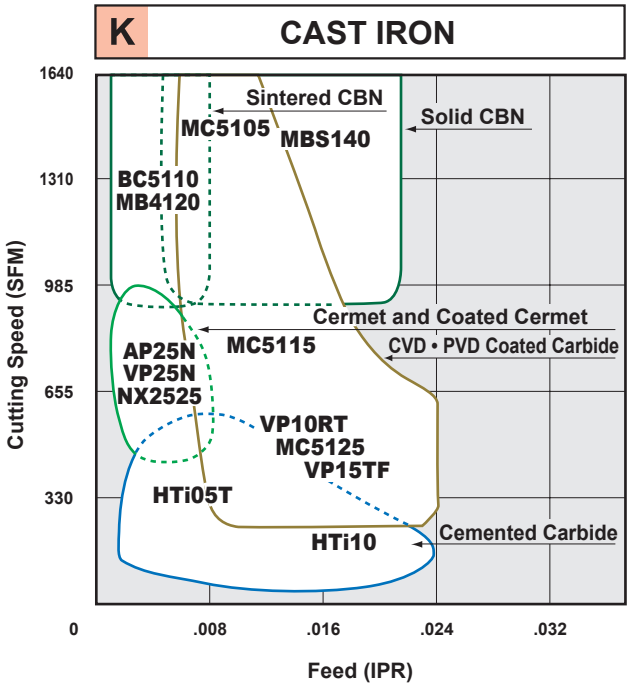
●INDEXABLE INSERT GRADES FOR TURNING

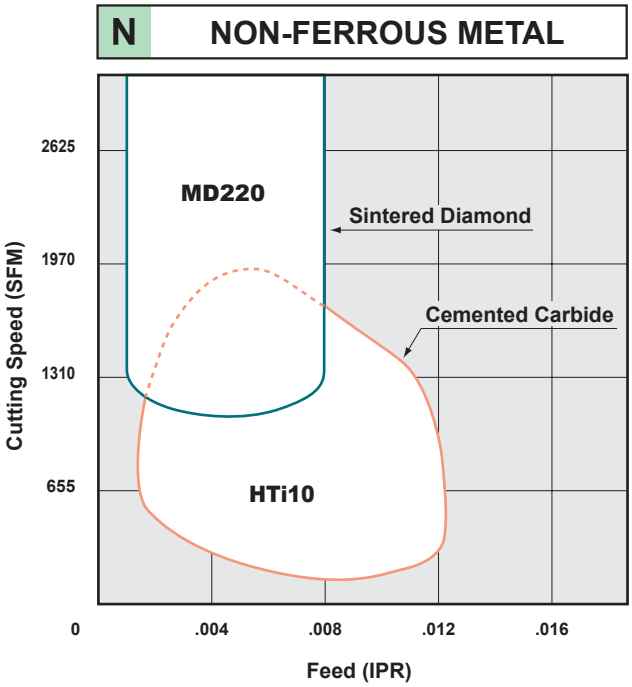


TURNING APPLICATION RANGE





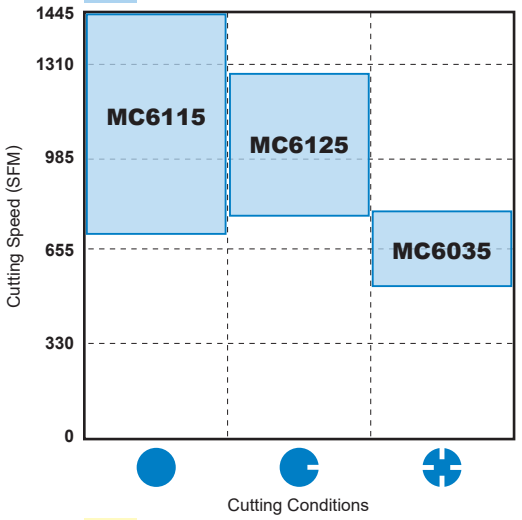




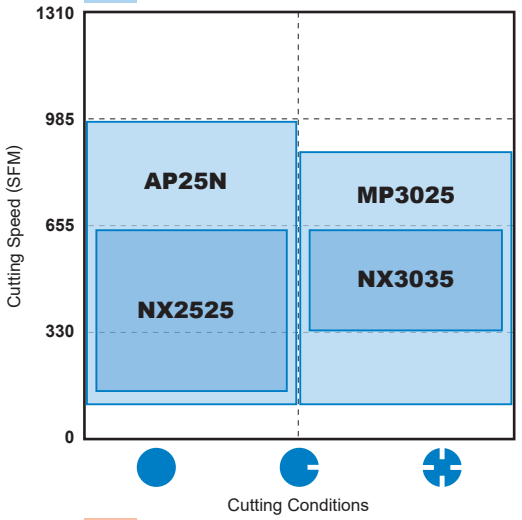
TURNING APPLICATION RANGE

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

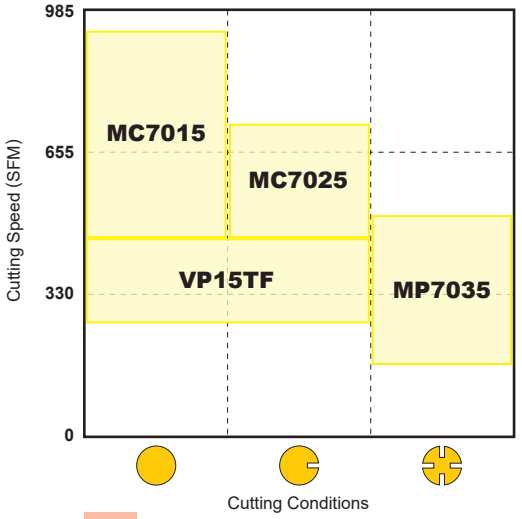
P STEEL (Medium-Rough Cutting)



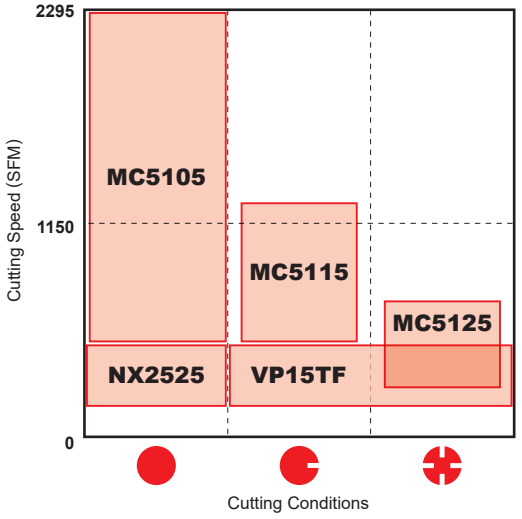
P STEEL (Finish Cutting)



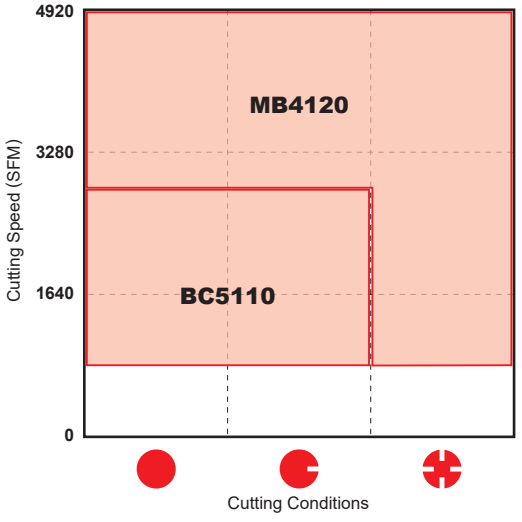
M STAINLESS STEEL



K CAST IRON



K CAST IRON (CBN)



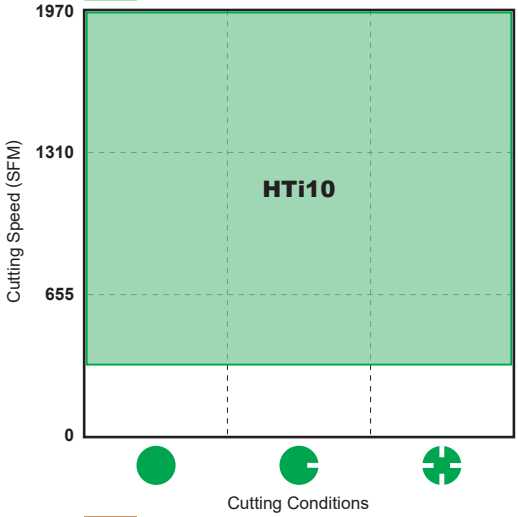
CUTTING CONDITIONS

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

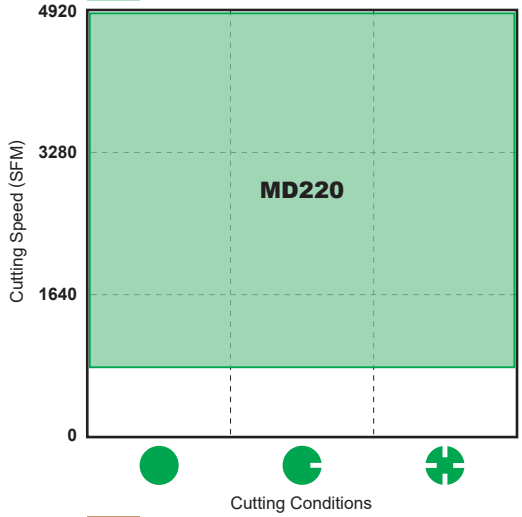
Unstable Cutting — Heavy Interrupted Cutting, Irregular Depth of Cut, Low Clamping Rigidity

General Cutting

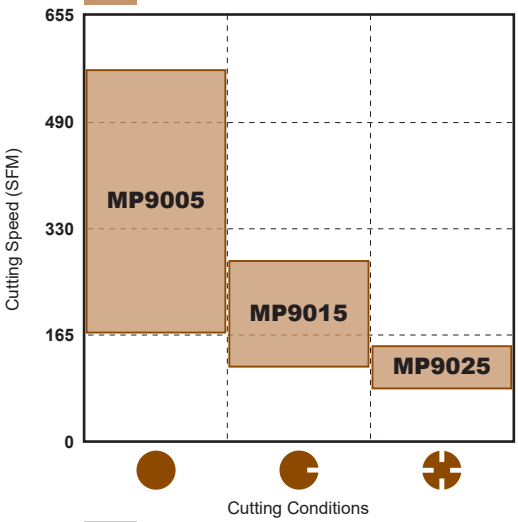
N NON-FERROUS METAL



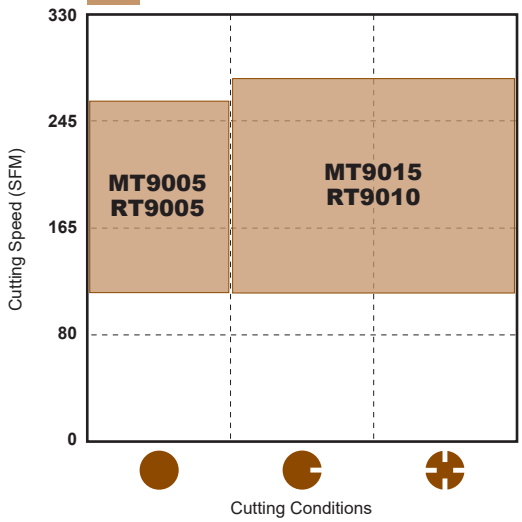
N NON-FERROUS METAL (PCD)



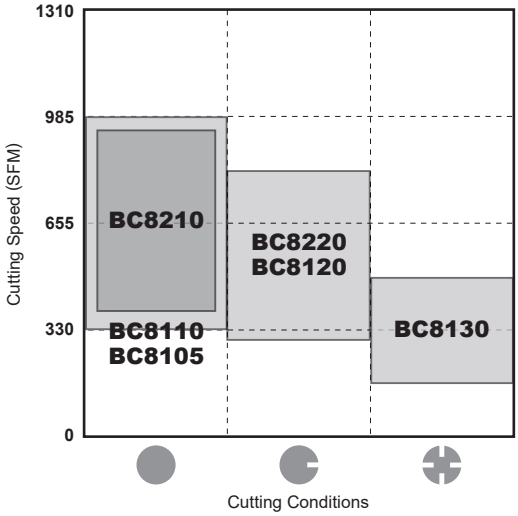
S HEAT RESISTANT ALLOY



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.

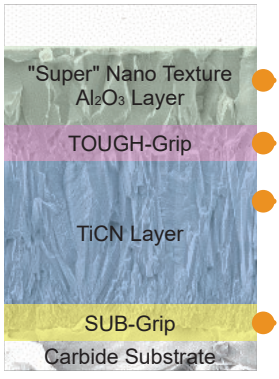
■ SELECTION STANDARD

●TURNING

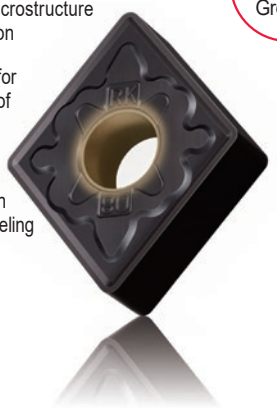
Work Material		Cutting Mode	Recommended Grade	Recommended Cutting Speed (SFM)	ISO	Application Range
P	Steel	Continuous Cutting	NEW MC6115	1115 (705 — 1575)	P	MC6115 (NEW)
			NEW MC6125	1080 (690 — 1525)		MC6125 (NEW)
		Interrupted Cutting	MC6035	490 (260 — 665)		MC6035, UH6400
M	Stainless Steel	Continuous Cutting	MC7015	720 (510 — 935)	M	MC7015, US7020
			MC7025	590 (460 — 720)		MC7025
		Continuous and Interrupted Cutting	US735	425 (245 — 605)		US735
K	Cast Iron Ductile Cast Iron	Continuous Cutting	NEW MC5105	1418 (540 — 2295)	K	MC5105 (NEW)
			NEW MC5115	875 (490 — 1260)		MC5115 (NEW), MH515
		Interrupted Cutting	NEW MC5125	490 (260 — 720)		MC5125 (NEW)
S	Heat Resistant Alloy	Continuous and Interrupted Cutting	US905	70 (45 — 95)	S	US905

ISO: Continuous — 10 — 20 — 30 — 40 — Interrupted

MC5115



- Al_2O_3 layer with excellent wear resistance
- Intermediate layer with microstructure suitable for ductile cast iron
- Thick TiCN layer suitable for coping with the hardness of ductile cast iron
- New adhesion layer with an enhanced resistance to peeling



Tough and Sub Grip Layers for Ductile Cast Iron Grades

The extra strength of the adhesion between the coating layers (1.3 times stronger) suppresses peeling during machining of ductile cast iron.

Adhesion is 1.3 Times* Greater!

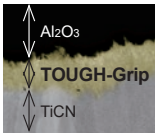


MC5115

*Compared with a conventional Mitsubishi product.

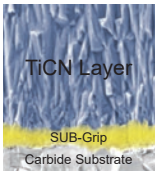
TOUGH-Grip

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



SUB-Grip

By increasing the degree of adhesion between the carbide substrate and the coating layer, a coating layer has been developed that is resistant to peeling even during strong intermittent machining.



By Image

■ GRADE CHARACTERISTICS

Workpiece Material		Grade	Substrate	Coating Layer	
			Hardness (HRA)	Composition	Thickness
P	Steel	NEW **MC6115**	90.8	Accumulated TiCN-Al_2O_3-Ti Compound	Thick
		NEW **MC6125**	90.0	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	NEW **MC5105**	91.0	TiCN-Al_2O_3	Thick
		NEW **MC5115**	91.0	TiCN-Al_2O_3	Thick
		NEW **MC5125**	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.

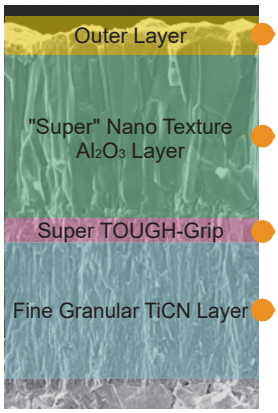
■ Super Nano Texture Technology

The standard Nano Texture Technology has been improved and developed to be an industry leading standard for crystal growth of Al_2O_3 coatings. This Super Nano Texture Technology increases tool life and wear resistance due to the fine, dense crystal growth process.

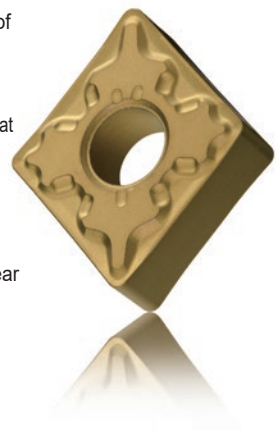
■ Super TOUGH-Grip

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

MC6115



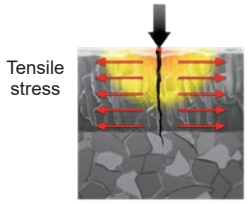
- Gold color assists easy identification of edge use.
- Outstanding wear resistance especially at high temperatures.
- Strong adhesion between the tough coating layers.
- Coating for high wear resistance.



Reducing the effect of severe fracturing

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

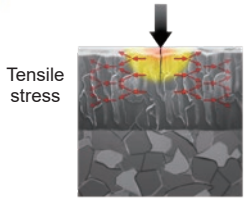
Impact stress when interrupted cutting



Conventional CVD Inserts

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

Impact stress when interrupted cutting



MC6100 Series

Relaxing of the Tensile Stress

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

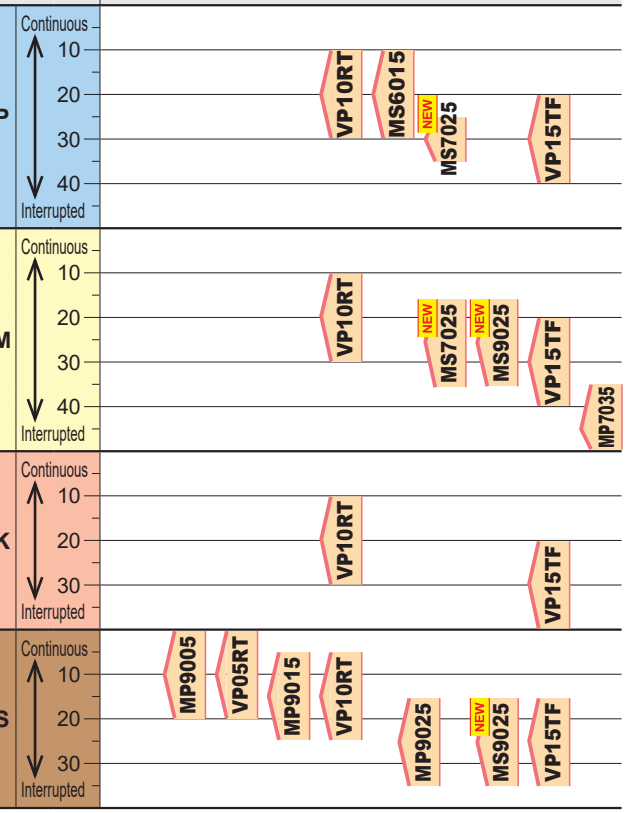
COATED CARBIDE (PVD)

- 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

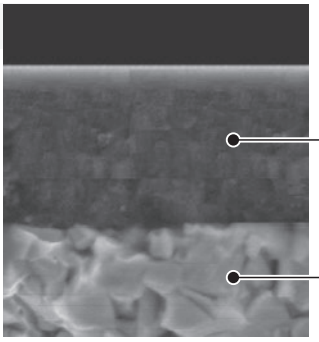
	Work Material	Recommended Grade	Recommended Cutting Speed (SFM)
P	Steel	**VP10RT**	395 (330 — 490)
		VP15TF	330 (165 — 490)
M	Stainless Steel	**VP10RT**	395 (330 — 490)
		VP15TF	330 (260 — 440)
		MP7035	395 (280 — 510)
K	Cast Iron	**VP10RT**	395 (330 — 490)
		VP15TF	395 (330 — 490)
S	Heat Resistant Alloy	**MP9005**	260 (165 — 360)
		MP9015	195 (115 — 280)
		MP9025	100 (80 — 150)



ISO Turning Inserts for Difficult to Cut Materials

MP9005/MP9015/MP9025





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

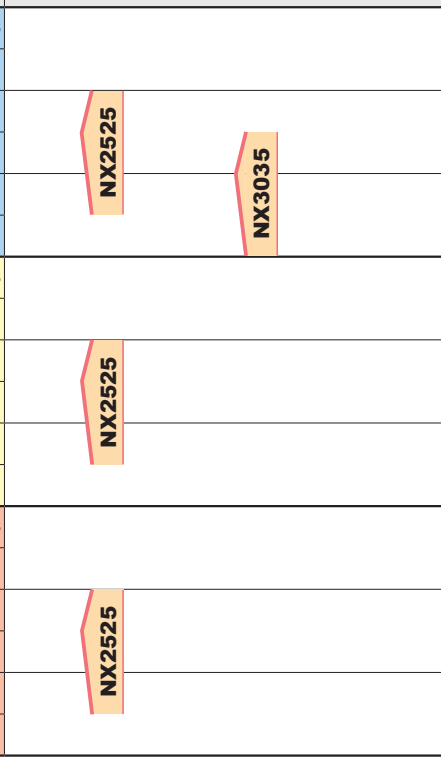
CERMET

- The 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 (SFM)	ISO	Application Range
P	Steel	Continuous Cutting	**NX2525**	755 (575 — 985)	P	NX2525
		Interrupted Cutting	**NX3035**	720 (560 — 935)		NX3035
M	Stainless Steel	Continuous Cutting	**NX2525**	330 (210 — 440)	M	NX2525
K	Cast Iron Ductile Cast Iron	Finishing	**NX2525**	560 (425 — 690)	K	NX2525



■GRADE CHARACTERISTICS

Grade	Hardness (HRA)
NX2525	92.2
NX3035	91.5

Note 1) Hardness shows representative value of the substrate.

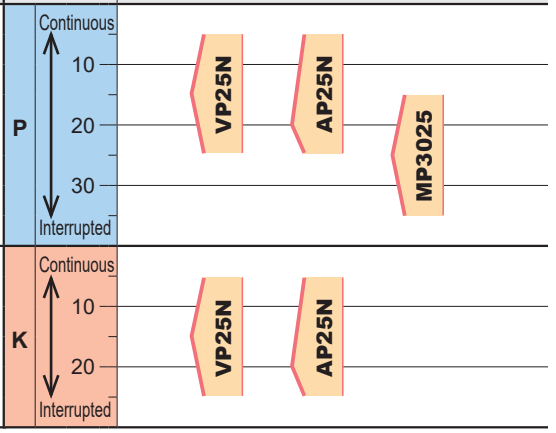
COATED CERMET

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

■SELECTION STANDARD

●TURNING

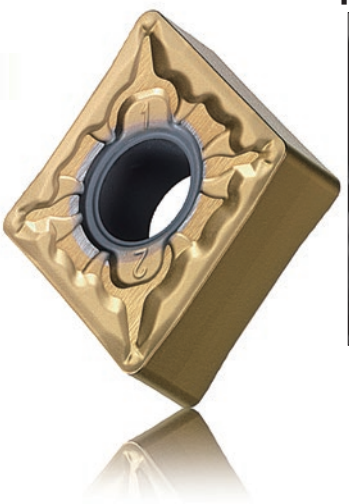
	Work Material	Cutting Mode	Recommended Grade	Recommended Cutting Speed (SFM)
P	Steel	Continuous Cutting	**VP25N AP25N**	885 (655 — 1130)
		Interrupted Cutting	**MP3025**	820 (590 — 1080)
K	Cast Iron Ductile Cast Iron	Finishing	**VP25N AP25N**	620 (510 — 740)

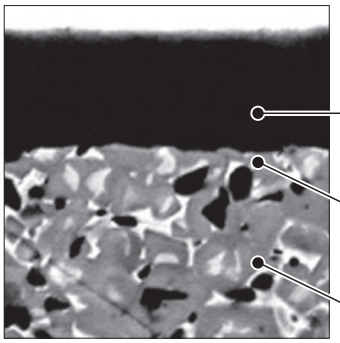


Effective for production of small parts.

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 (SFM)	ISO	Application Range
P	Steel	**UTi20T**	360 (295 — 425)	P	UTi20T
M	Stainless Steel	**UTi20T**	330 (260 — 375)	M	UTi20T
K	Cast Iron	**HTi05T**	395 (260 — 540)	K	HTi05T
		HTi10	330 (245 — 440)		HTi10
		UTi20T	260 (195 — 360)		UTi20T
N	Non-Ferrous Metal	**HTi10**	1640 (985 — 2295)	N	HTi10
S	Heat Resistant Alloy Ti Alloy	**MT9005 RT9005**	165 (115 — 260)	S	MT9005 RT9005
		MT9015 RT9010	195 (115 — 280)		MT9015 RT9010

Continuous 10 20 30 Interrupted

■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

● Compared to general cemented carbide, micro-grain alloy has higher wear resistance and higher toughness.

SELECTION STANDARD

Cutting Tool	Recommended Grade	Work Material
Turning Inserts Milling Inserts Carbide Drills	**TF15**	Steel Cast Iron

GRADE CHARACTERISTICS

Grade	Grade Characteristics *		ISO	Wear Resistance	Fracture Resistance	Corrosion Resistance
	Hardness (HRA)	T.R.S (Gpa)				
TF15	91.0	4.0	K20	◎	○	◎

* After HIP

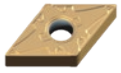
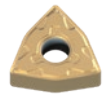
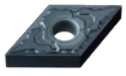
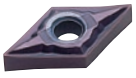
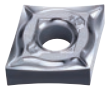
Note 1) Hardness shows representative value of the substrate.

Memo

CLASSIFICATION

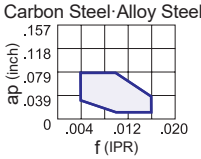
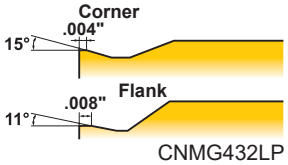
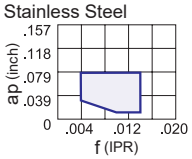
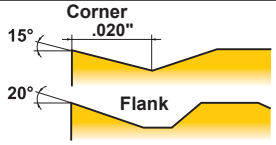
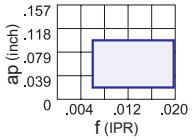
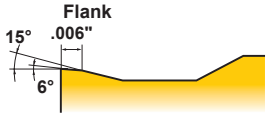
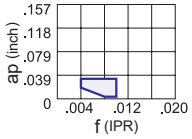
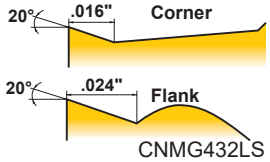
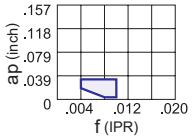
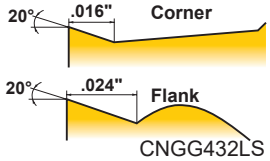
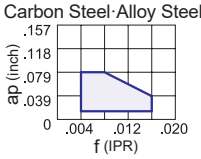
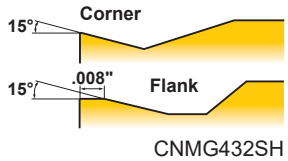
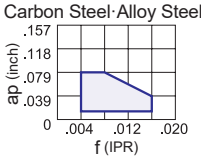
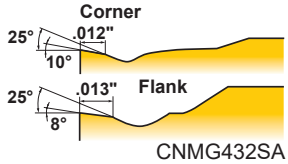
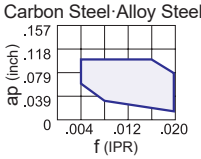
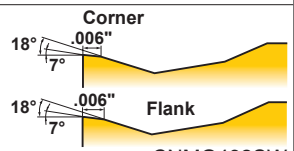
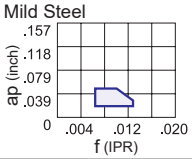
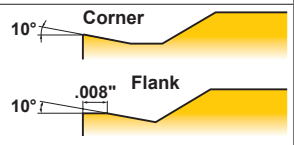
NEGATIVE INSERTS WITH HOLE

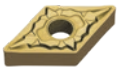
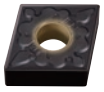
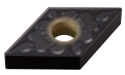
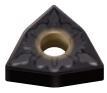
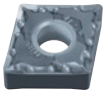
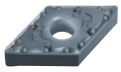
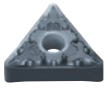
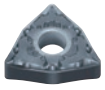
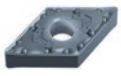
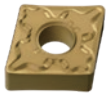
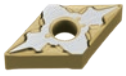
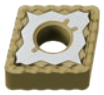
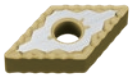
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M Class	FP	**First recommendation for finishing carbon steel and alloy steel** Controls chip clogging during high-feed cutting and prevents chips of soft workpiece materials from running onto their surfaces. Large rake angle suppress chatter vibration and deformation in machining of low rigidity workpiece material.	Carbon Steel·Alloy Steel ap (inch) .157 .118 .079 .039 0 .004 .012 .020 f (IPR) Corner 20° Flank 20° CNMG432FP
		FH	**First recommendation for finishing carbon steel and alloy steel** Stable chip control even at small depths of cut.	Carbon Steel·Alloy Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 12° Flank 12° CNMG432FH
		FS	**Alternative chip breaker for finishing mild steel** Stable chip control even at small depths of cut. Sharp edge gives best performance.	Mild Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 16° Flank 8° CNMG432FS
	G Class	NEW FS	**Recommendation for finishing difficult-to-cut materials** Excellent chip breaking even at very small depths of cut. The large rake angle and precision grade enables excellent sharpness.	Difficult-to-Cut Materials ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) .009" Corner 25° .017" Flank 25° CNGG432FS
	M Class	FY	**First recommendation for finishing mild steel** Effectively controls adhesive chips. Suitable for mild steel finishing.	Difficult-to-Cut Materials ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 15° Flank .008" 15° CNMG432FY
	G Class	FJ	**Alternative breaker for finishing difficult-to-cut materials** Ideal for heat resistant alloys and titanium alloys. The sharp edge produces good cutting surface. The curved edge allows smooth chip discharge.	Titanium alloy ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 14° Flank 9° CNGG431FJ
		FJ-P	**Recommendation for finishing titanium alloy** Double sided chipbreaker. Ideal for aluminum and copper. The sharp edge produces excellent surface finishes. The curved edge allows smooth chip discharge. The polished insert face prevents built up edge.	Carbon Steel·Alloy Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 14° Flank 9° CNGG431FJ-P
		R/L FS	**Chip breaker for precise finishing** A narrow lead chip breaker for good chip control. The sharp edge produces a good surface finish.	Carbon Steel·Alloy Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Flank 14° TNGG331RFS
		R/L F	**Chip breaker for finishing** Lead chip breaker controls chip flow. The sharp edge produces a good surface finish.	Carbon Steel·Alloy Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Flank 14° TNGG331RF

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CNMG_FP  A106	DNMG_FP  A114	SNMG_FP  A123	TNMG_FP  A130	VNMG_FP  A138	WNMG_FP  A142	
	CNMG_FH  A106	DNMG_FH  A114	SNMG_FH  A123	TNMG_FH  A130	VNMG_FH  A138	WNMG_FH  A142	
	CNMG_FS  A106	DNMG_FS  A114	SNMG_FS  A123	TNMG_FS  A130	VNMG_FS  A138	WNMG_FS  A142	
	CNGG_FS NEW  A106	DNGG_FS NEW  A114		TNGG_FS NEW  A130	VNGG_FS NEW  A138		
	CNMG_FY  A106	DNMG_FY  A114		TNMG_FY  A130		WNMG_FY  A142	
	CNGG_FJ  A106	DNGG_FJ  A115			VNGG_FJ  A138		
	CNGG_FJ-P  A107						
				TNGG_R/L FS  A131			
				TNGG_R/L-F  A131	VNGG_R/L-F  A138		

CLASSIFICATION

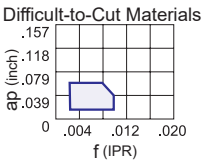
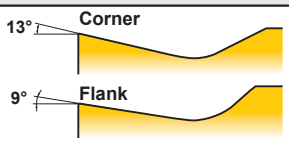
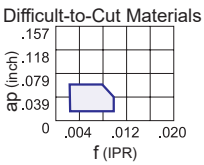
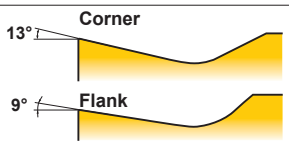
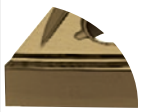
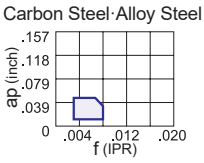
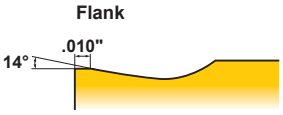
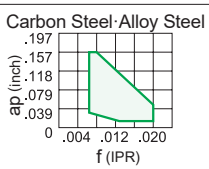
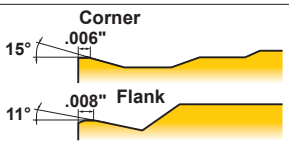
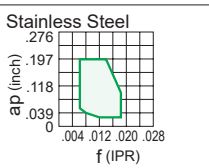
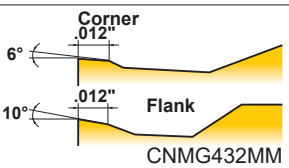
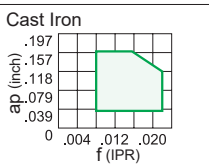
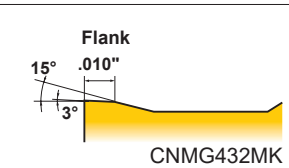
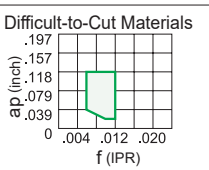
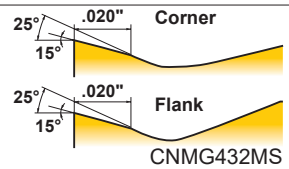
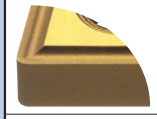
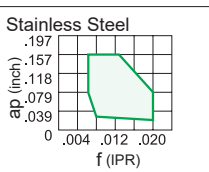
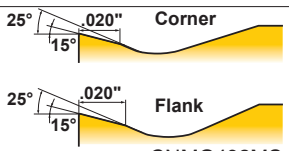
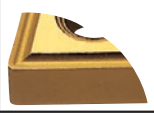
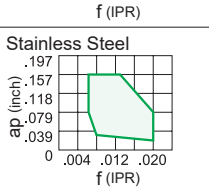
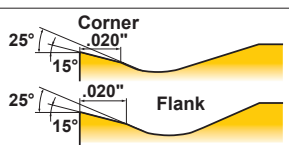
NEGATIVE INSERTS WITH HOLE

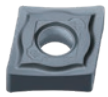
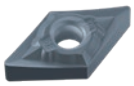
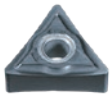
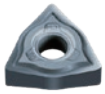
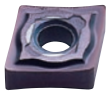
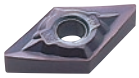
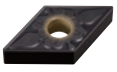
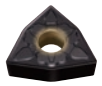
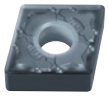
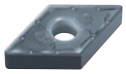
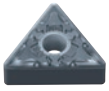
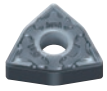
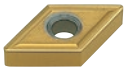
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Light Cutting	M Class	**LP** 	**First recommendation for light cutting of carbon steel and alloy steel** Stable chip control at light cutting range. The curved edge allows smooth chip discharge.	Carbon Steel·Alloy Steel   CNMG432LP
		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   CNMG432LM
		LK 	**First recommendation for light cutting of cast iron** Narrow positive land provides low cutting resistance and excellent finish.	Cast Iron   CNMG432LK
		LS 	**First recommendation for light cutting of difficult-to-cut materials** **Alternative chip breaker for light cutting of stainless steel** Enhanced chip disposal for depths of cut smaller than the corner R.	Difficult-to-Cut Materials   CNMG432LS
	G Class	NEW **LS** 	**Recommendation for light cutting of difficult-to-cut materials** Enhanced chip disposal for depths of cut smaller than the corner R. Precision grade with excellent sharpness.	Difficult-to-Cut Materials   CNGG432LS
	M Class	**SH** 	**Alternative chip breaker for light cutting of carbon steel and alloy steel** Can be used at low depths of cut and high feed rates. The curved edge allows smooth chip discharge. Recommended for workpieces in the 160—250HB range.	Carbon Steel·Alloy Steel   CNMG432SH
		SA 	**Alternative chip breaker for light cutting of carbon steel and alloy steel** Superior chip control at small depths of cut. Covers copying and back turning with wavy edge. Recommended for workpieces in the 200—300HB range.	Carbon Steel·Alloy Steel   CNMG432SA
		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   CNMG432SW
		SY 	**First recommendation for light cutting of mild steel** Effectively controls adhesive chips. Suitable for mild steel light cutting.	Mild Steel   CNMG432SY

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CNMG_LP  A107	DNMG_LP  A115	SNMG_LP  A123	TNMG_LP  A131	VNMG_LP  A139	WNMG_LP  A142	
	CNMG_LM  A107	DNMG_LM  A115	SNMG_LM  A123	TNMG_LM  A131	VNMG_LM  A139	WNMG_LM  A143	
	CNMG_LK  A107	DNMG_LK  A115	SNMG_LK  A124	TNMG_LK  A131	VNMG_LK  A139	WNMG_LK  A143	
	CNMG_LS  A107	DNMG_LS  A115		TNMG_LS  A131	VNMG_LS  A139	WNMG_LS  A143	
	CNGG_LS NEW  A107	DNGG_LS NEW  A115		TNGG_LS NEW  A131	VNGG_LS NEW  A139		
	CNMG_SH  A107	DNMG_SH  A116	SNMG_SH  A124	TNMG_SH  A131	VNMG_SH  A139	WNMG_SH  A143	
	CNMG_SA  A107	DNMG_SA  A116	SNMG_SA  A124	TNMG_SA  A132	VNMG_SA  A139	WNMG_SA  A143	
	CNMG_SW  A108	DNMX_SW A116		TNMX_SW A132		WNMG_SW A143	
	CNMG_SY A108	DNMG_SY A116	SNMG_SY A124	TNMG_SY A132		WNMG_SY A143	

CLASSIFICATION

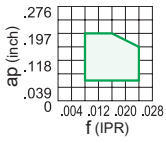
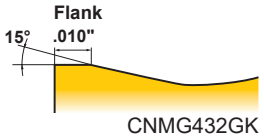
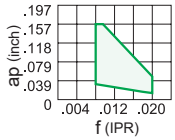
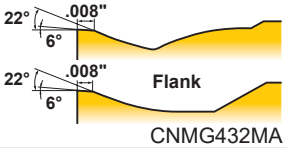
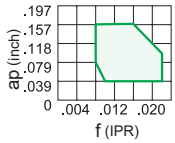
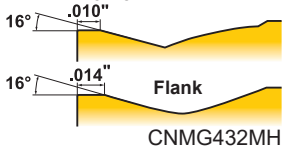
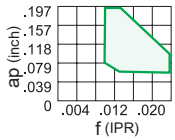
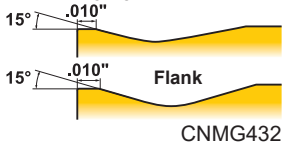
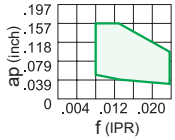
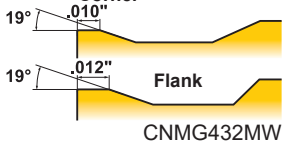
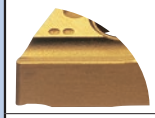
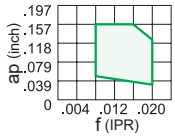
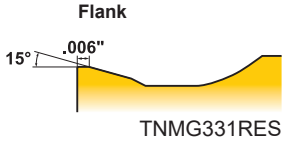
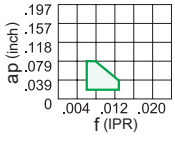
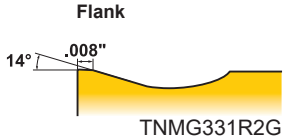
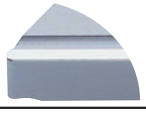
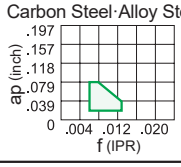
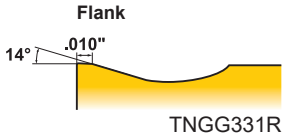
NEGATIVE INSERTS WITH HOLE

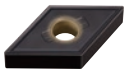
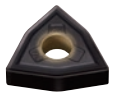
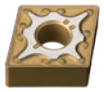
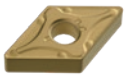
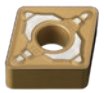
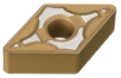
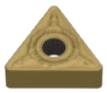
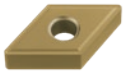
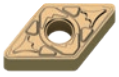
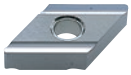
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Light Cutting	M Class	MJ 	**Alternative chip breaker for light cutting of difficult-to-cut materials** Ideal for heat resistant alloys and titanium alloys. The sharp edge produces a good surface finish. The curved edge allows smooth chip discharge. Excellent notch wear resistance for light to medium cutting.	 
Light Cutting	G Class	MJ 	**Alternative chip breaker for light cutting of difficult-to-cut materials** Double-sided chip breaker, Single sided chip breaker (D type, V type). The sharp edge produces a good surface finish. Ideal for heat resistant alloys and titanium alloys. The curved edge allows smooth chip discharge.	 
Light Cutting	G Class	R/L-K 	**Chip breaker for Light cutting** Parallel chip breaker. Excellent chip control at low to medium feed rates.	 
Medium Cutting	M Class	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.	 
Medium Cutting	M Class	MM 	**First recommendation for medium cutting of stainless steel** Optimised land geometry by simulation analysis technology controls the plastic deformation of the corner and achieves the long tool life.	 
Medium Cutting	M Class	MK 	**First recommendation for medium cutting of cast iron** Optimum balance between sharpness and high edge strength for general use.	 
Medium Cutting	M Class	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	 
Medium Cutting	M Class	MS 	**Alternative chip breaker for medium cutting of stainless steel and difficult-to-cut materials** The sharp edge gives best performance. Flat top breaker shape offers high edge strength. Applicable to grades other than MP9005, MP9015, MP9025, MT9015	 
Medium Cutting	M Class	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.	 

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CNMG_MJ  A108	DNMG_MJ  A117		TNMG_MJ  A132	VNMG_MJ  A139	WNMG_MJ  A143	
	CNGG_MJ  A108	DNGM_MJ  A117			VNGM_MJ  A140		
				TNGG_R/L K  A132			
	CNMG_MP  A108	DNMG_MP  A117	SNMG_MP  A124	TNMG_MP  A133	VNMG_MP  A140	WNMG_MP  A144	
	CNMG_MM  A109	DNMG_MM  A117	SNMG_MM  A125	TNMG_MM  A133	VNMG_MM  A140	WNMG_MM  A144	
	CNMG_MK  A109	DNMG_MK  A117	SNMG_MK  A125	TNMG_MK  A133	VNMG_MK  A140	WNMG_MK  A144	
	CNMG_MS  A109	DNMG_MS  A117	SNMG_MS  A125	TNMG_MS  A133	VNMG_MS  A140	WNMG_MS  A144	
	CNMG_MS  A109	DNMG_MS  A118	SNMG_MS  A125	TNMG_MS  A133	VNMG_MS  A140	WNMG_MS  A145	
	CNMG_GM  A110	DNMG_GM A118	SNMG_GM A126	TNMG_GM A133	VNMG_GM A141	WNMG_GM A145	

CLASSIFICATION

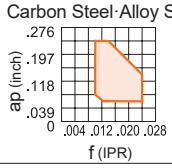
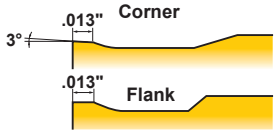
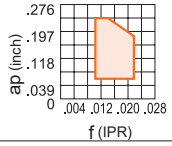
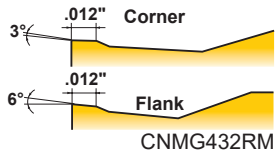
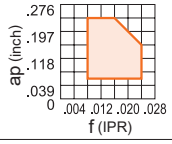
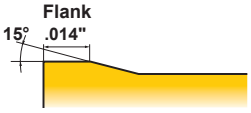
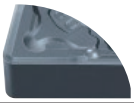
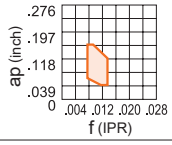
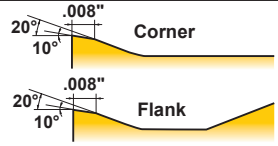
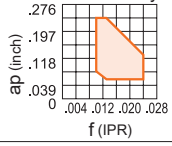
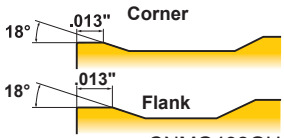
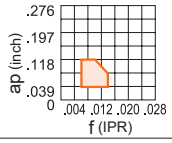
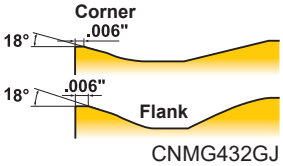
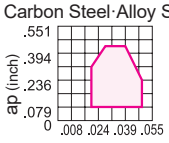
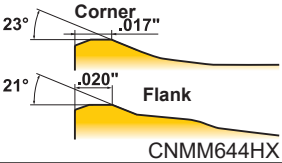
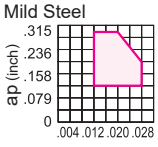
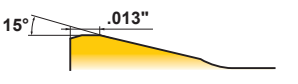
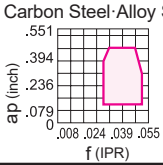
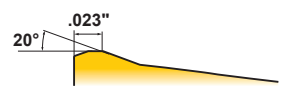
NEGATIVE INSERTS WITH HOLE

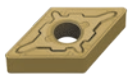
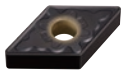
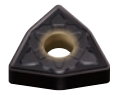
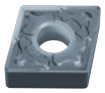
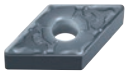
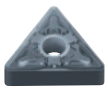
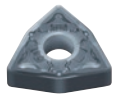
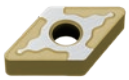
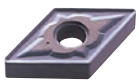
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M Class	**GK** 	**Alternative chip breaker for medium cutting for cast iron** Breakers are suitable for a wide range of applications. Maintenance of high stability by the flat-land.	Cast Iron   CNMG432GK
		MA 	**Multi-assist chip breaker** Ideal for general cutting applications. Positive land provides sharp cutting action.	Carbon Steel·Alloy Steel   CNMG432MA
		MH 	**Alternative chip breaker for medium cutting of carbon steel and alloy steel** Flat land offers high edge strength. Good chip control with suitable chip pocket.	Carbon Steel·Alloy Steel   CNMG432MH
		Standard 	**Alternative chip breaker for medium cutting of carbon steel and alloy steel** Flat land offers high edge strength. Flat top breaker shape offers high edge strength.	Carbon Steel·Alloy Steel   CNMG432
		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   CNMG432MW
		R/L-ES 	**Alternative chip breaker for medium cutting of stainless steel** Good balance of edge strength and sharpness. Right- or left-hand breaker for unidirectional chip control.	Stainless Steel   TNMG331RES
		R/L-2G 	**Alternative chip breaker for medium cutting of carbon steel and alloy steel** Good balance of edge strength and sharpness. Right- or left-hand breaker for unidirectional chip control. Precision chip breaker.	Carbon Steel·Alloy Steel   TNMG331R2G
	G Class	**R/L** 	**Medium cutting** Parallel chip breaker. Good chip control for medium feed rates.	Carbon Steel·Alloy Steel   TNGG331R

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CNMG_GK  A110	DNMG_GK  A118	SNMG_GK  A125	TNMG_GK  A133	VNMG_GK  A141	WNMG_GK  A145	
	CNMG_MA  A110	DNMG_MA  A118	SNMG_MA  A126	TNMG_MA  A134	VNMG_MA  A141	WNMG_MA  A145	
	CNMG_MH  A110	DNMG_MH  A119	SNMG_MH  A126	TNMG_MH  A134	VNMG_MH  A141	WNMG_MH  A145	
	CNMG  A111	DNMG  A119	SNMG  A127	TNMG  A134	VNMG  A141	WNMG  A145	RNMG  A122
	CNMG_MW  A111	DNMX_MW  A119		TNMX_MW  A135		WNMG_MW  A146	
				TNMG_R/L ES  A135			
				TNMG_R/L 2G  A135			
		DNGG_R/L  A119	SNGG_R/L  A127	TNGG_R/L  A135	VNGG_R/L  A141		

CLASSIFICATION

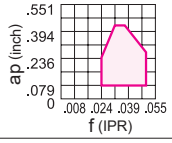
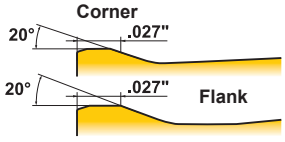
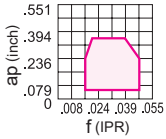
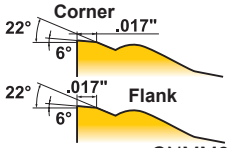
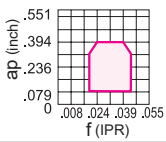
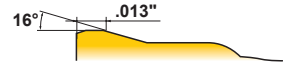
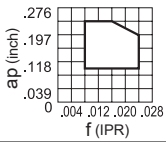
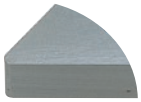
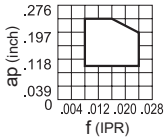
NEGATIVE INSERTS WITH HOLE

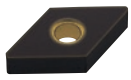
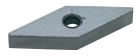
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Rough Cutting	M Class	RP 	**First recommendation for rough cutting of carbon steel and alloy steel** For interrupted cuts and removing scale. Good balance of cutting edge strength and low cutting resistance because of suitable rake angle.	Carbon Steel·Alloy Steel   CNMG432RP
		RM 	**First recommendation for rough cutting of stainless steel** Excellent fracture resistance at interrupted cutting due to the optimum land angle and honing geometry.	Stainless Steel   CNMG432RM
		RK 	**First recommendation for rough cutting of cast iron** Seating surface and wide land 3 or more times that of conventional products and provides high cutting stability for interrupted machining and scale removal.	Cast Iron   CNMG432RK
		RS 	**First recommendation for rough cutting of difficult-to-cut materials** **Alternative chip breaker for rough cutting of stainless steels** Positive land increases welding resistance and suppresses chip welding and abrasion at low speed cutting.	Difficult-to-Cut Materials   CNMG432RS
		GH 	**Alternative chip breaker for rough cutting of carbon steel, alloy steel and cast iron** For interrupted cuts and removing scale. A combination of wide land and a large chip pocket allows high feed rates.	Carbon Steel·Alloy Steel   CNMG432GH
		GJ 	**Alternative chip breaker for rough cutting of difficult-to-cut materials** Excellent balance of edge sharpness and strength. Edge geometry with high face wear resistance.	Difficult-to-Cut Materials   CNMG432GJ
Heavy Cutting	M Class	HX 	**First recommendation for heavy cutting of carbon steel and alloy steel** Covers the medium range of the heavy cutting region. Owing to the straight edge and chamfer, it gives a balance of sharpness and strength. Variable land and a wavy chip breaker for good chip control.	Carbon Steel·Alloy Steel   CNMM644HX
		HL 	**First recommendation for heavy cutting of stainless steel** **Alternative chip breaker for heavy cutting of carbon steel and alloy steel** Low resistance due to narrow flat land. Achieves high chip breaking ability.	Mild Steel   CNMM644HL
		HR 	**Alternative chip breaker for heavy cutting of carbon steel and alloy steel** High cutting edge strength. Excellent chip discharge even with high feed and high depth of cut.	Carbon Steel·Alloy Steel   CNMM866HR

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CNMG_RP  A111	DNMG_RP  A119	SNMG_RP  A127	TNMG_RP  A136		WNMG_RP  A146	
	CNMG_RM  A111	DNMG_RM  A119	SNMG_RM  A127	TNMG_RM  A136		WNMG_RM  A146	
	CNMG_RK  A111	DNMG_RK  A120	SNMG_RK  A127	TNMG_RK  A136		WNMG_RK  A146	
	CNMG_RS  A112	DNMG_RS  A120	SNMG_RS  A128	TNMG_RS  A136		WNMG_RS  A146	
	CNMG_GH  A112	DNMG_GH  A120	SNMG_GH  A128	TNMG_GH  A137		WNMG_GH  A147	
	CNMG_GJ  A112	DNMG_GJ  A120				WNMG_GJ  A147	
	CNMM_HX  A112		SNMM_HX  A128				
	CNMM_HL  A113	DNMM_HL  A120	SNMM_HL  A128	TNMM_HL  A137			
	CNMM_HR  A113		SNMM_HR  A129				

CLASSIFICATION

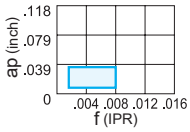
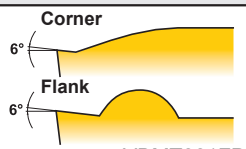
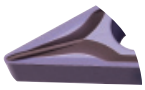
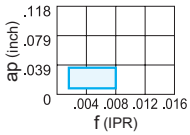
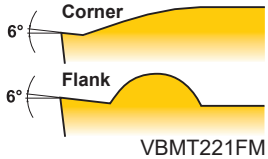
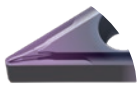
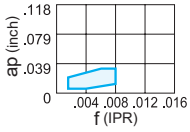
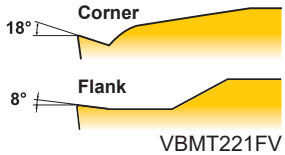
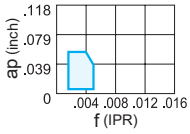
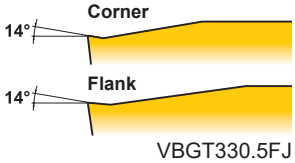
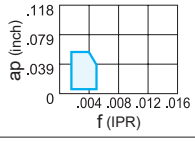
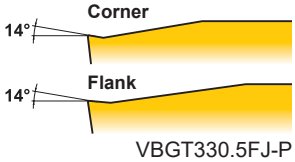
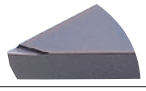
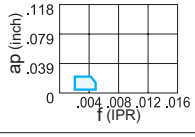
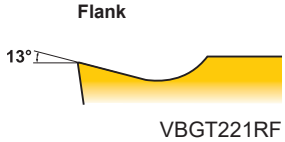
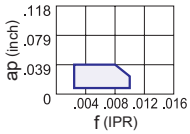
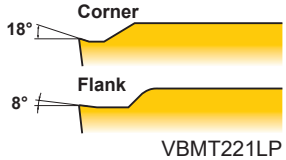
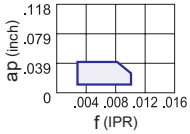
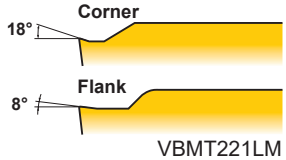
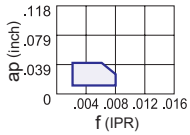
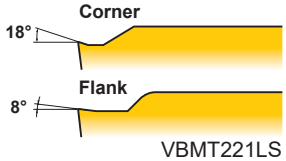
NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Heavy Cutting	M Class	**HV** 	**Alternative chip breaker for heavy cutting of carbon steel and alloy steel** Covers the upper end of the heavy cutting region. Wide land and large chamfer offer high edge strength. A wide chip breaker prevents chip jamming.	Carbon Steel·Alloy Steel   CNMM644HV
		HZ 	**Alternative chip breaker for heavy cutting of carbon steel and alloy steel** Covers the lower end of the heavy cutting region. Low cutting resistance due to positive land and curved edge. Teardrop dots improve chip control without increasing cutting resistance.	Mild Steel   CNMM644HZ
		HM 	**Alternative chip breaker for heavy cutting of carbon steel and alloy steel and stainless steel** Flat land provides outstanding balance between cutting edge strength and sharpness.	Mild Steel   CNMM644HM
For Cast Iron	M Class	**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   CNMA432
	G Class	**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   DNGA432

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CNMM_HV  A113		**SNMM_HV**  A129				
	CNMM_HZ  A113	**DNMM_HZ**  A121	**SNMM_HZ**  A129	**TNMM_HZ**  A137			
	CNMM_HM  A113		**SNMM_HM**  A129				
	CNMA  A113	**DNMA**  A121	**SNMA**  A129	**TNMA**  A137	**VNMA**  A141	**WNMA**  A147	
		DNGA  A121	**SNGA**  A129	**TNGA**  A137	**VNGA**  A141		

CLASSIFICATION

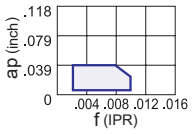
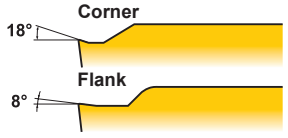
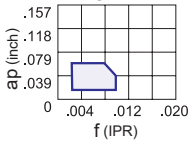
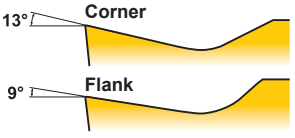
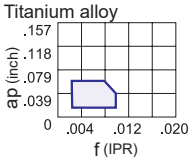
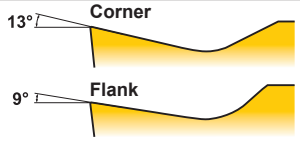
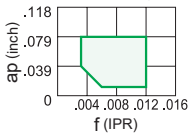
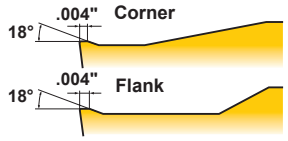
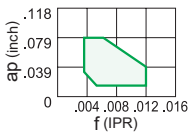
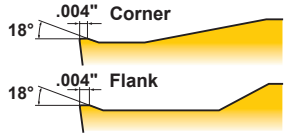
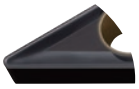
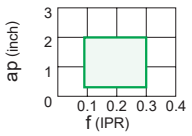
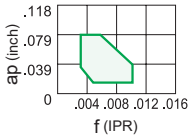
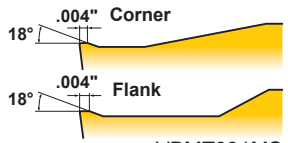
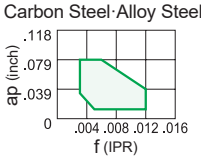
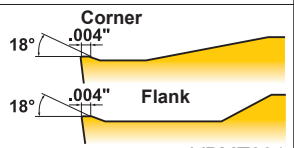
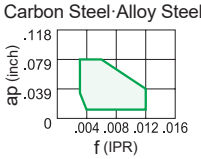
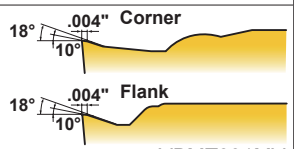
5° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M Class	**FP** 	**First recommendation for finishing carbon steel, alloy steel and mild steel** Breaker protrusion at the corner tip controls chips even at small depths of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Carbon Steel·Alloy Steel  
		FM 	**First recommendation for finishing stainless steel** Breaker protrusion at the corner tip controls chips even at small depths of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Stainless Steel  
		FV 	**Alternative chip breaker for finishing carbon steel, alloy steel, mild steel and stainless steel** Suitable for low depths of cut and low feed rates. Sharp cutting edge and low resistance design achieves excellent cutting performance.	Carbon Steel·Alloy Steel  
	G Class	**FJ** 	**Finishing difficult-to-cut materials** The curved cutting edges support changes in cutting depth, smooth chip discharge and disposal. The high rake angle is highly suitable for finishing difficult-to-cut materials.	Difficult-to-Cut Materials  
		FJ-P 	**Finishing titanium alloy** Ideal for aluminum and copper. The sharp edge produces excellent surface finishes. The curved edge allows smooth chip discharge. The polished insert face prevents built up edge.	Titanium alloy  
		R/L F 	**Finishing** Lead chip breaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel·Alloy Steel  
Light Cutting	M Class	**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  
		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  
		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  

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
					VBMT_FP  A186		
					VBMT_FM  A186		
					VBMT_FV  A186		
					VBGT_FJ  A186		
					VBGT_FJ-P  A186		
					VBGT_R/L F  A187	WBGT_R/L F  A195	
					VBMT_LP  A187		
					VBMT_LM  A187		
					VBMT_LS  A187		

CLASSIFICATION

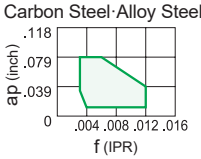
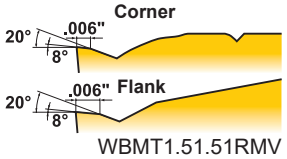
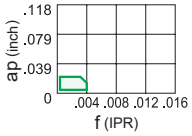
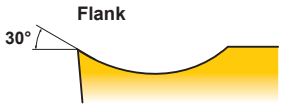
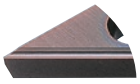
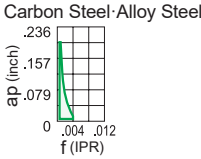
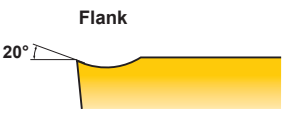
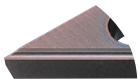
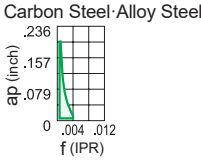
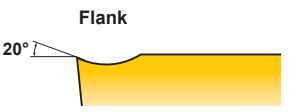
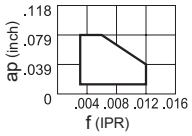
5° POSITIVE INSERTS WITH HOLE

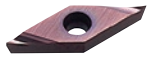
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Light Cutting	M Class	**SV** 	**Alternative chip breaker for carbon steel, alloy steel and stainless steel** Large rake angle provides sharp cutting action. A peninsular dot ensures chip control at depths of cut under 1mm.	Carbon Steel·Alloy Steel   VBMT221SV
Light Cutting	G Class	**MJ** 	**Light cutting of difficult-to-cut materials Ideal for heat-resistant alloy and titanium alloy** The curved cutting edges support changes in cutting depth, smooth chip discharge and disposal. The high rake angle is highly suitable for finish-light cutting difficult-to-cut materials.	Difficult-to-Cut Materials   VBGT331MJ
		MJ-P 	**Light cutting for titanium alloy** Ideal for aluminum and copper. The sharp edge produces excellent surface finishes. The curved edge allows smooth chip discharge. The polished insert face prevents built up edge.	Titanium alloy   VBGT331MJ-P
Medium Cutting	M Class	**MP** 	**First recommendation for medium cutting of carbon steel, alloy steel and mild steel** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Carbon Steel·Alloy Steel   VBMT331MP
		MM 	**First recommendation for medium cutting of stainless steel** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Stainless Steel   VBMT331MM
		MK 	**First recommendation for medium cutting of cast iron** Optimum balance between sharpness and high edge strength for general use.	Cast Iron   VBMT331MK
		MS 	**First recommendation for medium cutting of difficult-to-cut materials** A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Difficult-to-Cut Materials   VBMT331MS
		Standard 	**Alternative chip breaker for medium cutting of carbon steel, alloy steel and stainless steel** Balance of edge strength and sharpness due to a combination of a flat land and large rake angle.	Carbon Steel·Alloy Steel   VBMT331
		MV 	**Alternative chip breaker for medium cutting of carbon steel, alloy steel, mild steel and stainless steel** A positive insert with a large rake angle achieves sharp cutting edge performance. The double breakers and round-shaped dots in the rake face achieve a wide range of chip discharge.	Carbon Steel·Alloy Steel   VBMT331MV

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
					VBMT_SV  A187		
					VBGT_MJ  A187		
					VBGT_MJ-P  A187		
					VBMT_MP  A188		
					VBMT_MM  A188		
					VBMT_MK  A188		
					VBMT_MS  A188		
					VBMT  A188		
					VBMT_MV  A188		

CLASSIFICATION

5° POSITIVE INSERTS WITH HOLE

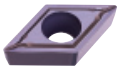
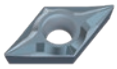
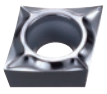
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M Class	**R/L-MV** 	**Alternative chip breaker for medium cutting of carbon steel, alloy steel, mild steel and stainless steel** A positive insert with a large rake angle achieves sharp cutting edge performance. The double breakers and round-shaped dots in the rake face achieve a wide range of chip discharge.	Carbon Steel·Alloy Steel   WBMT1.51.51RMV
Medium Cutting	E Class	**R/L SR** 	**Chip breaker for medium cutting of automatic lathe machining** A wide lead chip breaker. Insert designed for low resistance chip control.	Carbon Steel·Alloy Steel   VBET22V3RSR
Medium Cutting	E Class	**R/L SN** 	**Chip breaker for medium cutting of automatic lathe machining** A parallel chip breaker. Excellent chip control for low to medium feed rates.	Carbon Steel·Alloy Steel   VBET22V3RSN
Medium Cutting	E Class	**R/LW SN** 	**Chip breaker for medium cutting of automatic lathe machining** A parallel chip breaker. Excellent chip control for low to medium feed rates. The wiper produces good cutting surface.	Carbon Steel·Alloy Steel   VBET22V3RWSN
For Cast Iron	M Class	**Flat Top** 	**Chip breaker for Heavy cutting of cast iron** Flat top. Most effective for unstable machining due to its high edge strength.	Cast Iron   VBMW332

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
						WBMT_R/L MV  A195	
					VBET_R/L SR  A189		
					VBET_R/L SN  A189		
					VBET_R/LW SN  A189		
					VBMW  A189		

CLASSIFICATION

7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M Class	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 ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 6° Flank 6° CCMT32.51FP
		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 ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 6° Flank 6° CCMT32.51FM
	G Class	FS	**First recommendation for finishing difficult-to-cut materials** Ideal for heat resistant alloys, titanium alloy and Cobalt chromium alloys. The sharp edge produces a good surface finish. The curved edge allows smooth chip discharge.	Difficult-to-Cut Materials ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 14° Flank 9° CCGT32.50.5FS
		FS-P	**First recommendation for finishing titanium alloys** Ideal for titanium alloys and Copper alloys. The sharp edge produces a good surface finish. The curved edge allows smooth chip discharge. Lapping of the top surface gives a mirror finish for improved welding resistance.	Titanium alloy ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 14° Flank 9° CCGT32.50.5FS-P
	M Class	FV	**Alternative chip breaker for finishing carbon steel, alloy steel, mild steel and stainless steel** Suitable for low depths of cut and low feed rates. Sharp cutting edge and low resistance design achieves excellent cutting performance.	Carbon Steel·Alloy Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 18° Flank 8° CCMT32.51FV
		SVX	**Alternative chip breaker for light cutting of carbon steel and alloy steel** Chip control is improved by having a chip breaker geometry suitable for copying.	Carbon Steel·Alloy Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 18° Flank 8° XCMT221SVX
	G Class	FJ	**Alternative chip breaker for finishing difficult-to-cut materials** Ideal for heat resistant alloys and titanium alloys. The sharp edge produces a good surface finish. The curved edge allows smooth chip discharge.	Difficult-to-Cut Materials ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 14° Flank 9° CCGT32.50.5FJ
		FJ-P	**Finishing titanium alloy** Ideal for aluminum and copper. The sharp edge produces excellent surface finishes. The curved edge allows smooth chip discharge. The polished insert face prevents built up edge.	Titanium alloy ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 14° Flank 14° CCGT32.50.5FJ-P
		AZ	**Chip breaker 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.	Aluminum Alloy ap (inch) .157 .118 .079 .039 0 .004 .012 .020 f (IPR) Flank 28° DCGT32.50.5AZ

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Rhombic 25°	Round
	CCMT_FP  A152	DCMT_FP  A164	SCMT_FP  A174	TCMT_FP  A177	VCMT_FP  A190			
	CCMT_FM  A152	DCMT_FM  A164	SCMT_FM  A174	TCMT_FM  A177	VCMT_FM  A190			
	CCGT_FS  A152	DCGT_FS  A164						
	CCGT_FS-P  A152	DCGT_FS-P  A164						
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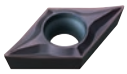
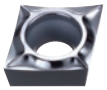
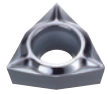
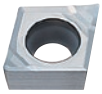
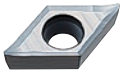
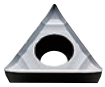
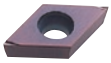
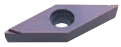
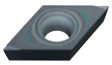
	CCGT_FJ  A153	DCGT_FJ  A165						
	CCGT_FJ-P  A153	DCGT_FJ-P  A165		TCGT_FJ-P  A177		WCGT_FJ-P  A196		
	CCGT_AZ  A153	DCGT_AZ  A165		TCGT_AZ  A177	VCGT_AZ  A190			RCGT-AZ  A173

CLASSIFICATION

7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	G Class	R/L-F	**Chip breaker for finishing** Lead chip breaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel·Alloy Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Flank 17° CCGT03S102L-F
		R/L	**Chip breaker for finishing** Lead chip breaker. Excellent chip control at low feed rates.	Carbon Steel·Alloy Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Flank 15° WCGT1.211R
		NEW R-SRF	**Chip breaker for finishing** Lead chip breaker controls chip flow. The sharp edge produces a good surface finish.	Carbon Steel • Alloy Steel, Stainless Steel, Difficult-to-Cut Materials ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Flank 15° DCGT32.50.2MRSRF
Light Cutting	M Class	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 ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 18° Flank 8° CCMT32.52LP
		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 ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 18° Flank 8° CCMT32.52LM
		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 ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 18° Flank 8° CCMT32.52LS
	G Class	LS	**First recommendation for light cutting of difficult-to-cut materials** Ideal for heat resistant alloys, titanium alloys and Cobalt chromium alloys. Parallel cutting edge. Achieves stable chip control in a wide range of areas from low to medium depths of cut.	Difficult-to-Cut Materials ap (inch) .157 .118 .079 .039 0 .004 .012 .020 f (IPR) Corner 12° Flank 6° CCGT32.51MLS
		LS-P	**First recommendation for light cutting of titanium alloys** Ideal for titanium alloys and Copper alloys. Parallel cutting edge. Achieves stable chip control in a wide range of areas from low to medium depths of cut. Lapping of the top surface gives a mirror finish for improved welding resistance.	Titanium alloy ap (inch) .157 .118 .079 .039 0 .004 .012 .020 f (IPR) Corner 12° Flank 6° CCGT32.51MLS-P
	M Class	SV	**Alternative chip breaker for light cutting of carbon steel, alloy steel, mild steel and stainless steel** Large rake angle provides sharp cutting action. A peninsular dot ensures chip control at depths of cut under 1mm.	Carbon Steel·Alloy Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (IPR) Corner 18° Flank 8° CCMH21.51SV

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Rhombic 25°	Round
	CCGT_R/L F CCGH_R/L F  A153, A154	DCGT_R/L F  A165		TCGT_R/L F  A178	VCGT_R/L F  A190			
						WCGT_R/L  A196		
		DCGT_R SRF NEW  A165						
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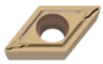
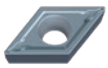
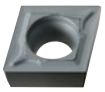
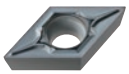
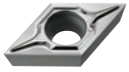
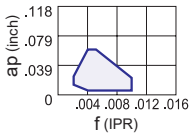
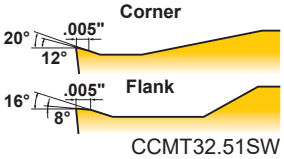
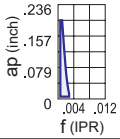
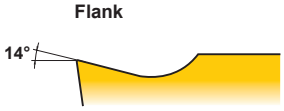
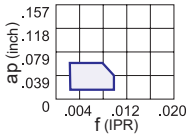
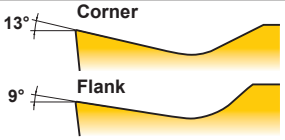
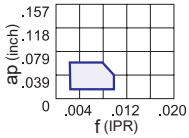
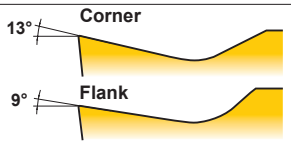
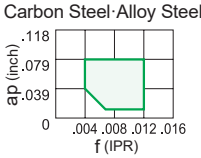
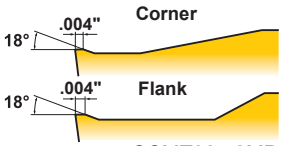
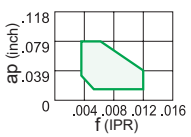
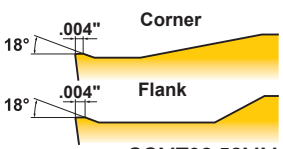
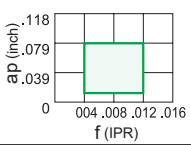
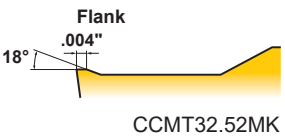
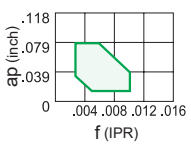
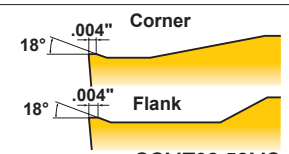
	CCMT_LM  A154	DCMT_LM  A165	SCMT_LM  A174	TCMT_LM  A178	VCMT_LM  A191			
	CCMT_LS  A154	DCMT_LS  A166		TCMT_LS  A178	VCMT_LS  A191			
	CCGT_LS  A154	DCGT_LS  A166			VCGT_LS  A191			
	CCGT_LS-P  A155	DCGT_LS-P  A166			VCGT_LS-P  A191			
	CCMH_SV  A155	DCMT_SV  A167			VCMT_SV  A191			

CLASSIFICATION

7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Light Cutting	M Class	**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   CCMT32.51SW
Light Cutting	G Class	**R/L-SS** 	**Chip breaker for light cutting of automatic lathe machining** A parallel chip breaker. Excellent chip control at low feed rates.	Carbon Steel·Alloy Steel   CCGT32.50.5RSS
Light Cutting	G Class	**MJ** 	**Light cutting of difficult-to-cut materials Ideal for heat-resistant alloy and titanium alloy** The curved cutting edges support changes in cutting depth-smooth chip discharge and disposal. The high rake angle is highly suitable for finish- light cutting difficult-to-cut materials.	Difficult-to-Cut Materials   CCGT21.51MJ
Light Cutting	G Class	**MJ-P** 	**Light cutting for titanium alloy** Ideal for aluminum and copper. The sharp edge produces excellent surface finishes. The curved edge allows smooth chip discharge. The polished insert face prevents built up edge.	Titanium alloy   CCGT21.51MJP
Medium Cutting	M Class	**MP** 	**First recommendation for medium cutting of carbon steel, alloy steel and mild steel** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Carbon Steel·Alloy Steel   CCMT32.52MP
Medium Cutting	M Class	**MM** 	**First recommendation for medium cutting of stainless steel** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Stainless Steel   CCMT32.52MM
Medium Cutting	M Class	**MK** 	**First recommendation for medium cutting of cast iron** Optimum balance between sharpness and high edge strength for general use.	Cast Iron   CCMT32.52MK
Medium Cutting	M Class	**MS** 	**First recommendation for medium cutting of difficult-to-cut materials** A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Difficult-to-Cut Materials   CCMT32.52MS

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Rhombic 25°	Round
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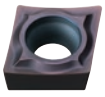
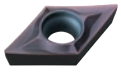
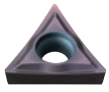
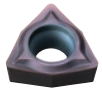
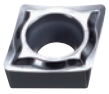
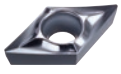
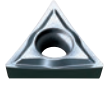
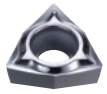
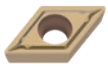
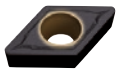
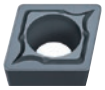
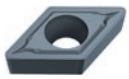
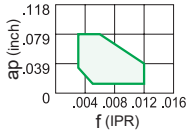
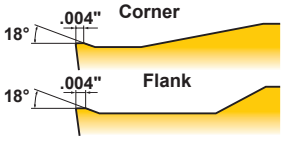
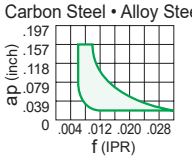
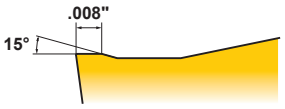
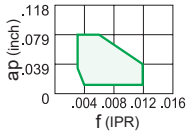
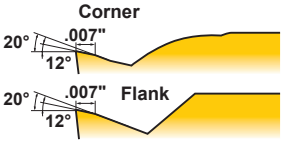
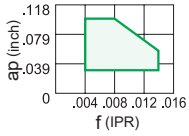
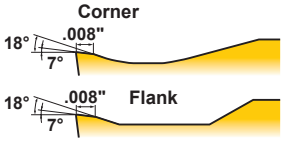
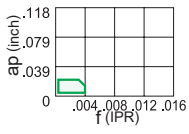
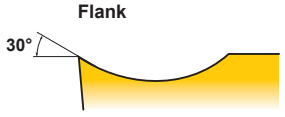
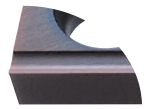
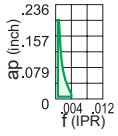
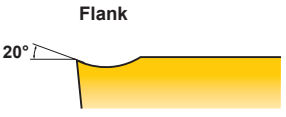
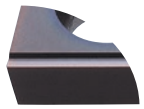
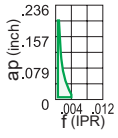
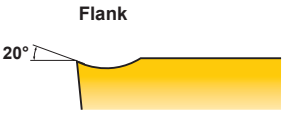
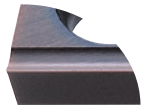
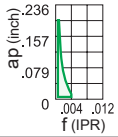
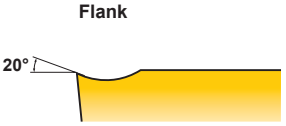
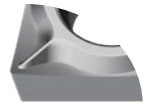
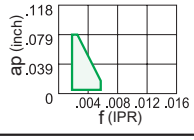
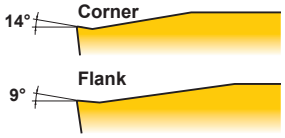
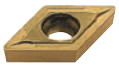
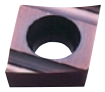
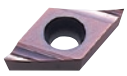
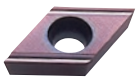
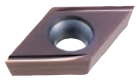
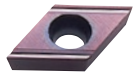
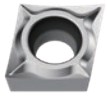
	CCGT_R/L SS  A156	DCGT_R/L SS  A167						
	CCGT_MJ  A155	DCGT_MJ  A166		TCGT_MJ  A179		WCGT_MJ  A196		
	CCGT_MJ-P  A155	DCGT_MJ-P  A166		TCGT_MJ-P  A179		WCGT_MJ-P  A196		
	CCMT_MP  A157	DCMT_MP  A167	SCMT_MP  A174	TCMT_MP  A179	VCMT_MP  A191	WCMT_MP NEW  A197		
	CCMT_MM  A157	DCMT_MM  A167	SCMT_MM  A175	TCMT_MM  A179	VCMT_MM  A192			
	CCMT_MK  A157	DCMT_MK  A168	SCMT_MK  A175	TCMT_MK  A179	VCMT_MK  A192			
	CCMT_MS  A157	DCMT_MS  A168	SCMT_MS  A175	TCMT_MS  A179	VCMT_MS  A192			

CLASSIFICATION

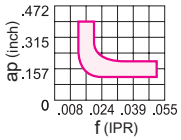
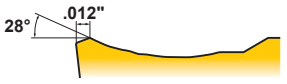
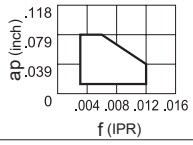
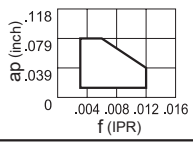
7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M Class	**Standard** 	**Alternative chip breaker for medium cutting of carbon steel, alloy steel, mild steel, stainless steel and cast iron** Balance of edge strength and sharpness due to a combination of a flat land and large rake angle.	Carbon Steel·Alloy Steel   CCMT32.52
				Carbon Steel • Alloy Steel   RCMX1204M0
		MV 	**Alternative chip breaker for medium cutting of carbon steel, alloy steel, mild steel and stainless steel** A positive insert and the large rake angle achieve sharp cutting edge performance. The double breakers and round shape in the rake face achieve a wide range of chip discharge.	Carbon Steel·Alloy Steel   CCMH21.51MV
		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   CCMT32.52MW
	E Class	**R/L SR** 	**Chip breaker for medium cutting of automatic lathe machining** A wide lead chip breaker. Insert designed for low resistance chip control.	Carbon Steel·Alloy Steel   CCET32.5V3RSR
		R/L SN 	**Chip breaker for medium cutting of automatic lathe machining** A parallel chip breaker. Excellent chip control at low to medium feed rates.	Carbon Steel·Alloy Steel   CCET32.5V3RSN
	G Class	**R/L SN** 	**Chip breaker for medium cutting of automatic lathe machining** A parallel chip breaker. Excellent chip control at low to medium feed rates. Suitable for precise machining with E class tolerance.	Carbon Steel·Alloy Steel   CCGT32.5V3RSN
	E Class	**R/LW SN** 	**Chip breaker for medium cutting of automatic lathe machining** A parallel chip breaker. Excellent chip control at low to medium feed rates. The wiper produces a good surface finish.	Carbon Steel·Alloy Steel   CCET31.5V3RWSN
	G Class	**SMG** 	**Chip breaker for medium cutting of automatic lathe machining** 3D molded chip breaker provides good chip control. G class insert gives sharp cutting action, allowing high precision machining. Breaker geometry appropriate for copying and back turning.	Carbon Steel·Alloy Steel   CCGT32.51MSMG

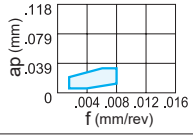
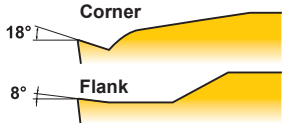
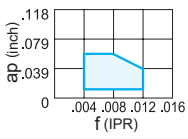
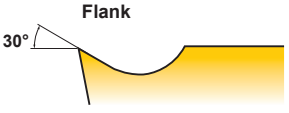
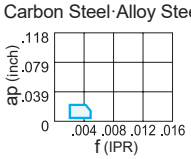
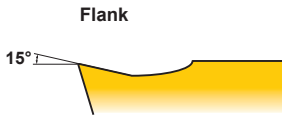
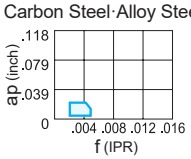
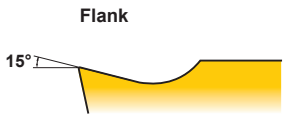
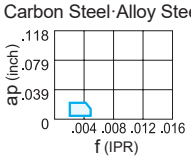
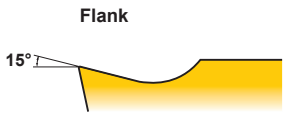
	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 
	CCMT  A158	**DCMT**  A168	**SCMT**  A175	**TCMT**  A180	**VCMT**  A192	**WCMT**  A197	**RCMT**  A173
							RCMX  A173
	CCMH_MV  A158	**DCMT_MV**  A168			**VCMT_MV**  A192		
	CCMT_MW  A158						
	CCET_R/L SR  A159	**DCET_R/L SR**  A169					
	CCET_R/L SN  A160	**DCET_R/L SN**  A170					
	CCGT_R/L SN  A159	**DCGT_R/L SN**  A169					
	CCET_R/LW SN  A160	**DCET_R/LW SN**  A170					
	CCGT_SMG  A161	**DCGT_SMG**  A171					

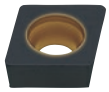
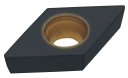
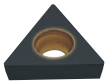
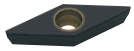
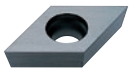
CLASSIFICATION

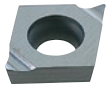
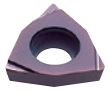
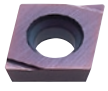
7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Heavy Cutting	M Class	**RR** 	**Chip breaker for heavy cutting of carbon steel and alloy steel** A wide groove chip breaker prevents chips from jamming at large depths of cut. Small dimples improve chip control at small depths of cut.	Carbon Steel·Alloy Steel   RCMX2006M0-RR
For Cast Iron	M Class	**Flat Top** 	**Chip breaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to its high edge strength.	Cast Iron   CCMW32.52
For Cast Iron	G Class	**Flat Top** 	**Chip breaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to its high edge strength. Can be used on workpieces requiring close tolerances due to G class insert tolerance.	Cast Iron   CCGW32.5V0

11° POSITIVE INSERTS WITH HOLE

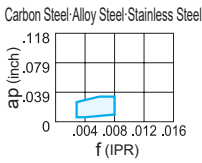
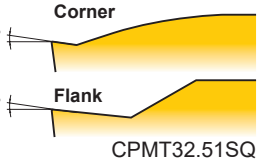
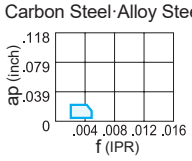
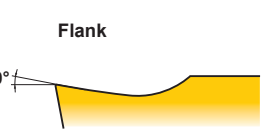
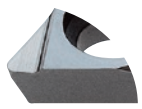
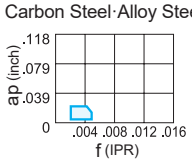
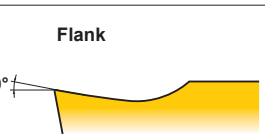
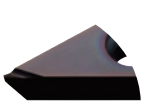
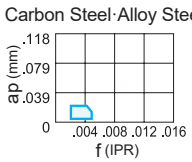
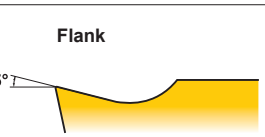
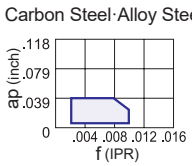
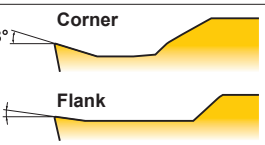
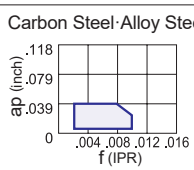
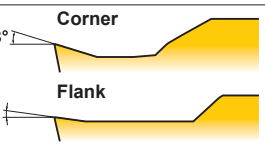
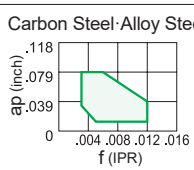
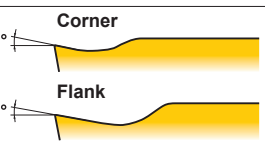
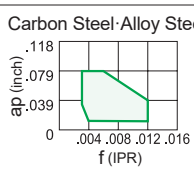
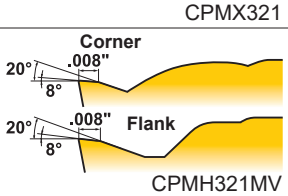
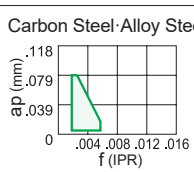
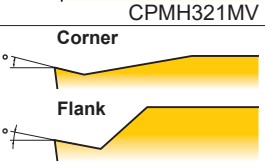
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M Class	**FV** 	**First recommendation for finishing carbon steel, alloy steel, mild steel and stainless steel** Suitable for low depths of cut and low feed rates. Sharp cutting edge and low resistance design achieves excellent cutting performance.	Carbon Steel·Alloy Steel   CPMH321FV
Finish Cutting	G Class	**Standard** 	**Chip breaker for finishing** Lead chip breaker controls chip flow. Good chip control for low to medium feed rates.	Aluminum Alloy   CPGT321
Finish Cutting	G Class	**R/L FS** 	**Chip breaker for finishing carbon steel, alloy steel, stainless steel, cast iron and aluminium alloy** Small wide lead chip breaker. Sharp cutting edge gives a good surface finish.	Carbon Steel·Alloy Steel   TPGH1.81.51RFS
Finish Cutting	M Class	**R/L F** 	**Chip breaker for finishing** Lead chip breaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel·Alloy Steel   CPMT321RF
Finish Cutting	G Class	**R/L F** 	**Chip breaker for finishing** Lead chip breaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel·Alloy Steel   CPGT321RF

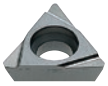
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
							RCMX_RR  A173
	CCMW  A161	DCMW  A171	SCMW  A175	TCMW  A180	VCMW  A192		
	CCGW  A161	DCGW  A171		TCGW  A180			

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CPMH_FV  A162			TPMH_FV  A182			
	CPGT  A162						
				TPGH_R/L FS  A182		WPGT_R/L FS  A198	
	CPMH_R/L F  A162						
	CPGT_R/L F  A162						

CLASSIFICATION

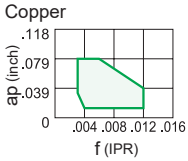
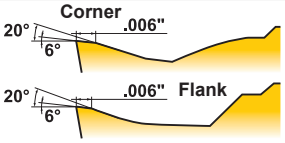
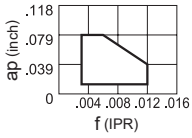
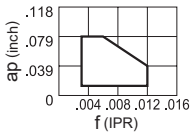
11° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M Class	**SQ** 	**Finishing carbon steel, alloy steel and stainless steel** For small depth of cut and low feed.	  CPMT32.51SQ
	G Class	**R/L** 	**Chip breaker for finishing** Lead chip breaker controls chip flow. Good chip control for low to medium feed rates.	  TPGX1.81.51R
	M Class	**L** 	**Chip breaker for finishing** Lead chip breaker controls chip flow. Good chip control for low to medium feed rates.	  TPMX1.81.51L
	E Class	**SRF** 	**Chip breaker for finishing** Lead chip breaker controls chip flow. Sharp cutting edge gives a good surface finish.	  VPET1.51.50.2RSRF
Light Cutting	M Class	NEW **LP** 	**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.	  CPMH32.51SV
		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.	  CPMH32.51SV
Medium Cutting	M Class	**Standard** 	**Alternative chip breaker for medium cutting of carbon steel, alloy steel and stainless steel** Standard, general purpose chip breaker.	  CPMX321
		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.	  CPMH321MV
	G Class	**SMG** 	**Chip breaker for medium cutting of automatic lathe machining** 3D molded chip breaker provides good chip control. G class insert gives sharp cutting action, allowing high precision machining. Breaker geometry appropriate for copying and back turning.	  VPGT1.51.50.2MSMG

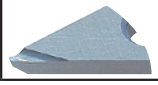
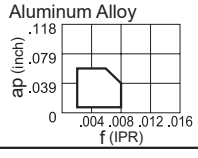
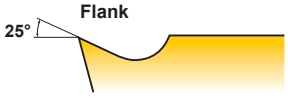
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CPMT_SQ  A162			TPMT_SQ  A183			
				TPGX_R/L  A183			
				TPMX_L  A183			
					VPET_R/L SRF  A194		
	CPMH_LP NEW  A163			TPMH_LP NEW  A183			
	CPMH_SV  A163			TPMH_SV  A184			
	CPMX NEW CPMH  A163		SPMT  A176	TPMX  A184			
	CPMH_MV  A163			TPMH_MV  A184		WPMT_MV  A198	
					VPGT_SMG  A194		

CLASSIFICATION

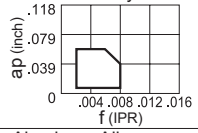
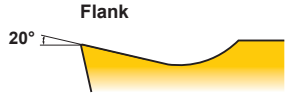
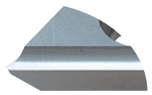
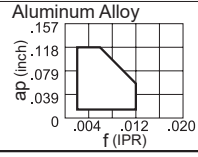
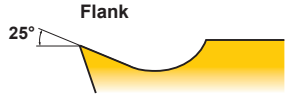
11° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M Class	**MQ** 	**Medium cutting of carbon steel, alloy steel and stainless steel** Can be used under a wide range of cutting conditions.	Copper   CPMT32.51MQ
For Cast Iron	M Class	**Flat Top** 	**Chip breaker for Heavy cutting of cast iron** Flat top. Most effective for unstable machining due to its high edge strength.	Cast Iron   SPMW432
	G Class	**Flat Top** 	**Chip breaker for Heavy cutting of cast iron** Flat top. Most effective for unstable machining due to its high edge strength. Can be used on workpieces requiring close tolerances due to G class insert tolerance.	Cast Iron   SPGX432

15° POSITIVE INSERTS WITH HOLE

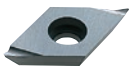
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
For Aluminum Alloy	G Class	**R/L** 	**Chip breaker for aluminium alloy cutting** Lead chip breaker. Sharp cutting edge gives a good surface finish.	Aluminum Alloy   VDGX320.5R

20° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
For Aluminum Alloy	G Class	**R/L F** 	**Chip breaker for aluminium alloy cutting** Lead chip breaker. Sharp cutting edge gives a good surface finish.	Aluminum Alloy   DEGX431RF
		R/L 	**Chip breaker for aluminium alloy cutting** A parallel chip breaker. Sharp cutting edge gives a good surface finish. Good chip control for medium feed rates.	Aluminum Alloy   DEGX431R

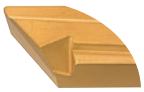
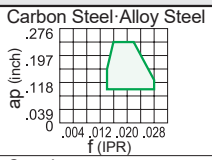
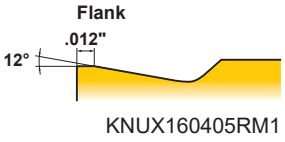
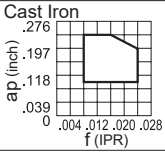
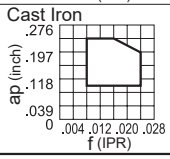
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CPMT_MQ  A163			**TPMT_MQ**  A184			
			SPMW  A176				
			SPGX  A176	**TPGX**  A185			

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
					VDGX_R/L  A193		

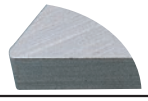
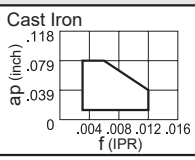
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
		DEGX_R/L F  A172					
		DEGX_R/L  A172		**TEGX_R/L**  A181			

CLASSIFICATION

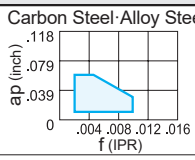
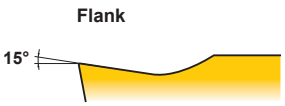
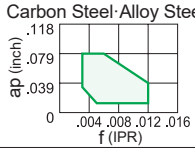
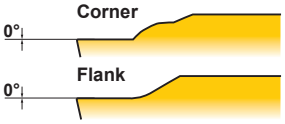
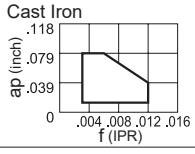
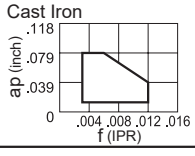
NEGATIVE INSERTS WITHOUT HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M Class	**M1** 	**Medium cutting of carbon steel and alloy steel** Single sided chipbreaker. Can be used for copying. An angled chipbreaker for controlling chip flow. (M1)	  KNUX160405RM1
For Cast Iron	M Class	**Flat Top** 	**Chip breaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping.	  SNMN432
For Cast Iron	G Class	**Flat Top** 	**Chip breaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping. Can be used on workpieces requiring close tolerances due to G class insert tolerance.	  SNGN432

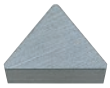
7° POSITIVE INSERTS WITHOUT HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
For Cast Iron	G Class	**Flat Top** 	**Chip breaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping. Can be used on workpieces requiring close tolerances due to G class insert tolerance.	  TCGN1.81.51

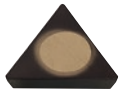
11° POSITIVE INSERTS WITHOUT HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	G Class	**R/L** 	**Chip breaker for finishing** A parallel chip breaker. Good chip control for low to medium feed rates.	  SPGR321R
Light to Medium Cutting	M Class	**Standard** 	**Chip breaker for light to medium cutting of carbon steel, alloy steel and stainless steel** Standard, general purpose chip breaker.	  SPMR322
For Cast Iron	M Class	**Flat Top** 	**Chip breaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping.	  SPMN322
For Cast Iron	G Class	**Flat Top** 	**Chip breaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping. Can be used on workpieces requiring close tolerances due to G class insert tolerance.	  SPGN322

	Rhombic 80°	Square 90°	Triangular 60°	Parallelogram 55°
				KNUX_M1  A148
	CNMN  A149	SNMN  A150	TNMN  A151	
		SNG  A150	TNG  A151	

	Triangular 60°
	TCGN  A202

SPECIAL PURPOSE INSERTS

	Square 90°	Triangular 60°
	SPGR_R  A201	TPGR_R/L  A203
	SPMR  A201	TPMR  A203
	SPMN  A201	TPMN  A203
	SPG  A201	TPG  A204

Application	Tolerance	Tool Holder Type	Inserts
Special	G Class	TL Type	RTG  A200

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERT TYPE

Breaker : **Std :** Standard **Flat :** Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
P									
Mild Steel (ANSI ASTM A283, AISI 1010)	≤180HB	●	**F**	1	**FY**	**VP25N**	935－1475	.004－.009	.008－.031
		●	**F**	2	**FY**	**NX2525**	885－1260	.004－.009	.008－.031
		●	**F**	3	**FS**	**NX2525**	885－1260	.004－.009	.008－.028
		●	**L**	1	**SY**	**VP25N**	850－1345	.006－.013	.020－.047
		●	**L**	2	**SY**	**NX2525**	805－1150	.006－.013	.020－.047
		◐	**F**	1	**FY**	**MP3025**	900－1395	.004－.009	.008－.031
		◐	**F**	2	**FY**	**NX3035**	850－1215	.004－.009	.008－.031
		◐	**F**	3	**FS**	**NX2525**	885－1260	.004－.009	.008－.028
		◐	**L**	1	**SY**	**MP3025**	835－1260	.006－.013	.020－.047
		◐	**L**	2	**SY**	**NX3035**	785－1115	.006－.013	.020－.047
		✣	**F**	1	**FY**	**MC6125**	1260－1985	.004－.009	.008－.031
		✣	**L**	1	**SY**	**MC6125**	1150－1805	.006－.013	.020－.047
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB	●	**F**	1	**FP**	**NX2525**	690－985	.003－.010	.004－.039
		●	**F**	2	**FH**	**AP25N**	720－1130	.003－.008	.008－.039
		●	**F**	3	**FH**	**NX2525**	690－985	.003－.008	.008－.039
		●	**F**	4	**R/L-F**	**MP3025**	705－1080	.002－.006	.004－.020
		●	**L**	1	**LP**	**MC6115**	820－1575	.004－.016	.012－.079
		●	**L**	2	**LP**	**MC6125**	900－1395	.004－.016	.012－.079
		●	**L**	3	**SH**	**MC6115**	820－1575	.004－.016	.012－.079
		●	**M**	1	**MP**	**MC6115**	755－1445	.006－.020	.012－.157
		●	**M**	2	**MP**	**MC6125**	820－1280	.006－.020	.012－.157
		●	**M**	3	**MP**	**MP3025**	590－900	.006－.020	.012－.157
		●	**R**	1	**RP**	**MC6115**	705－1360	.010－.024	.059－.236
		●	**R**	2	**RP**	**MC6125**	770－1215	.010－.024	.059－.236
		●	**R**	3	**GH**	**MC6115**	705－1360	.010－.024	.059－.236

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 (SFM)	Feed (IPR)	Depth of Cut (inch)
P									
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 — 280HB	●	H	1	HX	MC6125	690—1080	.020—.050	.118—.039
		◐	F	1	FP	MP3025	705—1080	.003—.010	.004—.039
		◐	F	2	FH	MP3025	705—1080	.003—.008	.008—.039
		◐	F	3	FH	NX3035	655—935	.003—.008	.008—.039
		◐	L	1	LP	MC6115	820—1575	.004—.016	.012—.079
		◐	L	2	LP	MC6125	900—1395	.004—.016	.012—.079
		◐	L	3	SH	MC6115	820—1575	.004—.016	.012—.079
		◐	L	4	SH	MC6125	900—1395	.004—.016	.012—.079
		◐	M	1	MP	MC6125	820—1280	.006—.020	.012—.157
		◐	M	2	MP	MC6115	755—1445	.006—.020	.012—.157
		◐	M	3	MA	MC6125	820—1280	.008—.020	.012—.157
		◐	M	4	MA	MC6115	755—1445	.008—.020	.012—.157
		◐	R	1	RP	MC6125	770—1215	.010—.024	.059—.236
		◐	R	2	RP	MC6115	705—1360	.010—.024	.059—.236
		◐	R	3	GH	MC6125	770—1215	.010—.024	.059—.236
		◐	H	2	HX	MC6125	690—1080	.020—.050	.118—.039
		✣	F	1	FP	MC6125	985—1525	.003—.010	.004—.039
		✣	L	1	LP	MC6125	900—1395	.004—.016	.012—.079
		✣	L	2	SH	MC6125	900—1395	.004—.016	.012—.079
		✣	M	1	MP	MC6125	820—1280	.006—.020	.012—.157
		✣	M	2	MA	MC6125	820—1280	.008—.020	.012—.157
		✣	R	1	RP	MC6035	525—740	.010—.024	.059—.236
		✣	R	2	GH	MC6125	770—1215	.010—.024	.059—.236
		✣	H	1	HX	MC6035	460—655	.020—.050	.118—.433
		✣	H	2	HX	UH6400	460—640	.020—.050	.118—.039
		✣	H	3	HV	UH6400	375—525	.023—.050	.157—.079

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERT TYPE

Breaker : **Std :** Standard **Flat :** Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
M									
Austenitic Stainless Steel (AISI 304, AISI 316)	≤200HB	●	L	1	LM	MC7015	590—935	.004—.014	.012—.079
		●	L	2	SH	US735	310—605	.004—.016	.012—.079
		●	L	3	SH	NX2525	210—440	.004—.016	.012—.079
		●	M	1	MM	MC7015	540—850	.006—.018	.028—.197
		●	M	2	GM	MC7015	540—850	.006—.020	.020—.157
		●	R	1	RM	MC7015	510—805	.010—.022	.059—.236
		●	H	1	HL	US735	245—460	.012—.028	.118—.295
		●	H	2	HL	US735	245—460	.012—.028	.118—.295
		◐	L	1	LM	MC7025	540—720	.004—.014	.012—.079
		◐	L	2	SH	US735	310—605	.004—.016	.012—.079
		◐	M	1	MM	MC7025	490—655	.006—.018	.028—.197
		◐	M	2	GM	MC7025	490—655	.006—.020	.020—.157
		◐	M	3	MA	MC7025	490—655	.008—.020	.012—.157
		◐	M	4	MS	US735	295—560	.006—.020	.020—.157
		◐	M	5	MA	US735	295—560	.008—.020	.012—.157
		◐	R	1	RM	MC7025	460—620	.010—.022	.059—.236
		◐	R	2	GH	US735	280—525	.010—.024	.059—.236
		◐	H	1	HL	US735	245—460	.012—.028	.118—.295
		◐	H	2	HM	US735	245—460	.020—.043	.079—.394
		✣	L	1	LM	MP7035	310—510	.004—.014	.012—.079
		✣	L	2	SH	US735	310—605	.004—.016	.012—.079
		✣	M	1	MM	MP7035	295—475	.006—.018	.028—.197
		✣	M	2	GM	MP7035	295—475	.006—.020	.020—.157
		✣	M	3	MA	MP7035	295—475	.008—.020	.012—.157
		✣	M	4	MS	US735	295—560	.006—.020	.020—.157
		✣	M	5	MS	VP15TF	260—440	.006—.020	.020—.157
		✣	R	1	RM	MP7035	280—440	.010—.022	.059—.236
		✣	R	2	GH	US735	280—525	.010—.024	.059—.236
		✣	H	1	HL	US735	245—460	.012—.028	.118—.295
		✣	H	2	HM	US735	245—460	.020—.043	.079—.394

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 (SFM)	Feed (IPR)	Depth of Cut (inch)
M									
Austenitic Stainless Steel (AISI 304LN, AISI 316LN)	>200HB	●	L	1	LM	MC7015	490—785	.004—.014	.012—.079
		●	L	2	SH	US735	260—510	.004—.016	.012—.079
		●	L	3	SH	NX2525	180—375	.004—.016	.012—.079
		●	M	1	MM	MC7015	440—705	.006—.018	.028—.197
		●	M	2	GM	MC7015	440—705	.006—.020	.020—.157
		●	R	1	RM	MC7015	425—670	.010—.022	.059—.236
		●	H	1	HL	US735	195—395	.012—.028	.118—.295
		●	H	2	HM	US735	195—395	.020—.043	.079—.394
		◐	L	1	LM	MC7025	440—590	.004—.014	.012—.079
		◐	L	2	SH	US735	260—510	.004—.016	.012—.079
		◐	M	1	MM	MC7025	410—540	.006—.018	.028—.197
		◐	M	2	GM	MC7025	410—540	.006—.020	.020—.157
		◐	M	3	MA	MC7025	410—540	.008—.020	.012—.157
		◐	M	4	MS	US735	245—460	.006—.020	.020—.157
		◐	M	5	MA	US735	245—460	.008—.020	.012—.157
		◐	R	1	RM	MC7025	375—510	.010—.022	.059—.236
		◐	R	2	GH	US735	230—440	.010—.024	.059—.236
		◐	H	1	HL	US735	195—395	.012—.028	.118—.295
		◐	H	2	HM	US735	195—395	.020—.043	.079—.394
		✣	L	1	LM	MP7035	260—425	.004—.014	.012—.079
		✣	L	2	SH	US735	260—510	.004—.016	.012—.079
		✣	M	1	MM	MP7035	245—395	.006—.018	.028—.197
		✣	M	2	GM	MP7035	245—395	.006—.020	.020—.157
		✣	M	3	MA	MP7035	245—395	.008—.020	.012—.157
		✣	M	4	MS	US735	245—460	.006—.020	.020—.157
		✣	M	5	MS	VP15TF	210—360	.006—.020	.020—.157
		✣	R	1	RM	MP7035	230—375	.010—.022	.059—.236
		✣	R	2	GH	US735	230—440	.010—.024	.059—.236
		✣	H	1	HL	US735	195—395	.012—.028	.118—.295
		✣	H	2	HM	US735	195—395	.020—.043	.079—.394

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERT TYPE

Breaker : **Std :** Standard **Flat :** Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
M									
Two-phase Stainless Steel (AISI 329)	≤280HB	●	L	1	LM	MC7015	395—620	.004—.014	.012—.079
		●	L	2	SH	US735	210—410	.004—.016	.012—.079
		●	L	3	SH	NX2525	130—295	.004—.016	.012—.079
		●	M	1	MM	MC7015	360—575	.006—.018	.028—.197
		●	M	2	GM	MC7015	360—575	.006—.020	.020—.157
		●	R	1	RM	MC7015	345—540	.010—.022	.059—.236
		●	H	1	HL	US735	165—310	.012—.028	.118—.295
		●	H	2	HM	US735	165—310	.020—.043	.079—.394
		◐	L	1	LM	MC7025	360—475	.004—.014	.012—.079
		◐	L	2	SH	US735	210—410	.004—.016	.012—.079
		◐	M	1	MM	MC7025	330—440	.006—.018	.028—.197
		◐	M	2	GM	MC7025	330—440	.006—.020	.020—.157
		◐	M	3	MA	MC7025	330—440	.008—.020	.012—.157
		◐	M	4	MS	US735	195—375	.006—.020	.020—.157
		◐	M	5	MA	US735	195—375	.008—.020	.012—.157
		◐	R	1	RM	MC7025	310—410	.010—.022	.059—.236
		◐	R	2	GH	US735	180—345	.010—.024	.059—.236
		◐	H	1	HL	US735	165—310	.012—.028	.118—.295
		◐	H	2	HM	US735	165—310	.020—.043	.079—.394
		✣	L	1	LM	MP7035	210—345	.004—.014	.012—.079
		✣	L	2	SH	US735	210—410	.004—.016	.012—.079
		✣	M	1	MM	MP7035	195—310	.006—.018	.028—.197
		✣	M	2	GM	MP7035	195—310	.006—.020	.020—.157
		✣	M	3	MA	MP7035	195—310	.008—.020	.012—.157
		✣	M	4	MS	US735	195—375	.006—.020	.020—.157
		✣	M	5	MS	VP15TF	165—295	.006—.020	.020—.157
		✣	R	1	RM	MP7035	180—295	.010—.022	.059—.236
		✣	R	2	GH	US735	180—345	.010—.024	.059—.236
		✣	H	1	HL	US735	165—310	.012—.028	.118—.295
		✣	H	2	HM	US735	165—310	.020—.043	.079—.394

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 (SFM)	Feed (IPR)	Depth of Cut (inch)
M									
Ferritic and Martensitic Stainless Steel (AISI 410, AISI 430)	≤200HB	●	**L**	1	**LM**	**MC7015**	590—935	.004—.014	.012—.079
		●	**L**	2	**SH**	**US735**	310—605	.004—.016	.012—.079
		●	**L**	3	**SH**	**NX2525**	210—440	.004—.016	.012—.079
		●	**M**	1	**MM**	**MC7015**	540—850	.006—.018	.028—.197
		●	**M**	2	**GM**	**MC7015**	540—850	.006—.020	.020—.157
		●	**R**	1	**RM**	**MC7015**	510—805	.010—.022	.059—.236
		●	**H**	1	**HL**	**US735**	245—460	.012—.028	.118—.295
		●	**H**	2	**HM**	**US735**	245—460	.020—.043	.079—.394
		◐	**L**	1	**LM**	**MC7025**	540—720	.004—.014	.012—.079
		◐	**L**	2	**SH**	**US735**	310—605	.004—.016	.012—.079
		◐	**M**	1	**MM**	**MC7025**	490—655	.006—.018	.028—.197
		◐	**M**	2	**GM**	**MC7025**	490—655	.006—.020	.020—.157
		◐	**M**	3	**MA**	**MC7025**	490—655	.008—.020	.012—.157
		◐	**M**	4	**MA**	**US735**	295—560	.008—.020	.012—.157
		◐	**M**	5	**MS**	**US735**	295—560	.006—.020	.020—.157
		◐	**R**	1	**RM**	**MC7025**	460—620	.010—.022	.059—.236
		◐	**R**	2	**GH**	**US735**	280—525	.010—.024	.059—.236
		◐	**H**	1	**HL**	**US735**	245—460	.012—.028	.118—.295
		◐	**H**	2	**HM**	**US735**	245—460	.020—.043	.079—.394
		✣	**L**	1	**LM**	**MP7035**	310—510	.004—.014	.012—.079
		✣	**L**	2	**SH**	**US735**	310—605	.004—.016	.012—.079
		✣	**M**	1	**MM**	**MP7035**	295—475	.006—.018	.028—.197
		✣	**M**	2	**GM**	**MP7035**	295—475	.006—.020	.020—.157
		✣	**M**	3	**MA**	**MP7035**	295—475	.008—.020	.012—.157
		✣	**M**	4	**MS**	**US735**	295—560	.006—.020	.020—.157
		✣	**M**	5	**MS**	**VP15TF**	260—440	.006—.020	.020—.157
		✣	**R**	1	**RM**	**MP7035**	280—440	.010—.022	.059—.236
		✣	**R**	2	**GH**	**US735**	280—525	.010—.024	.059—.236
		✣	**H**	1	**HL**	**US735**	245—460	.012—.028	.118—.295
		✣	**H**	2	**HM**	**US735**	245—460	.020—.043	.079—.394

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERT TYPE

Breaker : **Std :** Standard **Flat :** Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
M									
Ferritic and Martensitic Stainless Steel (AISI 431, AISI 420)	>200HB	●	**L**	1	**LM**	**MC7015**	490—785	.004—.014	.012—.079
		●	**L**	2	**SH**	**US735**	260—510	.004—.016	.012—.079
		●	**L**	3	**SH**	**NX2525**	180—375	.004—.016	.012—.079
		●	**M**	1	**MM**	**MC7015**	440—705	.006—.018	.028—.197
		●	**M**	2	**GM**	**MC7015**	440—705	.006—.020	.020—.157
		●	**R**	1	**RM**	**MC7015**	425—670	.010—.022	.059—.236
		●	**H**	1	**HL**	**US735**	195—395	.012—.028	.118—.295
		●	**H**	2	**HM**	**US735**	195—395	.020—.043	.079—.394
		◐	**L**	1	**LM**	**MC7025**	440—590	.004—.014	.012—.079
		◐	**L**	2	**SH**	**US735**	260—510	.004—.016	.012—.079
		◐	**M**	1	**MM**	**MC7025**	410—540	.006—.018	.028—.197
		◐	**M**	2	**MA**	**MC7025**	410—540	.008—.020	.012—.157
		◐	**M**	3	**MA**	**US735**	245—460	.008—.020	.012—.157
		◐	**M**	4	**MS**	**US735**	245—460	.006—.020	.020—.157
		◐	**R**	1	**RM**	**MC7025**	375—510	.010—.022	.059—.236
		◐	**R**	2	**GH**	**US735**	230—440	.010—.024	.059—.236
		◐	**H**	1	**HL**	**US735**	195—395	.012—.028	.118—.295
		◐	**H**	2	**HM**	**US735**	195—395	.020—.043	.079—.394
		✣	**L**	1	**LM**	**MP7035**	260—425	.004—.014	.012—.079
		✣	**L**	2	**SH**	**US735**	260—510	.004—.016	.012—.079
		✣	**M**	1	**MM**	**MP7035**	245—395	.006—.018	.028—.197
		✣	**M**	2	**GM**	**MP7035**	245—395	.006—.020	.020—.157
		✣	**M**	3	**MA**	**MP7035**	245—395	.008—.020	.012—.157
		✣	**M**	4	**MS**	**US735**	245—460	.006—.020	.020—.157
		✣	**M**	5	**MS**	**VP15TF**	210—360	.006—.020	.020—.157
		✣	**R**	1	**RM**	**MP7035**	230—375	.010—.022	.059—.236
		✣	**R**	2	**GH**	**US735**	230—440	.010—.024	.059—.236
		✣	**H**	1	**HL**	**US735**	195—395	.012—.028	.118—.295
		✣	**H**	2	**HM**	**US735**	195—395	.020—.043	.079—.394

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 (SFM)	Feed (IPR)	Depth of Cut (inch)
M									
Hardened Stainless Steel (AISI 630, AISI 631)	<450HB	●	L	1	LM	MC7015	310–425	.004–.014	.012–.079
		●	L	2	LS(M)	MP9005	410–575	.004–.010	.008–.031
		●	L	3	SH	US735	180–330	.004–.016	.012–.079
		●	L	4	SH	NX2525	115–245	.004–.016	.012–.079
		●	M	1	MM	MC7015	295–395	.006–.018	.028–.197
		●	M	2	GM	MC7015	295–395	.006–.020	.020–.157
		●	M	3	MS	MP9005	375–525	.006–.012	.020–.118
		●	R	1	RM	MC7015	280–360	.010–.022	.059–.236
		●	H	1	HL	US735	130–260	.016–.039	.059–.315
		●	H	2	HM	US735	130–260	.020–.043	.079–.394
		◐	L	1	LM	MC7025	280–360	.004–.014	.012–.079
		◐	L	2	SH	US735	180–330	.004–.016	.012–.079
		◐	L	3	LS(M)	MP9015	395–540	.004–.010	.008–.031
		◐	M	1	MM	MC7025	260–330	.006–.018	.028–.197
		◐	M	2	GM	MC7025	260–330	.006–.020	.020–.157
		◐	M	3	MA	MC7025	260–330	.004–.012	.020–.118
		◐	M	4	MS	US735	165–310	.006–.020	.020–.157
		◐	M	5	MA	US735	165–310	.004–.012	.020–.118
		◐	R	1	RM	MC7025	245–310	.010–.022	.059–.236
		◐	R	2	GH	US735	150–295	.010–.024	.059–.236
		◐	R	3	RS	MP9015	330–460	.008–.014	.039–.157
		◐	H	1	HL	US735	130–260	.016–.039	.059–.315
		◐	H	2	HM	US735	130–260	.020–.043	.079–.394
		✣	L	1	LM	MP7035	180–280	.004–.014	.012–.079
		✣	L	2	SH	US735	180–330	.004–.016	.012–.079
		✣	L	3	LS(M)	MP9025	260–310	.004–.010	.008–.031
		✣	M	1	MM	MP7035	165–260	.006–.018	.028–.197
		✣	M	2	GM	MP7035	165–260	.006–.020	.020–.157
		✣	M	3	MA	MP7035	165–260	.004–.012	.020–.118
		✣	M	4	MS	US735	165–310	.006–.020	.020–.157
		✣	M	5	MS	VP15TF	150–245	.006–.020	.020–.157
		✣	R	1	RM	MP7035	150–245	.010–.022	.059–.236
		✣	R	2	GH	US735	150–295	.010–.024	.059–.236
		✣	R	3	RS	MP9025	230–280	.008–.014	.039–.157
		✣	H	1	HL	US735	130–260	.016–.039	.059–.315
		✣	H	2	HM	US735	130–260	.020–.043	.079–.394

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERT TYPE

Breaker : **Std :** Standard **Flat :** Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
K									
Gray Cast Iron (AISI No 45 B)	≤350MPa	●	L	1	LK	MC5105	755－2295	.004－.020	.020－.098
		●	L	2	LK	MC5115	670－1260	.004－.020	.020－.098
		●	L	3	MA	MC5105	690－2100	.008－.020	.012－.157
		●	L	4	MA	MC5115	620－1150	.008－.020	.012－.157
		●	M	1	MK	MC5105	690－2100	.008－.022	.020－.157
		●	M	2	MK	MC5115	620－1150	.008－.022	.020－.157
		●	M	3	GK	MC5105	690－2100	.008－.024	.059－.197
		●	M	4	GK	MC5115	620－1150	.008－.024	.059－.197
		●	R	1	RK	MC5105	640－1985	.008－.024	.059－.236
		●	R	2	RK	MC5115	590－1080	.008－.024	.059－.236
		●	R	3	Flat	MC5105	640－1985	.008－.024	.098－.236
		●	R	4	Flat	MC5115	590－1080	.008－.024	.098－.236
		●	H	1	Flat	MC5105	640－1985	.008－.024	.098－.236
		●	H	2	Flat	MC5115	590－1080	.008－.024	.098－.236
		◐	L	1	LK	MC5105	755－2295	.004－.020	.020－.098
		◐	L	2	LK	MC5115	670－1260	.004－.020	.020－.098
		◐	L	3	MA	MC5105	690－2100	.008－.020	.012－.157
		◐	L	4	MA	MC5115	620－1150	.008－.020	.012－.157
		◐	M	1	MK	MC5105	690－2100	.008－.022	.020－.157
		◐	M	2	MK	MC5115	620－1150	.008－.022	.020－.157
		◐	M	3	GK	MC5105	690－2100	.008－.024	.059－.197
		◐	M	4	GK	MC5115	620－1150	.008－.024	.059－.197
		◐	R	1	RK	MC5105	640－1985	.008－.024	.059－.236
		◐	R	2	RK	MC5115	590－1080	.008－.024	.059－.236
		◐	R	3	Flat	MC5105	640－1985	.008－.024	.098－.236
		◐	R	4	Flat	MC5115	590－1080	.008－.024	.098－.236
		◐	H	1	Flat	MC5105	640－1985	.008－.024	.098－.236
		◐	H	2	Flat	MC5115	590－1080	.008－.024	.098－.236
		✣	L	1	LK	MC5115	670－1260	.004－.020	.020－.098
		✣	L	2	LK	MC5125	360－720	.004－.020	.020－.098
		✣	L	3	MA	MC5115	620－1150	.008－.020	.012－.157
		✣	L	4	MA	MC5125	330－655	.008－.020	.012－.157
		✣	M	1	MK	MC5115	620－1150	.008－.022	.020－.157
		✣	M	2	MK	MC5125	330－655	.008－.022	.020－.157
		✣	M	3	GK	MC5115	620－1150	.008－.024	.059－.197
		✣	M	4	GK	MC5125	330－655	.008－.024	.059－.197
		✣	R	1	RK	MC5115	590－1080	.008－.024	.059－.236
		✣	R	2	RK	MC5125	310－620	.008－.024	.059－.236
		✣	R	3	Flat	MC5115	590－1080	.008－.024	.098－.236
		✣	R	4	Flat	MC5125	310－620	.008－.024	.098－.236
		✣	H	1	Flat	MC5115	590－1080	.008－.024	.098－.236
		✣	H	2	Flat	MC5125	310－620	.008－.024	.098－.236

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 (SFM)	Feed (IPR)	Depth of Cut (inch)
K									
Ductile Cast Iron	≤450MPa	●	**L**	1	**LK**	**MC5115**	640—1200	.004—.020	.020—.098
		●	**L**	2	**LK**	**MC5105**	705—2180	.004—.020	.020—.098
		●	**L**	3	**MA**	**MC5115**	590—1080	.008—.020	.012—.157
		●	**L**	4	**MA**	**MC5115**	590—1080	.008—.020	.012—.157
		●	**M**	1	**MK**	**MC5115**	590—1080	.008—.022	.020—.157
		●	**M**	2	**MK**	**MC5105**	640—1985	.008—.022	.020—.157
		●	**M**	3	**GK**	**MC5115**	590—1080	.008—.024	.059—.197
		●	**M**	4	**GK**	**MC5105**	640—1985	.008—.024	.059—.197
		●	**R**	1	**RK**	**MC5115**	560—1030	.008—.024	.059—.236
		●	**R**	2	**RK**	**MC5105**	605—1885	.008—.024	.059—.236
		●	**R**	3	**Flat**	**MC5115**	560—1030	.008—.024	.098—.236
		●	**R**	4	**Flat**	**MC5105**	605—1885	.008—.024	.098—.236
		●	**H**	1	**Flat**	**MC5115**	560—1030	.008—.024	.098—.236
		◐	**L**	1	**LK**	**MC5115**	640—1200	.004—.020	.020—.098
		◐	**L**	2	**MA**	**MC5115**	590—1080	.008—.020	.012—.157
		◐	**M**	1	**MK**	**MC5115**	590—1080	.008—.022	.020—.157
		◐	**M**	2	**GK**	**MC5115**	590—1080	.008—.024	.059—.197
		◐	**R**	1	**RK**	**MC5115**	560—1030	.008—.024	.059—.236
		◐	**R**	2	**Flat**	**MC5115**	560—1030	.008—.024	.098—.236
		◐	**R**	3	**GH**	**MC5115**	560—1030	.010—.024	.059—.236
		◐	**H**	1	**Flat**	**MC5115**	560—1030	.008—.024	.098—.236
		✣	**L**	1	**LK**	**MC5125**	330—670	.004—.020	.020—.098
		✣	**L**	2	**LK**	**MC5115**	640—1200	.004—.020	.020—.098
		✣	**L**	3	**MA**	**MC5125**	310—620	.008—.020	.012—.157
		✣	**L**	4	**MA**	**MC5115**	590—1080	.008—.020	.012—.157
		✣	**M**	1	**MK**	**MC5125**	310—620	.008—.022	.020—.157
		✣	**M**	2	**MK**	**MC5115**	590—1080	.008—.022	.020—.157
		✣	**M**	3	**GK**	**MC5125**	310—620	.008—.024	.059—.197
		✣	**M**	4	**GK**	**MC5115**	590—1080	.008—.024	.059—.197
		✣	**R**	1	**RK**	**MC5125**	295—590	.008—.024	.059—.236
		✣	**R**	2	**RK**	**MC5115**	560—1030	.008—.024	.059—.236
		✣	**R**	3	**Flat**	**MC5125**	295—590	.008—.024	.098—.236
		✣	**R**	4	**Flat**	**MC5115**	560—1030	.008—.024	.098—.236
		✣	**H**	1	**Flat**	**MC5125**	295—590	.008—.024	.098—.236
		✣	**H**	2	**Flat**	**MC5115**	560—1030	.008—.024	.098—.236
	≤800MPa	●	**L**	1	**LK**	**MC5115**	575—1065	.004—.020	.020—.098
		●	**L**	2	**LK**	**MC5105**	640—1950	.004—.020	.020—.098
		●	**L**	3	**MA**	**MC5115**	525—970	.008—.020	.012—.157
		●	**L**	4	**MA**	**MC5105**	575—1770	.008—.020	.012—.157
		●	**M**	1	**MK**	**MC5115**	525—970	.008—.022	.020—.157
		●	**M**	2	**MK**	**MC5105**	575—1770	.008—.022	.020—.157
		●	**M**	3	**GK**	**MC5115**	525—970	.008—.024	.059—.197
		●	**M**	4	**GK**	**MC5105**	575—1770	.008—.024	.059—.197

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERT TYPE

Breaker : **Std :** Standard **Flat :** Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
K									
Ductile Cast Iron	≤800MPa	●	R	1	RK	MC5115	490—920	.008—.024	.059—.236
		●	R	2	RK	MC5105	540—1690	.008—.024	.059—.236
		●	R	3	Flat	MC5115	490—920	.008—.024	.098—.236
		●	R	4	Flat	MC5105	540—1690	.008—.024	.098—.236
		●	H	1	Flat	MC5115	490—920	.008—.024	.098—.236
		●	H	2	Flat	MC5105	540—1690	.008—.024	.098—.236
		◐	L	1	LK	MC5115	575—1065	.004—.020	.020—.098
		◐	L	2	LK	MC5105	640—1950	.004—.020	.020—.098
		◐	L	3	MA	MC5115	525—970	.008—.020	.012—.157
		◐	L	4	MA	MC5105	575—1770	.008—.020	.012—.157
		◐	M	1	MK	MC5115	525—970	.008—.022	.020—.157
		◐	M	2	MK	MC5105	575—1770	.008—.022	.020—.157
		◐	M	3	GK	MC5115	525—970	.008—.024	.059—.197
		◐	M	4	GK	MC5105	575—1770	.008—.024	.059—.197
		◐	R	1	RK	MC5115	490—920	.008—.024	.059—.236
		◐	R	2	RK	MC5105	540—1690	.008—.024	.059—.236
		◐	R	3	Flat	MC5115	490—920	.008—.024	.098—.236
		◐	R	4	Flat	MC5105	540—1690	.008—.024	.098—.236
		◐	H	1	Flat	MC5115	490—920	.008—.024	.098—.236
		◐	H	2	Flat	MC5105	540—1690	.008—.024	.098—.236
		✣	L	1	LK	MC5125	295—605	.004—.020	.020—.098
		✣	L	2	LK	MC5115	575—1065	.004—.020	.020—.098
		✣	L	3	MA	MC5125	280—560	.008—.020	.012—.157
		✣	L	4	MA	MC5115	525—970	.008—.020	.012—.157
		✣	M	1	MK	MC5125	280—560	.008—.022	.020—.157
		✣	M	2	MK	MC5115	525—970	.008—.022	.020—.157
		✣	M	3	GK	MC5125	280—560	.008—.024	.059—.197
		✣	M	4	GK	MC5115	525—970	.008—.024	.059—.197
		✣	R	1	RK	MC5125	260—525	.008—.024	.059—.236
		✣	R	2	RK	MC5115	490—920	.008—.024	.059—.236
		✣	R	3	Flat	MC5125	260—525	.008—.024	.098—.236
		✣	R	4	Flat	MC5115	490—920	.008—.024	.098—.236
		✣	H	1	Flat	MC5125	260—525	.008—.024	.098—.236
		✣	H	2	Flat	MC5115	490—920	.008—.024	.098—.236

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 (SFM)	Feed (IPR)	Depth of Cut (inch)
S									
Titanium Alloy (Ti-6Al-4V)	–	●	F	1	LS(M)	MT9015	130–280	.004–.010	.008–.031
		●	F	2	FJ	RT9010	150–310	.003–.008	.004–.039
		●	L	1	LS(M)	MT9015	130–280	.004–.010	.008–.031
		●	L	2	MJ(M)	RT9010	130–280	.003–.010	.016–.059
		●	M	1	MS	MT9015	130–260	.006–.012	.020–.118
		●	M	2	MS	RT9010	130–260	.006–.020	.020–.157
		●	R	1	RS	MT9015	115–245	.008–.014	.039–.157
		●	R	2	GJ	RT9010	115–245	.006–.014	.039–.118
		◐	F	1	LS(M)	MT9015	130–280	.004–.010	.008–.031
		◐	F	2	FJ	RT9010	150–310	.003–.008	.004–.039
		◐	L	1	LS(M)	MT9015	130–280	.004–.010	.008–.031
		◐	L	2	MJ(M)	RT9010	130–280	.003–.010	.016–.059
		◐	L	3	MJ(G)	RT9010	130–280	.003–.010	.016–.059
		◐	M	1	MS	MT9015	130–260	.006–.012	.020–.118
		◐	M	2	MS	RT9010	130–260	.006–.020	.020–.157
		◐	R	1	RS	MT9015	115–245	.008–.014	.039–.157
		◐	R	2	GJ	RT9010	115–245	.006–.014	.039–.118
		✣	F	1	LS(M)	MT9015	130–280	.004–.010	.008–.031
		✣	F	2	FJ	RT9010	150–310	.003–.008	.004–.039
		✣	L	1	LS(M)	MT9015	130–280	.004–.010	.008–.031
		✣	L	2	MJ(M)	RT9010	130–280	.003–.010	.016–.059
		✣	L	3	MJ(G)	RT9010	130–280	.003–.010	.016–.059
		✣	M	1	MS	MT9015	130–260	.006–.012	.020–.118
		✣	R	1	RS	MT9015	115–245	.008–.014	.039–.157
		✣	R	2	GJ	RT9010	115–245	.006–.014	.039–.118

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERT TYPE

Breaker : **Std :** Standard **Flat :** Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
S									
Heat Resistant Alloy (Inconel718)	–	●	F	1	LS(M)	MP9005	180—360	.004—.010	.008—.031
		●	F	2	FJ	VP10RT	100—195	.003—.008	.004—.039
		●	L	1	LS(M)	MP9005	180—360	.004—.010	.008—.031
		●	L	2	MJ(M)	MP9005	180—360	.003—.010	.016—.059
		●	L	3	MJ(M)	VP05RT	100—210	.003—.010	.016—.059
		●	L	4	MJ(M)	US905	180—310	.003—.010	.016—.059
		●	M	1	MS	MP9005	165—330	.006—.012	.020—.118
		●	M	2	MS	VP05RT	100—195	.006—.020	.020—.157
		●	M	3	MS	US905	165—295	.006—.020	.020—.157
		●	R	1	RS	MP9015	115—245	.008—.014	.039—.157
		●	R	2	GJ	VP10RT	65—150	.006—.014	.039—.118
		●	R	3	GJ	US905	150—280	.006—.014	.039—.118
		◐	F	1	LS(M)	MP9015	130—280	.004—.010	.008—.031
		◐	F	2	FJ	VP10RT	100—195	.003—.008	.004—.039
		◐	L	1	LS(M)	MP9015	130—280	.004—.010	.008—.031
		◐	L	2	MJ(M)	MP9015	130—260	.003—.010	.016—.059
		◐	L	3	MJ(M)	VP10RT	80—180	.003—.010	.016—.059
		◐	M	1	MS	MP9015	130—260	.006—.012	.020—.118
		◐	M	2	MA	MP9015	130—260	.004—.012	.020—.118
		◐	M	3	MS	VP10RT	80—165	.006—.020	.020—.157
		◐	R	1	RS	MP9015	115—245	.008—.014	.039—.157
		◐	R	2	GJ	VP10RT	65—150	.006—.014	.039—.118
		✣	F	1	LS(M)	MP9025	100—150	.004—.010	.008—.031
		✣	F	2	FJ	VP15TF	65—130	.003—.008	.004—.039
		✣	L	1	LS(M)	MP9025	100—150	.004—.010	.008—.031
		✣	L	2	MJ(G)	VP15TF	65—115	.003—.010	.016—.059
		✣	M	1	MS	MP9025	100—150	.006—.012	.020—.118
		✣	M	2	MA	MP9025	100—150	.004—.012	.020—.118
		✣	M	3	MS	VP15TF	65—115	.006—.020	.020—.157
		✣	R	1	RS	MP9025	80—130	.008—.014	.039—.157
		✣	R	2	GJ	VP15TF	50—100	.006—.014	.039—.118

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

7° POSITIVE INSERT TYPE

Breaker : **Std :** Standard **Flat :** Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
P									
Mild Steel (AISI ASTM A283, AISI 1010)	≤180HB	●	F	1	FP	NX2525	740—1050	.002—.008	.008—.035
		●	F	2	FV	NX2525	740—1050	.002—.008	.008—.035
		●	F	3	R/L-F	MP3025	755—1165	.002—.005	.004—.020
		●	L	1	LP	NX2525	740—1050	.002—.010	.008—.039
		●	L	2	MV	MP3025	620—970	.003—.012	.012—.079
		●	L	3	Std	MP3025	620—970	.003—.012	.012—.079
		●	M	1	MP	NX2525	605—885	.003—.012	.012—.079
		◐	F	1	FP	MC6115	970—1870	.002—.008	.008—.035
		◐	F	2	FP	MP3025	755—1165	.002—.008	.008—.035
		◐	F	3	FV	MC6115	970—1870	.002—.008	.008—.035
		◐	F	4	FV	MP3025	755—1165	.002—.008	.008—.035
		◐	F	5	FV	NX3035	720—1015	.002—.008	.008—.035
		◐	L	1	LP	MC6115	970—1870	.002—.010	.008—.039
		◐	L	2	LP	MP3025	755—1165	.002—.010	.008—.039
		◐	L	3	SW	MC6115	970—1870	.002—.009	.008—.059
		◐	L	4	SW	MP3025	755—1165	.002—.009	.008—.059
		◐	M	1	MP	MC6115	805—1560	.003—.012	.012—.079
		◐	M	2	MP	MP3025	620—970	.003—.012	.012—.079
		◐	M	3	MV	MC6115	805—1560	.003—.012	.012—.079
		◐	M	4	MW	MC6115	805—1560	.004—.014	.031—.098
		✣	F	1	FP	MC6125	1050—1655	.002—.008	.008—.035
		✣	F	2	FV	MC6125	1050—1655	.002—.008	.008—.035
		✣	L	1	LP	MC6125	1050—1655	.002—.010	.008—.039
		✣	L	2	SV	MC6125	1050—1655	.002—.010	.008—.039
		✣	L	3	SW	MC6125	1050—1655	.002—.009	.008—.059
		✣	M	1	MP	MC6125	885—1380	.003—.012	.012—.079
		✣	M	2	MV	MC6125	885—1380	.003—.012	.012—.079
		✣	M	3	MW	MC6125	885—1380	.004—.014	.031—.098
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB	●	F	1	FP	NX2525	540—785	.002—.008	.008—.035
		●	F	2	FV	NX2525	540—785	.002—.008	.008—.035
		●	F	3	R/L-F	MP3025	560—850	.002—.005	.004—.020
		●	L	1	LP	NX2525	540—785	.002—.010	.008—.039
		●	L	2	MV	MP3025	460—720	.003—.012	.012—.079
		●	L	3	Std	MP3025	460—720	.003—.012	.012—.079
		●	L	4	SV	MP3025	560—850	.002—.010	.008—.039
		●	L	5	SW	MP3025	560—850	.002—.009	.008—.059
		●	M	1	MP	NX2525	460—655	.003—.012	.012—.079
		●	M	2	MW	MP3025	460—720	.004—.014	.031—.098
		◐	F	1	FP	MC6115	720—1380	.002—.008	.008—.035
		◐	F	2	FP	MP3025	560—850	.002—.008	.008—.035
		◐	F	3	FV	MC6115	720—1380	.002—.008	.008—.035
		◐	F	4	FV	MP3025	560—850	.002—.008	.008—.035
		◐	F	5	FV	NX3035	525—755	.002—.008	.008—.035

RECOMMENDED CUTTING CONDITIONS

7° POSITIVE INSERT TYPE

Breaker : **Std :** Standard **Flat :** Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
P									
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB	◐	L	1	LP	MC6115	720—1380	.002—.010	.008—.039
		◐	L	2	LP	MP3025	560—850	.002—.010	.008—.039
		◐	L	3	SW	MC6115	720—1380	.002—.009	.008—.059
		◐	L	4	SW	MP3025	560—850	.002—.009	.008—.059
		◐	M	1	MP	MC6125	655—1015	.003—.012	.012—.079
		◐	M	2	MP	MC6115	590—1150	.003—.012	.012—.079
		◐	M	3	MP	MP3025	460—720	.003—.012	.012—.079
		◐	M	4	MV	MC6125	655—1015	.003—.012	.012—.079
		◐	M	5	MV	MC6115	590—1150	.003—.012	.012—.079
		◐	M	6	MW	MC6115	590—1150	.004—.014	.031—.098
		✣	F	1	FP	MC6125	785—1215	.002—.008	.008—.035
		✣	F	2	FV	MC6125	785—1215	.002—.008	.008—.035
		✣	L	1	LP	MC6125	785—1215	.002—.010	.008—.039
		✣	L	2	SV	MC6125	785—1215	.002—.010	.008—.039
		✣	L	3	SW	MC6125	785—1215	.002—.009	.008—.059
		✣	M	1	MP	MC6125	655—1015	.003—.012	.012—.079
		✣	M	2	MV	MC6125	655—1015	.003—.012	.012—.079
		✣	M	3	MW	MC6125	655—1015	.004—.014	.031—.098
Carbon Steel • Alloy Steel (AISI 4340)	280 | 350HB	●	F	1	FP	NX2525	375—560	.002—.008	.008—.035
		●	L	1	LP	NX2525	375—560	.002—.010	.008—.039
		●	M	1	MP	NX2525	310—460	.003—.012	.012—.079
		◐	F	1	FP	MC6115	510—970	.002—.008	.008—.035
		◐	F	2	FV	MC6115	510—970	.002—.008	.008—.035
		◐	L	1	LP	MC6115	510—970	.002—.010	.008—.039
		◐	M	1	MP	MC6115	425—805	.003—.012	.012—.079
		◐	M	2	MP	MP3025	330—510	.003—.012	.012—.079
		◐	M	3	MV	MC6115	425—805	.003—.012	.012—.079
		✣	F	1	FP	MC6125	560—870	.002—.008	.008—.035
		✣	F	2	FV	MC6125	560—870	.002—.008	.008—.035
		✣	L	1	LP	MC6125	560—870	.002—.010	.008—.039
		✣	M	1	MP	MC6125	460—720	.003—.012	.012—.079
		✣	M	2	MV	MC6125	460—720	.003—.012	.012—.079

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 (SFM)	Feed (IPR)	Depth of Cut (inch)
M									
Austenitic Stainless Steel (AISI 304, AISI 316)	≤200HB	●	F	1	FM	VP15TF	245—410	.002—.008	.008—.035
		●	F	2	Std	US735	230—440	.003—.012	.012—.079
		●	L	1	LM	MC7025	460—620	.002—.010	.008—.039
		●	L	2	Std	US735	230—440	.003—.012	.012—.079
		●	M	1	MM	MC7025	395—525	.003—.012	.012—.079
		◐	F	1	FM	VP15TF	245—410	.002—.008	.008—.035
		◐	F	2	Std	US735	230—440	.003—.012	.012—.079
		◐	L	1	LM	MC7025	460—620	.002—.010	.008—.039
		◐	L	2	Std	US735	230—440	.003—.012	.012—.079
		◐	M	1	MM	MC7025	395—525	.003—.012	.012—.079
		✣	F	1	FM	VP15TF	245—410	.002—.008	.008—.035
		✣	F	2	Std	US735	230—440	.003—.012	.012—.079
		✣	L	1	LM	MP7035	280—440	.002—.010	.008—.039
		✣	L	2	LM	VP15TF	245—410	.002—.010	.008—.039
		✣	L	3	Std	US735	230—440	.003—.012	.012—.079
		✣	M	1	MM	MP7035	230—375	.003—.012	.012—.079
		✣	M	2	MM	VP15TF	195—345	.003—.012	.012—.079
Austenitic Stainless Steel (AISI 304LN, AISI 316LN)	>200HB	●	F	1	FM	VP15TF	195—345	.002—.008	.008—.035
		●	F	2	Std	US735	195—360	.003—.012	.012—.079
		●	L	1	LM	MC7025	395—525	.002—.010	.008—.039
		●	L	2	Std	US735	195—360	.003—.012	.012—.079
		●	M	1	MM	MC7025	330—425	.003—.012	.012—.079
		◐	F	1	FM	VP15TF	195—345	.002—.008	.008—.035
		◐	F	2	Std	US735	195—360	.003—.012	.012—.079
		◐	L	1	LM	MC7025	395—525	.002—.010	.008—.039
		◐	L	2	Std	US735	195—360	.003—.012	.012—.079
		◐	M	1	MM	MC7025	330—425	.003—.012	.012—.079
		✣	F	1	FM	VP15TF	195—345	.002—.008	.008—.035
		✣	F	2	Std	US735	195—360	.003—.012	.012—.079
		✣	L	1	LM	MP7035	230—375	.002—.010	.008—.039
		✣	L	2	LM	VP15TF	195—345	.002—.010	.008—.039
		✣	L	3	Std	US735	195—360	.003—.012	.012—.079
		✣	M	1	MM	MP7035	195—310	.003—.012	.012—.079
		✣	M	2	MM	VP15TF	165—295	.003—.012	.012—.079

RECOMMENDED CUTTING CONDITIONS

7° POSITIVE INSERT TYPE

Breaker : **Std :** Standard **Flat :** Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
M									
Two-phase Stainless Steel (AISI 329)	≤280HB	●	F	1	FM	VP15TF	165－280	.002－.008	.008－.035
		●	F	2	Std	US735	150－295	.003－.012	.012－.079
		●	L	1	LM	MC7025	310－425	.002－.010	.008－.039
		●	L	2	Std	US735	150－295	.003－.012	.012－.079
		●	M	1	MM	MC7025	260－345	.003－.012	.012－.079
		◐	F	1	FM	VP15TF	165－280	.002－.008	.008－.035
		◐	F	2	Std	US735	150－295	.003－.012	.012－.079
		◐	L	1	LM	MC7025	310－425	.002－.010	.008－.039
		◐	L	2	Std	US735	150－295	.003－.012	.012－.079
		◐	M	1	MM	MC7025	260－345	.003－.012	.012－.079
		✣	F	1	FM	VP15TF	165－280	.002－.008	.008－.035
		✣	F	2	Std	US735	150－295	.003－.012	.012－.079
		✣	L	1	LM	MP7035	180－295	.002－.010	.008－.039
		✣	L	2	LM	VP15TF	165－280	.002－.010	.008－.039
		✣	L	3	Std	US735	150－295	.003－.012	.012－.079
		✣	M	1	MM	MP7035	150－245	.003－.012	.012－.079
		✣	M	2	MM	VP15TF	130－230	.003－.012	.012－.079
Ferritic and Martensitic Stainless Steel (AISI 410, AISI 430)	≤200HB	●	F	1	FM	VP15TF	245－410	.002－.008	.008－.035
		●	F	2	Std	US735	230－440	.003－.012	.012－.079
		●	L	1	LM	MC7025	460－620	.002－.010	.008－.039
		●	L	2	Std	US735	230－440	.003－.012	.012－.079
		●	M	1	MM	MC7025	395－525	.003－.012	.012－.079
		◐	F	1	FM	VP15TF	245－410	.002－.008	.008－.035
		◐	F	2	Std	US735	230－440	.003－.012	.012－.079
		◐	L	1	LM	MC7025	460－620	.002－.010	.008－.039
		◐	L	2	Std	US735	230－440	.003－.012	.012－.079
		◐	M	1	MM	MC7025	395－525	.003－.012	.012－.079
		✣	F	1	FM	VP15TF	245－410	.002－.008	.008－.035
		✣	F	2	Std	US735	230－440	.003－.012	.012－.079
		✣	L	1	LM	MP7035	280－440	.002－.010	.008－.039
		✣	L	2	LM	VP15TF	245－410	.002－.010	.008－.039
		✣	L	3	Std	US735	230－440	.003－.012	.012－.079
		✣	M	1	MM	MP7035	230－375	.003－.012	.012－.079
		✣	M	2	MM	VP15TF	195－345	.003－.012	.012－.079
Ferritic and Martensitic Stainless Steel (AISI 431, AISI 420)	>200HB	●	F	1	FM	VP15TF	195－345	.002－.008	.008－.035
		●	F	2	Std	US735	195－360	.003－.012	.012－.079
		●	L	1	LM	MC7025	395－525	.002－.010	.008－.039
		●	L	2	Std	US735	195－360	.003－.012	.012－.079
		●	M	1	MM	MC7025	330－425	.003－.012	.012－.079
		◐	F	1	FM	VP15TF	195－345	.002－.008	.008－.035
		◐	F	2	Std	US735	195－360	.003－.012	.012－.079

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 (SFM)	Feed (IPR)	Depth of Cut (inch)
M									
Ferritic and Martensitic Stainless Steel (AISI 431, AISI 420)	>200HB		**L**	1	**LM**	**MC7025**	395－525	.002－.010	.008－.039
			L	2	**Std**	**US735**	195－360	.003－.012	.012－.079
			M	1	**MM**	**MC7025**	330－425	.003－.012	.012－.079
			F	1	**FM**	**VP15TF**	195－345	.002－.008	.008－.035
			F	2	**Std**	**US735**	195－360	.003－.012	.012－.079
			L	1	**LM**	**MP7035**	230－375	.002－.010	.008－.039
			L	2	**LM**	**VP15TF**	195－345	.002－.010	.008－.039
			L	3	**Std**	**US735**	195－360	.003－.012	.012－.079
			M	1	**MM**	**MP7035**	195－310	.003－.012	.012－.079
			M	2	**MM**	**VP15TF**	165－295	.003－.012	.012－.079
Hardened Stainless Steel (AISI 630, AISI 631)	<450HB		**F**	1	**FM**	**VP15TF**	130－230	.002－.008	.008－.035
			F	2	**FS**	**MP9005**	360－490	.002－.005	.008－.055
			F	3	**Std**	**US735**	130－245	.003－.010	.012－.079
			L	1	**LM**	**MC7025**	245－310	.002－.008	.008－.039
			L	2	**LS(G)**	**MP9015**	345－460	.002－.006	.012－.118
			L	3	**LS(M)**	**MP9015**	345－460	.002－.008	.008－.039
			L	4	**Std**	**US735**	130－245	.003－.010	.012－.079
			M	1	**MM**	**MC7025**	195－260	.003－.010	.012－.079
			M	2	**MS**	**MP9015**	280－395	.003－.010	.012－.079
			M	3	**RCMT**	**MP9015**	280－395	.010－.018	.059－.118
			F	1	**FM**	**VP15TF**	130－230	.002－.008	.008－.035
			F	3	**FS**	**MP9015**	345－460	.002－.005	.008－.055
			F	3	**Std**	**US735**	130－245	.003－.010	.012－.079
			L	1	**LM**	**MC7025**	245－310	.002－.008	.008－.039
			L	2	**LS(G)**	**MP9015**	345－460	.002－.006	.012－.118
			L	3	**LS(M)**	**MP9015**	345－460	.002－.008	.008－.039
			L	4	**Std**	**US735**	130－245	.003－.010	.012－.079
			M	1	**MM**	**MC7025**	195－260	.003－.010	.012－.079
			M	2	**MS**	**MP9015**	280－395	.003－.010	.012－.079
			M	3	**RCMT**	**MP9015**	280－395	.010－.018	.059－.118
			F	1	**FM**	**VP15TF**	130－230	.002－.008	.008－.035
			F	2	**FS**	**MP9025**	230－280	.002－.005	.008－.055
			F	3	**Std**	**US735**	130－245	.003－.010	.012－.079
			L	1	**LM**	**MP7035**	150－245	.002－.008	.008－.039
			L	2	**LS(M)**	**MP9025**	230－280	.002－.008	.008－.039
			L	3	**LM**	**VP15TF**	130－230	.002－.008	.008－.039
			L	4	**LS(G)**	**MP9025**	230－280	.002－.006	.012－.118
			L	5	**Std**	**US735**	130－245	.003－.010	.012－.079
			M	1	**MM**	**MP7035**	130－195	.003－.010	.012－.079
			M	2	**MS**	**MP9025**	195－230	.003－.010	.012－.079
			M	3	**MM**	**VP15TF**	115－195	.003－.010	.012－.079
			M	4	**RCMT**	**MP9025**	195－230	.010－.018	.059－.118

RECOMMENDED CUTTING CONDITIONS

7° POSITIVE INSERT TYPE

Breaker : **Std :** Standard **Flat :** Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
K									
Gray Cast Iron (AISI No 45 B)	≤350MPa	●	F	1	LK	MC5105	655—2000	.002—.010	.008—.039
		●	F	2	LK	MC5115	590—1100	.002—.010	.008—.039
		●	L	1	LK	MC5105	655—2000	.002—.010	.008—.039
		●	L	2	LK	MC5115	590—1100	.002—.010	.008—.039
		●	M	1	MK	MC5105	540—1670	.003—.012	.012—.079
		●	M	2	MK	MC5115	490—920	.003—.012	.012—.079
		◐	F	1	LK	MC5105	655—2000	.002—.010	.008—.039
		◐	F	2	LK	MC5115	590—1100	.002—.010	.008—.039
		◐	L	1	LK	MC5105	655—2000	.002—.010	.008—.039
		◐	L	2	LK	MC5115	590—1100	.002—.010	.008—.039
		◐	L	3	SW	MC5115	590—1100	.002—.009	.008—.059
		◐	M	1	MK	MC5105	540—1670	.003—.012	.012—.079
		◐	M	2	MK	MC5115	490—920	.003—.012	.012—.079
		◐	M	3	Flat	MC5105	540—1670	.003—.012	.012—.079
		◐	M	4	Flat	MC5115	490—920	.003—.012	.012—.079
		◐	M	5	MV	MC5115	590—1100	.003—.012	.012—.079
		◐	M	6	MW	MC5115	490—920	.004—.014	.031—.098
		✣	F	1	LK	MC5115	590—1100	.002—.010	.008—.039
		✣	F	2	LK	MC5105	655—2000	.002—.010	.008—.039
		✣	L	1	LK	MC5115	590—1100	.002—.010	.008—.039
		✣	L	2	LK	MC5105	655—2000	.002—.010	.008—.039
		✣	M	1	MK	MC5115	490—920	.003—.012	.012—.079
		✣	M	2	MK	MC5105	540—1670	.003—.012	.012—.079
		✣	M	3	Flat	MC5115	490—920	.003—.012	.012—.079
		✣	M	4	Flat	MC5105	540—1670	.003—.012	.012—.079
Ductile Cast Iron	≤450MPa	●	F	1	LK	MC5115	560—1030	.002—.010	.008—.039
		●	F	2	LK	MC5105	620—1900	.002—.010	.008—.039
		●	L	1	LK	MC5115	560—1030	.002—.010	.008—.039
		●	L	2	LK	MC5105	620—1900	.002—.010	.008—.039
		●	M	1	MK	MC5115	460—870	.003—.012	.012—.079
		●	M	2	MK	MC5105	510—1590	.003—.012	.012—.079
		◐	F	1	LK	MC5115	560—1030	.002—.010	.008—.039
		◐	F	2	LK	MC5125	295—590	.002—.010	.008—.039
		◐	F	3	LK	MC5105	620—1900	.002—.010	.008—.039
		◐	L	1	LK	MC5115	560—1030	.002—.010	.008—.039
		◐	L	2	LK	MC5125	295—590	.002—.010	.008—.039
		◐	L	3	LK	MC5105	620—1900	.002—.010	.008—.039
		◐	L	4	MK	MC5115	460—870	.003—.012	.012—.079
		◐	L	5	MK	MC5125	245—490	.003—.012	.012—.079
		◐	L	6	MK	MC5105	510—1590	.003—.012	.012—.079
		◐	L	7	SW	MC5115	560—1030	.002—.009	.008—.059

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 (SFM)	Feed (IPR)	Depth of Cut (inch)
K									
Ductile Cast Iron	≤450MPa		**M**	1	**MK**	**MC5115**	460—870	.003—.012	.012—.079
			M	2	**MK**	**MC5105**	510—1590	.003—.012	.012—.079
			M	3	**Flat**	**MC5115**	460—870	.003—.012	.012—.079
			M	4	**Flat**	**MC5125**	245—490	.003—.012	.012—.079
			M	5	**Flat**	**MC5105**	510—1590	.003—.012	.012—.079
			M	6	**MV**	**MC5115**	560—1030	.003—.012	.012—.079
			M	7	**MW**	**MC5115**	460—870	.004—.014	.031—.098
			F	1	**LK**	**MC5125**	295—590	.002—.010	.008—.039
			F	2	**LK**	**MC5115**	560—1030	.002—.010	.008—.039
			L	1	**LK**	**MC5125**	295—590	.002—.010	.008—.039
			L	2	**LK**	**MC5115**	560—1030	.002—.010	.008—.039
			M	1	**MK**	**MC5125**	245—490	.003—.012	.012—.079
			M	2	**MK**	**MC5115**	460—870	.003—.012	.012—.079
			M	3	**Flat**	**MC5125**	245—490	.003—.012	.012—.079
	≤800MPa		**F**	1	**LK**	**MC5115**	510—935	.002—.010	.008—.039
			F	2	**LK**	**MC5105**	560—1705	.002—.010	.008—.039
			L	1	**LK**	**MC5115**	510—935	.002—.010	.008—.039
			L	2	**LK**	**MC5105**	560—1705	.002—.010	.008—.039
			M	1	**MK**	**MC5115**	410—770	.003—.012	.012—.079
			M	2	**MK**	**MC5105**	460—1425	.003—.012	.012—.079
			F	1	**LK**	**MC5115**	510—935	.002—.010	.008—.039
			F	2	**LK**	**MC5125**	260—525	.002—.010	.008—.039
			F	3	**LK**	**MC5105**	560—1705	.002—.010	.008—.039
			L	1	**LK**	**MC5115**	510—935	.002—.010	.008—.039
			L	2	**LK**	**MC5125**	260—525	.002—.010	.008—.039
			L	3	**LK**	**MC5105**	560—1705	.002—.010	.008—.039
			L	4	**SW**	**MC5115**	510—935	.002—.009	.008—.059
			M	1	**MK**	**MC5115**	410—770	.003—.012	.012—.079
			M	2	**MK**	**MC5125**	210—440	.003—.012	.012—.079
			M	3	**MK**	**MC5105**	460—1425	.003—.012	.012—.079
			M	4	**MV**	**MC5115**	510—935	.003—.012	.012—.079
			M	5	**MW**	**MC5115**	410—770	.004—.014	.031—.098
			F	1	**LK**	**MC5125**	260—525	.002—.010	.008—.039
			F	2	**LK**	**MC5115**	510—935	.002—.010	.008—.039
			L	1	**LK**	**MC5125**	260—525	.002—.010	.008—.039
			L	2	**LK**	**MC5115**	510—935	.002—.010	.008—.039
			M	1	**MK**	**MC5125**	210—440	.003—.012	.012—.079
			M	2	**MK**	**MC5115**	410—770	.003—.012	.012—.079

RECOMMENDED CUTTING CONDITIONS

7° POSITIVE INSERT TYPE

Breaker : **Std :** Standard **Flat :** Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
N									
Aluminum Alloy (A6061, A7075)	Si<5%	●	**F**	1	**AZ**	**HTi10**	985－2295	.004－.016	.008－.118
		◔	**F**	1	**AZ**	**HTi10**	985－2295	.004－.016	.008－.118
		✣	**F**	1	**AZ**	**HTi10**	985－2295	.004－.016	.008－.118
Aluminum Alloy (AC4B)	5%≤Si≤10%	●	**F**	1	**AZ**	**HTi10**	985－2295	.004－.016	.008－.118
		◔	**F**	1	**AZ**	**HTi10**	985－2295	.004－.016	.008－.118
		✣	**F**	1	**AZ**	**HTi10**	985－2295	.004－.016	.008－.118
Aluminum Alloy (ADC12, A390)	Si>10%	●	**F**	1	**AZ**	**HTi10**	985－2295	.004－.016	.008－.118
		◔	**F**	1	**AZ**	**HTi10**	985－2295	.004－.016	.008－.118
		✣	**F**	1	**AZ**	**HTi10**	985－2295	.004－.016	.008－.118

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 (SFM)	Feed (IPR)	Depth of Cut (inch)
S									
Titanium Alloy (Ti-6Al-4V)	–	●	F	1	FS-P	MT9005	130－260	.002－.005	.008－.055
		●	F	2	FJ	RT9010	115－245	.002－.005	.008－.055
		●	L	1	LS-P	MT9005	130－260	.002－.006	.012－.118
		●	L	2	LS(M)	MT9005	130－260	.002－.008	.008－.039
		●	M	1	MS	MT9005	115－210	.003－.010	.012－.079
		●	M	2	RCMT	MT9005	115－210	.010－.018	.059－.118
		◐	F	1	FS-P	MT9005	130－260	.002－.005	.008－.055
		◐	F	2	FJ	RT9010	115－245	.002－.005	.008－.055
		◐	L	1	LS-P	MT9005	130－260	.002－.006	.012－.118
		◐	L	2	LS(M)	MT9005	130－260	.002－.008	.008－.039
		◐	M	1	MS	MT9005	115－210	.003－.010	.012－.079
		◐	M	2	RCMT	MT9005	115－210	.010－.018	.059－.118
		✣	F	1	FS-P	MT9005	130－260	.002－.005	.008－.055
		✣	F	2	FJ	RT9010	115－245	.002－.005	.008－.055
		✣	L	1	LS-P	MT9005	130－260	.002－.006	.012－.118
		✣	L	2	LS(M)	MT9005	130－260	.002－.008	.008－.039
		✣	M	1	MS	MT9005	115－210	.003－.010	.012－.079
		✣	M	2	RCMT	MT9015	100－195	.010－.018	.059－.118
Heat Resistant Alloy (Inconel718)		●	F	1	FS	MP9005	150－310	.002－.005	.008－.055
		●	F	2	FJ	VP10RT	65－150	.002－.005	.008－.055
		●	L	1	LS(G)	MP9005	150－310	.002－.006	.012－.118
		●	L	2	LS(M)	MP9005	150－310	.002－.008	.008－.039
		●	M	1	MS	MP9005	130－260	.003－.010	.012－.079
		●	M	2	RCMT	MP9005	130－260	.010－.018	.059－.118
		◐	F	1	FS	MP9015	115－245	.002－.005	.008－.055
		◐	F	2	FJ	VP10RT	65－150	.002－.005	.008－.055
		◐	L	1	LS(G)	MP9015	115－245	.002－.006	.012－.118
		◐	L	2	LS(M)	MP9015	115－245	.002－.008	.008－.039
		◐	M	1	MS	MP9015	100－195	.003－.010	.012－.079
		◐	M	2	RCMT	MP9015	100－195	.010－.018	.059－.118
		✣	F	1	FS	MP9025	80－130	.002－.005	.008－.055
		✣	F	2	FJ	VP10RT	65－150	.002－.005	.008－.055
		✣	L	1	LS(M)	MP9025	80－130	.002－.008	.008－.039
		✣	L	2	LS(G)	MP9025	80－130	.002－.006	.012－.118
		✣	M	1	MS	MP9025	65－115	.003－.010	.012－.079
		✣	M	2	RCMT	MP9025	65－115	.010－.018	.059－.118

RECOMMENDED CUTTING CONDITIONS

11° POSITIVE INSERT TYPE

Breaker : **Std :** Standard **Flat :** Flat Top

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
P									
Mild Steel (AISI ASTM A283, AISI 1010)	≤180HB	●	F	1	R-R/L	NX2525	740－1050	.002－.010	.012－.059
		●	L	1	R-Std	NX2525	605－885	.003－.012	.012－.079
		●	M	1	R-Std	NX2525	605－885	.003－.012	.012－.079
		◐	F	1	FV	MC6125	1050－1655	.002－.008	.008－.035
		◐	F	2	R-R/L	NX2525	740－1050	.002－.010	.012－.059
		◐	L	1	LP	MC6125	1050－1655	.002－.010	.008－.039
		◐	L	2	R-Std	MC6115	805－1560	.003－.012	.012－.079
		◐	L	3	R-Std	MP3025	620－970	.003－.012	.012－.079
		◐	L	4	R-Std	NX3035	590－835	.003－.012	.012－.079
		◐	M	1	MV	MC6125	885－1380	.003－.012	.012－.079
		◐	M	2	MV	MC6115	805－1560	.003－.012	.012－.079
		◐	M	3	R-Std	MC6125	885－1380	.003－.012	.012－.079
		◐	M	4	R-Std	MP3025	620－970	.003－.012	.012－.079
		◐	M	5	R-Std	NX3035	590－835	.003－.012	.012－.079
		✣	F	1	R-R/L	UTi20T	375－540	.002－.010	.012－.059
		✣	L	1	LP	MC6125	1050－1655	.002－.010	.008－.039
		✣	L	2	R-Std	MC6125	885－1380	.003－.012	.012－.079
		✣	L	3	N-Flat	UP20M	345－525	.003－.012	.012－.079
		✣	M	1	MV	MC6125	885－1380	.003－.012	.012－.079
		✣	M	2	R-Std	MC6125	885－1380	.003－.012	.012－.079
		✣	M	3	N-Flat	UP20M	345－525	.003－.012	.012－.079
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB	●	F	1	R-R/L	NX2525	540－785	.002－.010	.012－.059
		●	L	1	R-Std	NX2525	460－655	.003－.012	.012－.079
		●	M	1	R-Std	NX2525	460－655	.003－.012	.012－.079
		◐	F	1	FV	MC6125	785－1215	.002－.008	.008－.035
		◐	F	2	R-R/L	NX2525	540－785	.002－.010	.012－.059
		◐	L	1	LP	MC6125	785－1215	.002－.010	.008－.039
		◐	L	2	R-Std	MC6115	590－1150	.003－.012	.012－.079
		◐	L	3	R-Std	MC6125	655－1015	.003－.012	.012－.079
		◐	L	4	R-Std	MP3025	460－720	.003－.012	.012－.079
		◐	L	5	R-Std	NX3035	440－620	.003－.012	.012－.079
		◐	M	1	MV	MC6125	655－1015	.003－.012	.012－.079
		◐	M	2	R-Std	MC6115	590－1150	.003－.012	.012－.079
		◐	M	3	R-Std	MC6125	655－1015	.003－.012	.012－.079
		◐	M	4	R-Std	MP3025	460－720	.003－.012	.012－.079
		◐	M	5	R-Std	NX3035	440－620	.003－.012	.012－.079
		✣	F	1	R-R/L	UTi20T	280－395	.002－.010	.012－.059
		✣	L	1	LP	MC6125	785－1215	.002－.010	.008－.039
		✣	L	2	R-Std	MC6125	655－1015	.003－.012	.012－.079
		✣	L	3	N-Flat	UP20M	260－395	.003－.012	.012－.079
		✣	M	1	MV	MC6125	655－1015	.003－.012	.012－.079
		✣	M	2	R-Std	MC6125	655－1015	.003－.012	.012－.079
		✣	M	3	N-Flat	UP20M	260－395	.003－.012	.012－.079

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 (SFM)	Feed (IPR)	Depth of Cut (inch)
K									
Gray Cast Iron (AISI No 45 B)	≤350MPa	●	F	1	R-R/L	NX2525	475－655	.002－.010	.012－.059
		●	L	1	N-Flat	MC5105	540－1670	.003－.012	.012－.079
		●	L	2	N-Flat	MC5115	490－920	.003－.012	.012－.079
		●	L	3	N-Flat	NX2525	395－540	.003－.012	.012－.079
		●	L	4	R-Std	NX2525	395－540	.003－.012	.012－.079
		●	M	1	N-Flat	MC5105	540－1670	.003－.012	.012－.079
		●	M	2	N-Flat	MC5115	490－920	.003－.012	.012－.079
		●	M	3	N-Flat	NX2525	395－540	.003－.012	.012－.079
		●	M	4	R-Std	NX2525	395－540	.003－.012	.012－.079
		◐	F	1	R-R/L	NX2525	475－655	.002－.010	.012－.059
		◐	F	2	R-R/L	HTi10	295－410	.002－.010	.012－.059
		◐	L	1	N-Flat	MC5115	490－920	.003－.012	.012－.079
		◐	L	2	N-Flat	MC5105	540－1670	.003－.012	.012－.079
		◐	M	1	N-Flat	MC5115	490－920	.003－.012	.012－.079
		◐	M	2	N-Flat	MC5105	540－1670	.003－.012	.012－.079
		◐	M	3	MV	MC5115	590－1100	.003－.012	.012－.079
		✣	F	1	R-R/L	UTi20T	230－345	.002－.010	.012－.059
		✣	L	1	N-Flat	MC5125	260－525	.003－.012	.012－.079
		✣	L	2	N-Flat	MC5115	490－920	.003－.012	.012－.079
		✣	L	3	N-Flat	VP15TF	375－525	.003－.012	.012－.079
		✣	M	1	N-Flat	MC5125	260－525	.003－.012	.012－.079
		✣	M	2	N-Flat	MC5115	490－920	.003－.012	.012－.079
		✣	M	3	N-Flat	VP15TF	375－525	.003－.012	.012－.079
Ductile Cast Iron	≤450MPa	●	F	1	R-R/L	NX2525	460－620	.002－.010	.012－.059
		●	L	1	N-Flat	MC5115	460－870	.003－.012	.012－.079
		●	L	2	N-Flat	MC5105	510－1590	.003－.012	.012－.079
		●	L	3	N-Flat	NX2525	375－510	.003－.012	.012－.079
		●	L	4	R-Std	NX2525	375－510	.003－.012	.012－.079
		●	M	1	N-Flat	MC5115	460－870	.003－.012	.012－.079
		●	M	2	N-Flat	MC5105	510－1590	.003－.012	.012－.079
		●	M	3	N-Flat	NX2525	375－510	.003－.012	.012－.079
		●	M	4	R-Std	NX2525	375－510	.003－.012	.012－.079
		◐	F	1	R-R/L	NX2525	460－620	.002－.010	.012－.059
		◐	F	2	R-R/L	HTi10	280－395	.002－.010	.012－.059
		◐	L	1	N-Flat	MC5115	460－870	.003－.012	.012－.079
		◐	L	2	N-Flat	MC5125	245－490	.003－.012	.012－.079
		◐	L	3	N-Flat	MC5105	510－1590	.003－.012	.012－.079
		◐	M	1	N-Flat	MC5115	460－870	.003－.012	.012－.079
		◐	M	2	N-Flat	MC5125	245－490	.003－.012	.012－.079
		◐	M	3	N-Flat	MC5105	510－1590	.003－.012	.012－.079
		◐	M	4	MV	MC5115	560－1030	.003－.012	.012－.079
		✣	F	1	R-R/L	UTi20T	210－330	.002－.010	.012－.059
		✣	L	1	N-Flat	MC5125	245－490	.003－.012	.012－.079
		✣	L	2	N-Flat	MC5115	460－870	.003－.012	.012－.079
		✣	L	3	N-Flat	VP15TF	360－490	.003－.012	.012－.079
		✣	M	1	N-Flat	MC5125	245－490	.003－.012	.012－.079
		✣	M	2	N-Flat	MC5115	460－870	.003－.012	.012－.079
		✣	M	3	N-Flat	VP15TF	360－490	.003－.012	.012－.079

Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
K									
Ductile Cast Iron	≤800MPa	●	**F**	1	**R-R/L**	**NX2525**	410－560	.002－.010	.012－.059
		●	**L**	1	**N-Flat**	**MC5115**	410－770	.003－.012	.012－.079
		●	**L**	2	**N-Flat**	**MC5105**	460－1425	.003－.012	.012－.079
		●	**L**	3	**N-Flat**	**NX2525**	345－460	.003－.012	.012－.079
		●	**L**	4	**R-Std**	**NX2525**	345－460	.003－.012	.012－.079
		●	**M**	1	**N-Flat**	**MC5115**	410－770	.003－.012	.012－.079
		●	**M**	2	**N-Flat**	**MC5105**	460－1425	.003－.012	.012－.079
		●	**M**	3	**N-Flat**	**NX2525**	345－460	.003－.012	.012－.079
		●	**M**	4	**R-Std**	**NX2525**	345－460	.003－.012	.012－.079
		◐	**F**	1	**R-R/L**	**NX2525**	410－560	.002－.010	.012－.059
		◐	**F**	2	**R-R/L**	**HTi10**	245－360	.002－.010	.012－.059
		◐	**L**	1	**N-Flat**	**MC5115**	410－770	.003－.012	.012－.079
		◐	**L**	2	**N-Flat**	**MC5125**	210－440	.003－.012	.012－.079
		◐	**L**	3	**N-Flat**	**MC5105**	460－1425	.003－.012	.012－.079
		◐	**M**	1	**N-Flat**	**MC5115**	410－770	.003－.012	.012－.079
		◐	**M**	2	**N-Flat**	**MC5125**	210－440	.003－.012	.012－.079
		◐	**M**	3	**N-Flat**	**MC5105**	460－1425	.003－.012	.012－.079
		◐	**M**	4	**MV**	**MC5115**	510－935	.003－.012	.012－.079
		✣	**F**	1	**R-R/L**	**UTi20T**	195－280	.002－.010	.012－.059
		✣	**L**	1	**N-Flat**	**MC5125**	210－440	.003－.012	.012－.079
		✣	**L**	2	**N-Flat**	**MC5115**	410－770	.003－.012	.012－.079
		✣	**L**	3	**N-Flat**	**VP15TF**	310－440	.003－.012	.012－.079
		✣	**M**	1	**N-Flat**	**MC5125**	210－440	.003－.012	.012－.079
		✣	**M**	2	**N-Flat**	**MC5115**	410－770	.003－.012	.012－.079
		✣	**M**	3	**N-Flat**	**VP15TF**	310－440	.003－.012	.012－.079

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

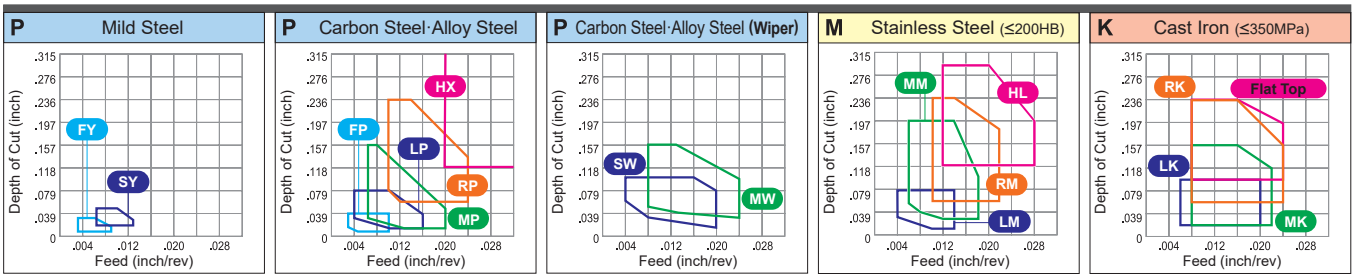
Memo

80° CN TYPE INSERTS WITH HOLE

CNMG 4 3 0.5 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 ···



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

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

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet				Cermet		Carbide									
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FP	**CNMG430.5FP**	CNMG120402-FP	.008		●	●																						●				★									
	CNMG431FP	CNMG120404-FP	.016		●	●																						●				★									
	CNMG432FP	CNMG120408-FP	.031		●	●																						●				★									
	CNMG433FP	CNMG120412-FP	.047		●	●																						●				★									
Finish Cutting																																											
FH	**CNMG430.5FH**	CNMG120402-FH	.008																									●				●●									
	CNMG431FH	CNMG120404-FH	.016																									●●				★									
	CNMG432FH	CNMG120408-FH	.031																									●●				★									
	CNMG433FH	CNMG120412-FH	.047																										★			★									
Finish Cutting																																											
FS	**CNMG431FS**	CNMG120404-FS	.016																										●			★									
	CNMG432FS	CNMG120408-FS	.031																										●			★									
Finish Cutting																																											
FS NEW	**CNGG43V5FS**	CNGG1204V5-FS	.002																		●●																				●
	CNGG430.2FS	CNGG120401-FS	.004																		●●●																				●
	CNGG430.5FS	CNGG120402-FS	.008																		●●●																				●
	CNGG431FS	CNGG120404-FS	.016																		●●●																				●
	CNGG432FS	CNGG120408-FS	.031																		●●●																				●
Finish Cutting																																											
FY	**CNMG431FY**	CNMG120404-FY	.016																									●	★			★●									
	CNMG432FY	CNMG120408-FY	.031																									●	★			★									
Finish Cutting																																											
FJ	**CNGG43V5FJ**	CNGG1204V5-FJ	.002																							●													★			
	CNGG430.2FJ	CNGG120401-FJ	.004																							●													★			
	CNGG430.5FJ	CNGG120402-FJ	.008																							●													★			
	CNGG431FJ	CNGG120404-FJ	.016																							●★													★			
	CNGG432FJ	CNGG120408-FJ	.031																							●●													●			
Finish Cutting																																											

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	● ✣ ○ ◔ ❁ ❁ ● ◐ ✣ ✣ ● ○ ◐ ✣ ✣ ● ◔ ❁ ❁ ◐ ○ ○ ◔ ○ ◔ ❁ ○
M	Stainless Steel	◐ ✣ ✣ ● ◐ ❁ ❁ ○ ○ ○ ◔ ❁
K	Cast Iron	● ◐ ✣ ◔ ❁ ◔ ❁ ○ ○ ○ ❁ ○ ◔ ○
N	Non-ferrous Metal	◔ ● ◐ ◐ ◐ ◐ ○
S	Heat resistant Alloy, Titanium Alloy	● ◐ ✣ ○ ◐ ○ ◔ ❁ ◔ ● ◐ ◐ ◐ ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide								
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	VP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FJ-P	**CNGG43V5FJ-P**	CNGG1204V5-FJ-P	.002																																		●				
	**CNGG430.2FJ-P**	CNGG120401-FJ-P	.004																																		●				
	CNGG430.5FJ-P	CNGG120402-FJ-P	.008																																		●				
Finish Cutting																																									
LP	**CNMG431LP**	CNMG120404-LP	.016	●	●	●	●	●																						●											
	**CNMG432LP**	CNMG120408-LP	.031	●	●	●	●	●																						●											
	CNMG433LP	CNMG120412-LP	.047	●	●	●	●	●																																		
Light Cutting																																									
LM	**CNMG431LM**	CNMG120404-LM	.016								●	●	●																												
	**CNMG432LM**	CNMG120408-LM	.031								●	●	●																												
	CNMG433LM	CNMG120412-LM	.047								●	●	●																												
Light Cutting																																									
LK	**CNMG431LK**	CNMG120404-LK	.016													●	●	●	●																						
	**CNMG432LK**	CNMG120408-LK	.031													●	●	●	●																						
	CNMG433LK	CNMG120412-LK	.047													●	★	●	●																						
Light Cutting																																									
LS	**CNMG321LS**	CNMG090304-LS	.016																		●	●	●																		
	**CNMG322LS**	CNMG090308-LS	.031																		●	●	●																		
	CNMG430.5LS	CNMG120402-LS	.008																		●	●	●																	●	
	CNMG431LS	CNMG120404-LS	.016																		●	●	●																	●	
Light Cutting	**CNMG432LS**	CNMG120408-LS	.031																		●	●	●																	●	
LS NEW	**CNGG430.5LS**	CNGG120402-LS	.008																		●	●	●																	●	
	**CNGG431LS**	CNGG120404-LS	.016																		●	●	●																	●	
Light Cutting	**CNGG432LS**	CNGG120408-LS	.031																		●	●	●																	●	
SH	**CNMG32.51SH**	CNMG09T304-SH	.016										★																												
	**CNMG431SH**	CNMG120404-SH	.016	●	●	●	●						●																	★			★	●							
	CNMG432SH	CNMG120408-SH	.031	●	●	●	●						●																	★			★	●							
	CNMG433SH	CNMG120412-SH	.047	●	●	●	●																																		
Light Cutting																																									
SA	**CNMG431SA**	CNMG120404-SA	.016	●	●	●	●						●																					★	●						
	**CNMG432SA**	CNMG120408-SA	.031	●	●	●	●						●																					★	●						
	CNMG433SA	CNMG120412-SA	.047	●	●	●	●																												●						
Light Cutting																																									

● = NEW

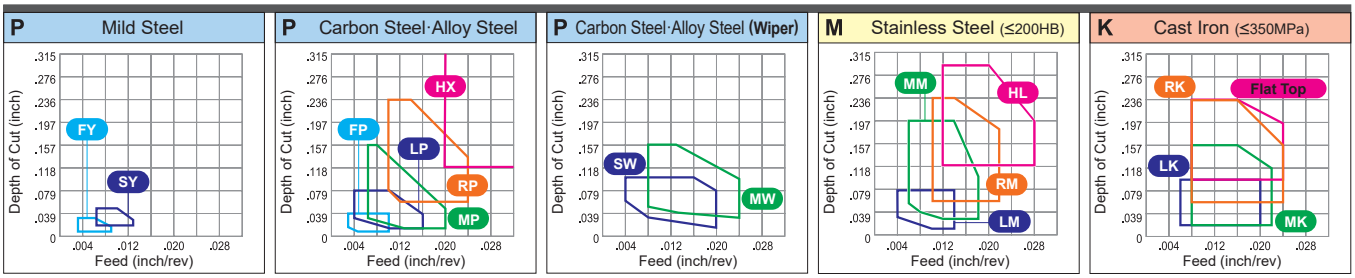
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° CN TYPE INSERTS WITH HOLE

CNMG 4 3 1 SW
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 ···



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁●◐◐✠✠●◐○◔❁❁◐○◔○◔❁○
M	Stainless Steel	●◐◐✠✠●◐○◔❁❁◐○○○◔❁
K	Cast Iron	●◐◐✠◔❁◔❁❁○○○◔❁○◔○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐○◔❁◔●◐●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide									
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
*SW	CNMG431SW	CNMG120404-SW	.016	●	●	●													●	●										●				★	●								
	CNMG432SW	CNMG120408-SW	.031	●	●	●													●	●										●				★	●								
	CNMG433SW	CNMG120412-SW	.047	●	●	●																								●				●	●								
Light Cutting (Wiper)																																											
SY	CNMG431SY	CNMG120404-SY	.016																											●	★			★									
	CNMG432SY	CNMG120408-SY	.031																											●	★			★									
Light Cutting																																											
MJ	CNMG431MJ	CNMG120404-MJ	.016																		●	●		★		●	●												●				
	CNMG432MJ	CNMG120408-MJ	.031																		●	●		★		●	●												●				
	CNMG433MJ	CNMG120412-MJ	.047																		●	●		★		★	★																
	CNMG434MJ	CNMG120416-MJ	.063																		●	●		★		★	★																
Light Cutting																																											
MJ	CNGG431MJ	CNGG120404-MJ	.016																								●	●												●	●			
	CNGG432MJ	CNGG120408-MJ	.031																								●	●												●	●			
Light Cutting																																											
MP	CNMG431MP	CNMG120404-MP	.016	●	●	●	●	●																						●													
	CNMG432MP	CNMG120408-MP	.031	●	●	●	●	●																						●													
	CNMG433MP	CNMG120412-MP	.047	●	●	●	●	●																						●													
	CNMG434MP	CNMG120416-MP	.063	●	●	●	●	●																																			
	CNMG542MP	CNMG160608-MP	.031	●	●		●																																				
	CNMG543MP	CNMG160612-MP	.047	●	●		●																																				
Medium Cutting	CNMG544MP	CNMG160616-MP	.063	●	●		●																																				

* Please refer to A032 before using the SW breaker (wiper insert).

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	● ✠ ○ ◔ ❁ ❁ ● ◕ ● ◕ ✠ ✠ ● ✠ ◕ ✠ ❁ ❁ ◕ ○ ○ ○ ◔ ○ ◔ ❁ ○
M	Stainless Steel	● ◕ ✠ ✠ ● ◕ ✠ ❁ ❁ ○ ○ ○ ◔ ❁
K	Cast Iron	● ◕ ✠ ◔ ❁ ◔ ❁ ○ ○ ○ ❁ ○ ◔ ○
N	Non-ferrous Metal	◔ ● ◕ ● ● ○
S	Heat resistant Alloy, Titanium Alloy	◔ ● ◕ ● ● ● ○ ◕ ○ ◔ ❁

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	VP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
MM	**CNMG432MM**	CNMG120408-MM	.031								●	●	●																											
	CNMG433MM	CNMG120412-MM	.047								●	●	●																											
	CNMG434MM	CNMG120416-MM	.063								●	●	●																											
	CNMG542MM	CNMG160608-MM	.031								●	●	●																											
	CNMG543MM	CNMG160612-MM	.047								●	●	●																											
	CNMG544MM	CNMG160616-MM	.063								●	●	●																											
	CNMG642MM	CNMG190608-MM	.031								●	●	●																											
	CNMG643MM	CNMG190612-MM	.047								●	●	●																											
Medium Cutting	**CNMG644MM**	CNMG190616-MM	.063								●	●	●																											
MK	**CNMG431MK**	CNMG120404-MK	.016													●	●	●	●	●																				
	CNMG432MK	CNMG120408-MK	.031													●	●	●	●	●																				
	CNMG433MK	CNMG120412-MK	.047													●	●	●	●	●																				
	CNMG434MK	CNMG120416-MK	.063													●	●	●	●	●																				
	CNMG542MK	CNMG160608-MK	.031													●	●	★	★	●																				
	CNMG543MK	CNMG160612-MK	.047													★	●	●	●	●																				
	CNMG544MK	CNMG160616-MK	.063													●	●	★	●	●																				
	CNMG643MK	CNMG190612-MK	.047													●			●	●																				
Medium Cutting	**CNMG644MK**	CNMG190616-MK	.063													★			●	●																				
***MS**	**CNMG321MS**	CNMG090304-MS	.016																		●	●	●																	
	CNMG322MS	CNMG090308-MS	.031																		●	●	●																	
	CNMG431MS	CNMG120404-MS	.016																		●	●	●																	●
	CNMG432MS	CNMG120408-MS	.031																		●	●	●																	●
	CNMG433MS	CNMG120412-MS	.047																		●	●	●																	●
	CNMG543MS	CNMG160612-MS	.047																		●	●	●																	●
Medium Cutting	**CNMG644MS**	CNMG190616-MS	.063																		●	●	●																	●
MS	**CNMG321MS**	CNMG090304-MS	.016											●																										
	CNMG322MS	CNMG090308-MS	.031											●																										
	CNMG32.51MS	CNMG09T304-MS	.016											★																							★			
	CNMG32.52MS	CNMG09T308-MS	.031											★																										
	CNMG431MS	CNMG120404-MS	.016											●										●		●	●	●	●								★		●	
	CNMG432MS	CNMG120408-MS	.031											●										●		●	●	●	●							●	★		●	
	CNMG433MS	CNMG120412-MS	.047											●										●		★	●	●											★	
	CNMG542MS	CNMG160608-MS	.031											●																										
	CNMG543MS	CNMG160612-MS	.047											●																										●
Medium Cutting	**CNMG643MS**	CNMG190612-MS	.047											●																										
	CNMG644MS	CNMG190616-MS	.063											●																										
	CNMP432	CNMP120408	.031											●																										
Medium Cutting																																							

* New design MS breaker : MP9005, MP9015, MP9025, MT9015

● = NEW

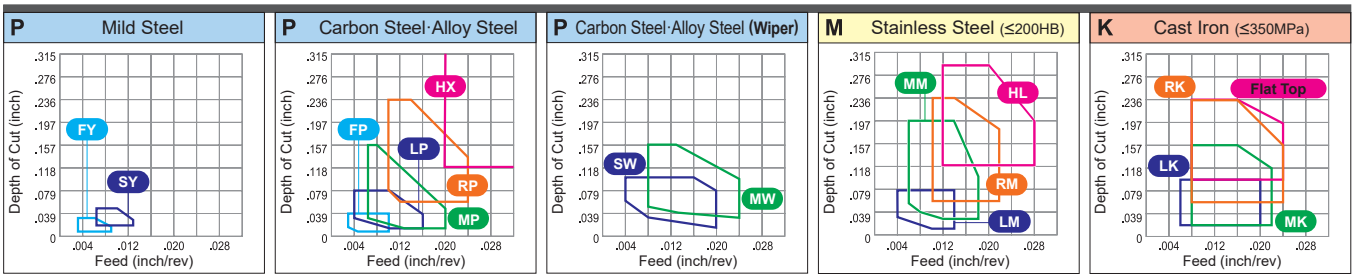
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° CN TYPE INSERTS WITH HOLE

CNMG 4 3 1 GK
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 ···



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

| Workpiece Material | | |

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❁❁● ◐●✣✣● ●◐✣◔❁ ◐❁❁ ❁◐○○◔○◔❁ ○○○ ○ ❁○◔ ○
M	Stainless Steel	◐ ◔❁❁ ○○ ○ ❁ ◐●●●●●
K	Cast Iron	◔❁ ○○ ○ ❁○◔ ○ ●◐✣◔❁
N	Non-ferrous Metal	◔● ◔●
S	Heat resistant Alloy, Titanium Alloy	●●✣○◐○◔❁ ◔●●●● ●◐✣◔❁

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide							
				NEW MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
Standard	**CNMG32.51**	CNMG09T304	.016		★	★																								★									
	CNMG32.52	CNMG09T308	.031		★	★																								★									
	CNMG431	CNMG120404	.016	●	●	●	●																						●			★	●	●		●				
	CNMG432	CNMG120408	.031	●	●	●	●	●																		●			●				★		●		●				
	CNMG433	CNMG120412	.047	●	●	●	●	●																		●							★								
	CNMG434	CNMG120416	.063	●	●	●	●																																		
	CNMG542	CNMG160608	.031	●	●	●	●	●																																		
	CNMG543	CNMG160612	.047	●	●	●	●	●																																		
	CNMG544	CNMG160616	.063	●	●	●	●	●																																		
	CNMG642	CNMG190608	.031	●	●	●	●	●																																		
	CNMG643	CNMG190612	.047	●	●	●	●	●																																		
Medium Cutting	**CNMG644**	CNMG190616	.063	●	●	●	●	●																																		
***MW**	**CNMG432MW**	CNMG120408-MW	.031	●	●	●	●												●	●																						
	CNMG433MW	CNMG120412-MW	.047	●	●	●	●												●	●																						
Medium Cutting (Wiper)																																									
RP	**CNMG432RP**	CNMG120408-RP	.031	●	●	●	●	●																																		
	CNMG433RP	CNMG120412-RP	.047	●	●	●	●	●																																		
	CNMG434RP	CNMG120416-RP	.063	●	●	●	●	●																																		
	CNMG543RP	CNMG160612-RP	.047	●	●	●	●	●																																		
	CNMG544RP	CNMG160616-RP	.063	●	●	●	●	●																																		
	CNMG643RP	CNMG190612-RP	.047	●	●	●	●	●																																		
Rough Cutting	**CNMG644RP**	CNMG190616-RP	.063	●	●	●	●	●																																		
RM	**CNMG432RM**	CNMG120408-RM	.031								●	●	●																												
	CNMG433RM	CNMG120412-RM	.047								●	●	●																												
	CNMG434RM	CNMG120416-RM	.063								●	●	●																												
	CNMG543RM	CNMG160612-RM	.047								●	●	●																												
	CNMG544RM	CNMG160616-RM	.063								●	●	●																												
	CNMG643RM	CNMG190612-RM	.047								●	●	●																												
Rough Cutting	**CNMG644RM**	CNMG190616-RM	.063								●	●	●																												
RK	**CNMG432RK**	CNMG120408-RK	.031													●	●	●	●	●																					
	CNMG433RK	CNMG120412-RK	.047													●	●	●	●	●																					
	CNMG434RK	CNMG120416-RK	.063													★	●	●	●	●																					
	CNMG542RK	CNMG160608-RK	.031													★	●	●	★	●																					
	CNMG543RK	CNMG160612-RK	.047													●	●	●	●	●																					
	CNMG544RK	CNMG160616-RK	.063													●	●	★	●	●																					
	CNMG643RK	CNMG190612-RK	.047													●			●	●																					
Rough Cutting	**CNMG644RK**	CNMG190616-RK	.063													★			●	●																					

* Please refer to A032 before using the MW breaker (wiper insert).

● = NEW

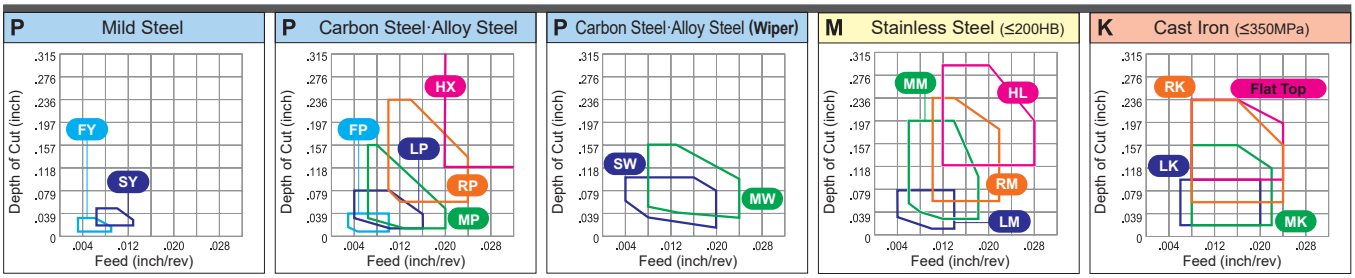
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° CN TYPE INSERTS WITH HOLE

CNMG 4 3 2 RS
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 ···



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

| Workpiece Material | | |

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❁❁● ◐●✣✣● ✣◐✣◔❁ ◐✣❁❁ ◐○○◔○◔❁ ○○○ ○ ○ ○ ❁○○◔●◐●●● ○
M	Stainless Steel	◐ ◔❁❁ ○○ ○ ❁ ○ ◔ ○
K	Cast Iron	●◐✣◔❁ ◔❁ ○○ ○ ❁○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✣○◐○◔❁ ◔●◐●●● ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																												Coated Cermet			Cermet		Carbide							
				NEW MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
HL	**CNMM432HL**	CNMM120408-HL	.031				★	★					★																														
	CNMM433HL	CNMM120412-HL	.047				★	★					★																														
	CNMM434HL	CNMM120416-HL	.063					★																																		
	CNMM543HL	CNMM160612-HL	.047				★	★					★																														
	CNMM544HL	CNMM160616-HL	.063				★	★					★																														
	CNMM643HL	CNMM190612-HL	.047				★	★					★																														
	CNMM644HL	CNMM190616-HL	.063				★	★					★																														
Heavy Cutting	**CNMM646HL**	CNMM190624-HL	.094				★	★					★																														
HR	**CNMM866HR**	CNMM250924-HR	.094				★	★																																		
Heavy Cutting																																										
HV	**CNMM644HV**	CNMM190616-HV	.063				★	★	★																																		
	CNMM646HV	CNMM190624-HV	.094				★	★	★																																		
	CNMM866HV	CNMM250924-HV	.094				★	★	★																																		
Heavy Cutting																																										
HZ	**CNMM432HZ**	CNMM120408-HZ	.031				★	★																																		
	CNMM433HZ	CNMM120412-HZ	.047				★	★																																		
	CNMM434HZ	CNMM120416-HZ	.063					★																																		
	CNMM643HZ	CNMM190612-HZ	.047						★																																		
Heavy Cutting	**CNMM644HZ**	CNMM190616-HZ	.063						★																																		
HM	**CNMM543HM**	CNMM160612-HM	.047				★	★					★																														
	CNMM544HM	CNMM160616-HM	.063				★	★					★																														
	CNMM643HM	CNMM190612-HM	.047				★	★					★																														
	CNMM644HM	CNMM190616-HM	.063				★	★					★																														
	CNMM646HM	CNMM190624-HM	.094				★	★					★																														
Heavy Cutting	**CNMM866HM**	CNMM250924-HM	.094				★	★																																		
Flat Top	**CNMA431**	CNMA120404	.016													●	●	●	●	●																★	●						
	CNMA432	CNMA120408	.031													●	●	●	●	●																★	●						
	CNMA433	CNMA120412	.047													●	●	●	●	●																							
	CNMA434	CNMA120416	.063													●	●	★	●	●																							
	CNMA543	CNMA160612	.047													●	●	●	●	●																							
	CNMA544	CNMA160616	.063													★	●	●	●	●																							
	CNMA643	CNMA190612	.047													●			●	●																							
	CNMA644	CNMA190616	.063													★			●	●																							
	CNMA646	CNMA190624	.094													★			★	★																							

● = NEW

EXTERNAL TURNING	➤ C002
BORING	➤ E002

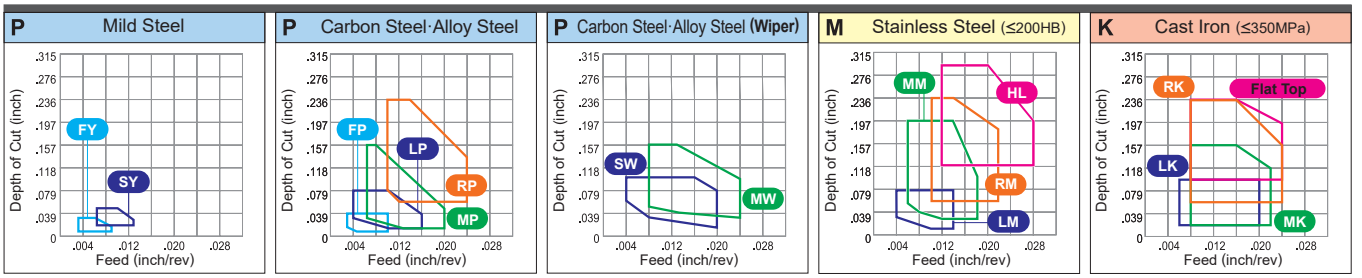
CHIP BREAKER	➤ A046
GRADES	➤ A034
IDENTIFICATION	➤ A002

55° DN TYPE INSERTS WITH HOLE

DNMG 4 3 0.5 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



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

| Workpiece Material | | |

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ❁ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●❁○◔❁❁● ◐●❁❁● ❁◐●❁◔❁ ❁◐○○◔○◔❁ ○
M	Stainless Steel	◐●❁❁● ◐ ❁◔❁❁ ○○ ○ ❁ ○
K	Cast Iron	●◐❁◔❁ ◔❁❁ ○○ ○ ❁○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐❁○◐○◔❁ ◔●◐●◐ ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated: NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FJ	**DNGG431FJ**	DNGG150404-FJ	.016																							★	★														★			
	DNGG432FJ	DNGG150408-FJ	.031																							●	●														●			
Finish Cutting																																												
LP	**DNMG331LP**	DNMG110404-LP	.016			●	●	●																					●														
	DNMG332LP	DNMG110408-LP	.031			●	●	●																					●														
	DNMG431LP	DNMG150404-LP	.016	●	●	●	●	●																					●														
	DNMG432LP	DNMG150408-LP	.031	●	●	●	●	●																					●														
	DNMG433LP	DNMG150412-LP	.047	●	●	●	●	●																					●														
	DNMG441LP	DNMG150604-LP	.016	●	●	●	●	●																					●														
	DNMG442LP	DNMG150608-LP	.031	●	●	●	●	●																					●														
Light Cutting	**DNMG443LP**	DNMG150612-LP	.047	●	●	●	●	●																																				
LM	**DNMG331LM**	DNMG110404-LM	.016								●	●	●																														
	DNMG332LM	DNMG110408-LM	.031								●	●	●																														
	DNMG431LM	DNMG150404-LM	.016								●	●	●																														
	DNMG432LM	DNMG150408-LM	.031								●	●	●																														
	DNMG433LM	DNMG150412-LM	.047								●	●	●																														
	DNMG441LM	DNMG150604-LM	.016								●	●	●																														
	DNMG442LM	DNMG150608-LM	.031								●	●	●																														
Light Cutting	**DNMG443LM**	DNMG150612-LM	.047								●	●	●																														
LK	**DNMG332LK**	DNMG110408-LK	.031													●	★	★	●																								
	DNMG431LK	DNMG150404-LK	.016													●	★	●	●																								
	DNMG432LK	DNMG150408-LK	.031													●	●	●	●																								
	DNMG433LK	DNMG150412-LK	.047													●	★	●	●																								
	DNMG441LK	DNMG150604-LK	.016													★	★	●	●																								
	DNMG442LK	DNMG150608-LK	.031													★	★	●	●																								
Light Cutting	**DNMG443LK**	DNMG150612-LK	.047													★	★	●	●																								
LS	**DNMG430.5LS**	DNMG150402-LS	.008																		●	●	●																				
	DNMG431LS	DNMG150404-LS	.016																		●	●	●																				
	DNMG432LS	DNMG150408-LS	.031																		●	●	●																				
	DNMG441LS	DNMG150604-LS	.016																		●	●	●																				
Light Cutting	**DNMG442LS**	DNMG150608-LS	.031																		●	●	●																				
LS NEW	**DNGG430.5LS**	DNGG150402-LS	.008																		●	●	●																				
	DNGG431LS	DNGG150404-LS	.016																		●	●	●																				
	DNGG432LS	DNGG150408-LS	.031																		●	●	●																				
	DNGG441LS	DNGG150604-LS	.016																		●	●	●																				
Light Cutting	**DNGG442LS**	DNGG150608-LS	.031																		●	●	●																				

● = NEW

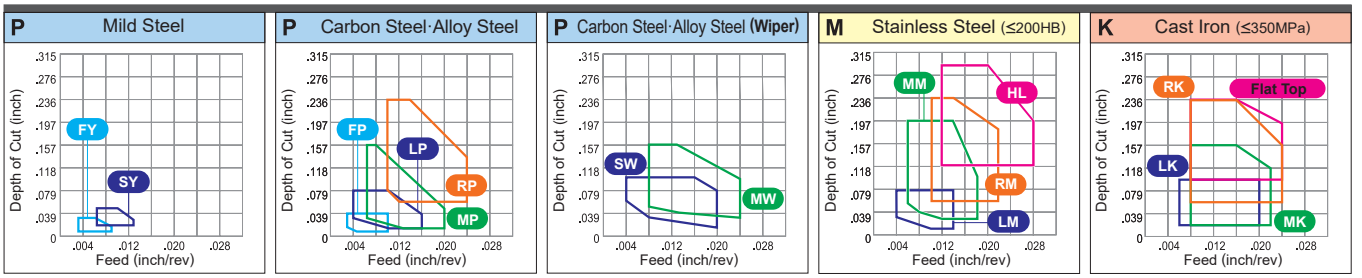
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

55° DN TYPE INSERTS WITH HOLE

DNMG 3 3 1 SH
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



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

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

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide								
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
SH	**DNMG331SH**	DNMG110404-SH	.016										★																												
	DNMG332SH	DNMG110408-SH	.031										●																												
	DNMG431SH	DNMG150404-SH	.016	●	●	●	●						●																	★			★	●								
	DNMG432SH	DNMG150408-SH	.031	●	●	●	●						●																	★			★	●								
	DNMG433SH	DNMG150412-SH	.047	●	●	●	●						●																	★			★									
	DNMG441SH	DNMG150604-SH	.016	●	●																																				
	DNMG442SH	DNMG150608-SH	.031	●	●																																				
Light Cutting	**DNMG443SH**	DNMG150612-SH	.047	●	●																																				
SA	**DNMG431SA**	DNMG150404-SA	.016	●	●	●	●																										★	●							
	DNMG432SA	DNMG150408-SA	.031	●	●	●	●							●																			★	●							
	DNMG433SA	DNMG150412-SA	.047	●	●	●	●																											●							
	DNMG441SA	DNMG150604-SA	.016	●	●																													★							
Light Cutting	**DNMG442SA**	DNMG150608-SA	.031	●	●																													★							
	DNMG443SA	DNMG150612-SA	.047	●	●																													★							
***SW**	**DNMX331SW**	DNMX110404-SW	.016			●																																			
	DNMX332SW	DNMX110408-SW	.031			●																																			
	DNMX431SW	DNMX150404-SW	.016			●																								●				★	●							
	DNMX432SW	DNMX150408-SW	.031			●																								●				★	●							
	DNMX433SW	DNMX150412-SW	.047			●																												●	●							
	DNMX441SW	DNMX150604-SW	.016			●																								★				★	★							
Light Cutting (Wiper)	**DNMX442SW**	DNMX150608-SW	.031			●																								★				★	★							
	DNMX443SW	DNMX150612-SW	.047			●																												●	●							
SY	**DNMG431SY**	DNMG150404-SY	.016																											●				★	●							
	DNMG432SY	DNMG150408-SY	.031																											●		★		★								
	DNMG441SY	DNMG150604-SY	.016																											★												
Light Cutting	**DNMG442SY**	DNMG150608-SY	.031																											★												

* Please refer to page A032 before using the SW breaker (wiper insert).

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❁❁● ◐●✣✣● ✣◐❁◔❁ ◐✣❁ ○○○◔○◔✣ ○❁○◔●●●○
M	Stainless Steel	◐✣✣● ◐○○ ○○ ○ ✣
K	Cast Iron	●◐✣◔❁ ◔❁ ○○ ○ ✣○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✣○◐○◔❁ ◔●◐●●○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet					Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
MJ	**DNMG431MJ**	DNMG150404-MJ	.016																		●●	●●	★		●●														●			
	DNMG432MJ	DNMG150408-MJ	.031																		●●	●●	★		●●														●			
	DNMG433MJ	DNMG150412-MJ	.047																		●●	●●	★		★★																	
	DNMG434MJ	DNMG150416-MJ	.063																		●●	●●	★		★★																	
	DNMG441MJ	DNMG150604-MJ	.016																		●●	●●	★		★★																	
	DNMG442MJ	DNMG150608-MJ	.031																		●●	●●	★		★★																	
	DNMG443MJ	DNMG150612-MJ	.047																		●●	●●	★		★★																	
Light Cutting	**DNMG444MJ**	DNMG150616-MJ	.063																		●●	●●	★		★★																	
MJ	**DNGM431MJ**	DNGM150404-MJ	.016																							●★											●		●				
	DNGM432MJ	DNGM150408-MJ	.031																							●★											●		●				
Light Cutting																																											
MP	**DNMG431MP**	DNMG150404-MP	.016	●●	●●	●●	●●																							●												
	DNMG432MP	DNMG150408-MP	.031	●●	●●	●●	●●																							●												
	DNMG433MP	DNMG150412-MP	.047	●●	●●	●●	●●																							●												
	DNMG434MP	DNMG150416-MP	.063	●●	●●	●●	●●																																			
	DNMG441MP	DNMG150604-MP	.016	●●	●●	●●	●●																							★												
	DNMG442MP	DNMG150608-MP	.031	●●	●●	●●	●●																							★												
	DNMG443MP	DNMG150612-MP	.047	●●	●●	●●	●●																							★												
Medium Cutting	**DNMG444MP**	DNMG150616-MP	.063	●●	●●	●●	●●																																			
MM	**DNMG432MM**	DNMG150408-MM	.031								●●●																															
	DNMG433MM	DNMG150412-MM	.047								●●●																															
	DNMG442MM	DNMG150608-MM	.031								●●●																															
	DNMG443MM	DNMG150612-MM	.047								●●●																															
Medium Cutting																																											
MK	**DNMG332MK**	DNMG110408-MK	.031													★●●		★●																								
	DNMG431MK	DNMG150404-MK	.016													●●●		●●																								
	DNMG432MK	DNMG150408-MK	.031													●●●		●●																								
	DNMG433MK	DNMG150412-MK	.047													★●●		●●																								
	DNMG441MK	DNMG150604-MK	.016													★★★		●●																								
	DNMG442MK	DNMG150608-MK	.031													★●★		●●																								
Medium Cutting	**DNMG443MK**	DNMG150612-MK	.047													★★★		●●																								
***MS**	**DNMG431MS**	DNMG150404-MS	.016																		●●●																				●	
	DNMG432MS	DNMG150408-MS	.031																		●●●																				●	
	DNMG433MS	DNMG150412-MS	.047																		●●●																				●	
	DNMG441MS	DNMG150604-MS	.016																		●●●																				●	
	DNMG442MS	DNMG150608-MS	.031																		●●●																				●	
Medium Cutting	**DNMG443MS**	DNMG150612-MS	.047																		●●●																				●	

* New design MS breaker : MP9005, MP9015, MP9025, MT9015

● = NEW

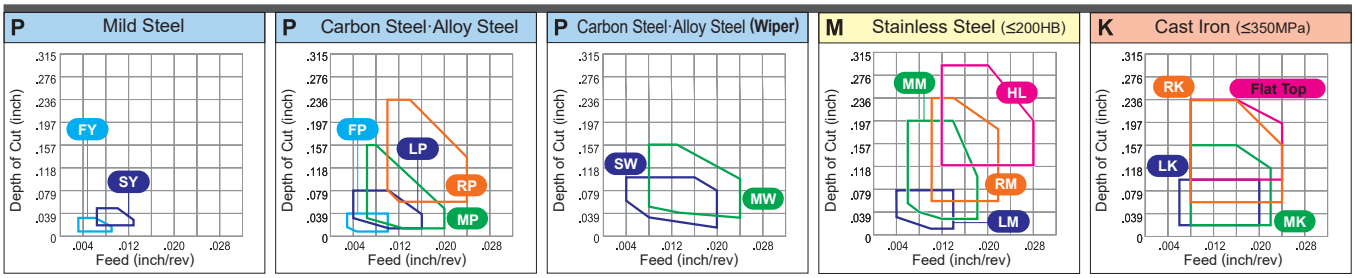
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

55° DN TYPE INSERTS WITH HOLE

DNMG 3 3 2 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



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔✠✠●◐●✠✠●○◐◔✠✠○◐◔✠✠○
M	Stainless Steel	●◐✠✠●◐●✠✠○◔✠✠○○○◔✠
K	Cast Iron	●◐✠◔✠◔✠✠○◐●✠✠○○○◔✠◔◔○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐○◔✠◔● ●●●●

Shape	Order Number	(ISO) Number	RE (inch)	Coated: NEW MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
MS	**DNMG332MS**	DNMG110408-MS	.031											★																													
	DNMG431MS	DNMG150404-MS	.016											●										●		●●	●																
	DNMG432MS	DNMG150408-MS	.031											●										●		●●	●●															●	
	DNMG433MS	DNMG150412-MS	.047											●										●		★	★																
	DNMG441MS	DNMG150604-MS	.016											★										★		●★		★															
Medium Cutting	**DNMG442MS**	DNMG150608-MS	.031											★										★		●★																	
	DNMG443MS	DNMG150612-MS	.047																					★		●★																	
GK	**DNMG431GK**	DNMG150404-GK	.016													★	★	●	●																								
	DNMG432GK	DNMG150408-GK	.031													●	★	●	●																								
	DNMG433GK	DNMG150412-GK	.047													★	★	●	●																								
	DNMG441GK	DNMG150604-GK	.016													★	★	●	●																								
Medium Cutting	**DNMG442GK**	DNMG150608-GK	.031													★	★	●	●																								
	DNMG443GK	DNMG150612-GK	.047													★	★	●	●																								
GM	**DNMG431GM**	DNMG150404-GM	.016								●	●	●																													
	DNMG432GM	DNMG150408-GM	.031								●	●	●																													
	DNMG433GM	DNMG150412-GM	.047								●	●	●																													
	DNMG441GM	DNMG150604-GM	.016								●	●	●																													
Medium Cutting	**DNMG442GM**	DNMG150608-GM	.031								●	●	●																													
	DNMG443GM	DNMG150612-GM	.047								●	●	●																													
MA	**DNMG331MA**	DNMG110404-MA	.016			●	●							●																												
	DNMG332MA	DNMG110408-MA	.031			●	●							●																												
	DNMG333MA	DNMG110412-MA	.047			●	●																																		
	DNMG431MA	DNMG150404-MA	.016	●	●	●	●				●	●	●			●	★	●	●			●	●				●									●							
	DNMG432MA	DNMG150408-MA	.031	●	●	●	●	●			●	●	●			●	●	●	●			●	●				●									●							
	DNMG433MA	DNMG150412-MA	.047	●	●	●	●	●			●	●	●			●	★	●	●			●	●				●									●							
	DNMG441MA	DNMG150604-MA	.016	●	●	●	●				●	●	★			★	★	●	●			●	●				●									★							
Medium Cutting	**DNMG442MA**	DNMG150608-MA	.031	●	●	●	●	●			●	●	★			★	★	●	●			●	●				●									★							
	DNMG443MA	DNMG150612-MA	.047	●	●	●	●	●			●	●	★			★	★	●	●			●	●				●									★							

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❁❁● ◐●✣✣● ◐✣◔❁ ●◐✣◔❁ ○◔○◔○ ◔❁ ○◔○○ ○ ◔●◐●◐ ○
M	Stainless Steel	◐ ◔❁❁ ○◔○ ○ ❁
K	Cast Iron	●◐✣◔❁ ◔❁ ○◔○ ○ ❁○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✣○◐○◔❁ ◔●◐●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
MH	**DNMG431MH**	DNMG150404-MH	.016	●	●																																			
	DNMG432MH	DNMG150408-MH	.031	●	●	●	●	●																																
	DNMG433MH	DNMG150412-MH	.047	●	●	●	●	●																																
	DNMG441MH	DNMG150604-MH	.016	●	●																																			
	DNMG442MH	DNMG150608-MH	.031	●	●	●	●	●																																
Medium Cutting	**DNMG443MH**	DNMG150612-MH	.047	●	●	●	●	●																																
Standard	**DNMG431**	DNMG150404	.016	●	●	●	●																						●				★	●		●					
	DNMG432	DNMG150408	.031	●	●	●	●	●																			●		●				★	●		●					
	DNMG433	DNMG150412	.047	●	●	●	●	●																			●						★								
	DNMG434	DNMG150416	.063			●	●	●																																
	DNMG441	DNMG150604	.016	●	●	●	●																						★				★								
	DNMG442	DNMG150608	.031	●	●	●	●	●																			●		★				★								
Medium Cutting	**DNMG443**	DNMG150612	.047	●	●	●	●	●																			●														
	DNMG444	DNMG150616	.063			●	●	●																																
***MW**	**DNMX432MW**	DNMX150408-MW	.031			●												●	●																						
	DNMX433MW	DNMX150412-MW	.047			●												●	●																						
	DNMX442MW	DNMX150608-MW	.031			●												●	●																						
Medium Cutting (Wiper)	**DNMX443MW**	DNMX150612-MW	.047			●												●	●																						
R/L	**DNGG431R**	DNGG150404R	.016																														★	●	★		★				
	DNGG431L	DNGG150404L	.016																														★	●	★		★				
	DNGG432R	DNGG150408R	.031																														★	●	★						
	DNGG432L	DNGG150408L	.031																														★	●							
	DNGG441R	DNGG150604R	.016																															★	★						
	DNGG441L	DNGG150604L	.016																															★							
	DNGG442R	DNGG150608R	.031																															★							
Medium Cutting	**DNGG442L**	DNGG150608L	.031																															★							
RP	**DNMG432RP**	DNMG150408-RP	.031	●	●	●	●	●																																
	DNMG433RP	DNMG150412-RP	.047	●	●	●	●	●																																
	DNMG434RP	DNMG150416-RP	.063	●	●	●	●	●																																
	DNMG442RP	DNMG150608-RP	.031	●	●	●	●	●																																
	DNMG443RP	DNMG150612-RP	.047	●	●	●	●	●																																
Rough Cutting	**DNMG444RP**	DNMG150616-RP	.063	●	●	●	●	●																																
RM	**DNMG432RM**	DNMG150408-RM	.031								●	●	●																												
	DNMG433RM	DNMG150412-RM	.047								●	●	●																												
	DNMG434RM	DNMG150416-RM	.063								●	●	●																												
	DNMG442RM	DNMG150608-RM	.031								●	●	●																												
	DNMG443RM	DNMG150612-RM	.047								●	●	●																												
Rough Cutting	**DNMG444RM**	DNMG150616-RM	.063								●	●	●																												

* Please refer to A032 before using the MW breaker (wiper insert).

● = NEW

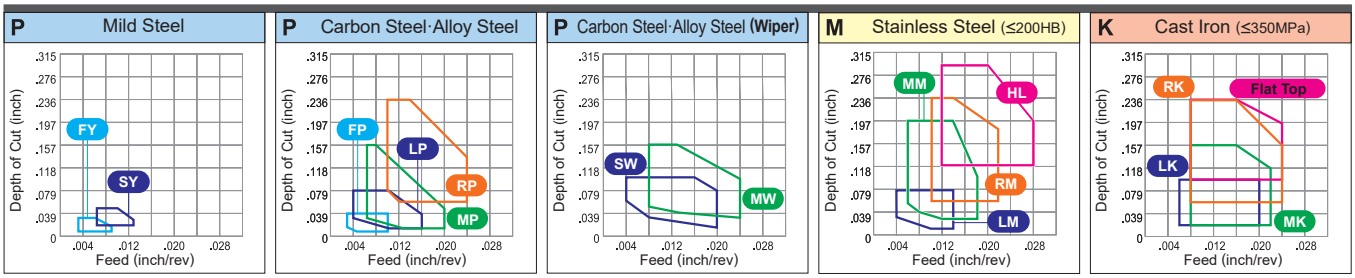
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

55° DN TYPE INSERTS WITH HOLE

DNMG 4 3 2 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···



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																						Coated Cermet				Cermet		Carbide									
			NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		●	✠	○	◔	❁	❁	●														◐				❁	❁	●	○	◔	○	◔	❁							○
M	Stainless Steel									●	◐	✠	✠	●									◐		◔	❁	❁		○	○		○		❁							
K	Cast Iron														●	◐	✠	◔	❁						◔	❁			○	○		○		❁	●	◔					○
N	Non-ferrous Metal																																			◔	●					○
S	Heat resistant Alloy, Titanium Alloy																			●	◐	✠	○	◐	○	◔	❁									◔	●	◐	●	◐		
Shape	Order Number	(ISO) Number	RE (inch)																																						
RK	DNMG432RK	DNMG150408-RK	.031												★	●	●	●	●																						
	DNMG433RK	DNMG150412-RK	.047												★	●	★	●	●																						
	DNMG442RK	DNMG150608-RK	.031												★	★	★	●	●																						
	DNMG443RK	DNMG150612-RK	.047												★	★	★	●	●																						
Rough Cutting																																								
RS	DNMG432RS	DNMG150408-RS	.031																		●	●																		●	
	DNMG433RS	DNMG150412-RS	.047																		●	●																		●	
	DNMG434RS	DNMG150416-RS	.063																		●	●																		●	
	DNMG442RS	DNMG150608-RS	.031																		●	●																		●	
	DNMG443RS	DNMG150612-RS	.047																		●	●																		●	
	DNMG444RS	DNMG150616-RS	.063																		●	●																		●	
Rough Cutting																																								
GH	DNMG432GH	DNMG150408-GH	.031	●	●								●																												
	DNMG433GH	DNMG150412-GH	.047	●	●								●																												
	DNMG442GH	DNMG150608-GH	.031	●	●								★																												
	DNMG443GH	DNMG150612-GH	.047	●	●								★																												
Rough Cutting																																								
GJ	DNMG432GJ	DNMG150408-GJ	.031																				●		●	●												●		
	DNMG433GJ	DNMG150412-GJ	.047																				●		●	●												●		
	DNMG434GJ	DNMG150416-GJ	.063																				●		★	★												★		
	DNMG442GJ	DNMG150608-GJ	.031																				★		★															
	DNMG443GJ	DNMG150612-GJ	.047																				★		★															
	DNMG444GJ	DNMG150616-GJ	.063																				★		★															
Rough Cutting																																								
HL	DNMM432HL	DNMM150408-HL	.031				★	★					★																											
	DNMM433HL	DNMM150412-HL	.047				★	★					★																											
	DNMM442HL	DNMM150608-HL	.031				★	★					★																											
	DNMM443HL	DNMM150612-HL	.047				★	★					★																											
Heavy Cutting																																								

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✣: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ❁: Unstable Cutting (2nd recommendation)

Workpiece Material			Shape	Order Number	(ISO) Number	RE (inch)	Coated																										Coated Cermet				Cermet		Carbide							
							NEW								NEW		NEW								NEW																							
							MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		**HZ**	**DNMM432HZ**	DNMM150408-HZ	.031				★	★																																			
M	Stainless Steel			**DNMM433HZ**	DNMM150412-HZ	.047				★	★																																			
K	Cast Iron			**DNMM442HZ**	DNMM150608-HZ	.031				★	★																																			
N	Non-ferrous Metal			**DNMM443HZ**	DNMM150612-HZ	.047				★	★																																			
S	Heat resistant Alloy, Titanium Alloy		Heavy Cutting																																											
			Flat Top	**DNMA431**	DNMA150404	.016													★	●	★	●	●																	★							
				**DNMA432**	DNMA150408	.031													●	●	●	●	●																	★		★	★				
				DNMA433	DNMA150412	.047													●	●	★	●	●																	★		★	★				
				DNMA441	DNMA150604	.016													★	●	★	●	●																	★							
				DNMA442	DNMA150608	.031													★	●	★	●	●																	★		★	★				
				DNMA443	DNMA150612	.047													★	●	★	●	●																	★		★	★				
			Flat Top	**DNGA431**	DNGA150404	.016																																	★							
				**DNGA432**	DNGA150408	.031																																	★		★	★				

● = NEW

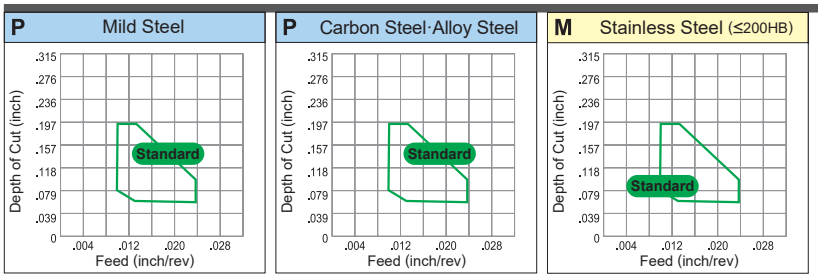
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

RN TYPE INSERTS WITH HOLE

RNMG 4 3
Size Thickness
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting···



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●◕✠○◔❁❁● ◕●●✠✠✠● ✠✠◕○○○◔○◔✠ ○
M	Stainless Steel	◕●●✠✠● ◕ ◔✠✠✠ ○○ ○ ✠
K	Cast Iron	●◕●✠◔❁ ◔✠✠ ○○ ○ ✠○◔ ● ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◕●✠○◕○◔✠ ◔●●●●◕

Shape	Order Number	(ISO) Number	IC (mm)	Coated																								Coated Cermet				Cermet		Carbide									
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
Standard	RNMG43	RNMG120400	.500			●	●																																				
 Medium Cutting																																											

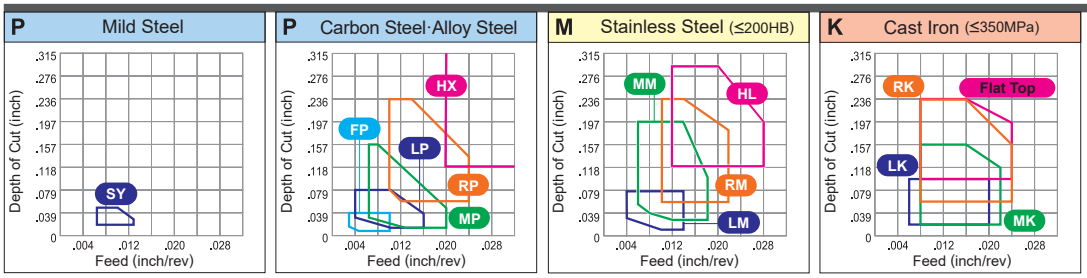
● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

90° SN TYPE INSERTS WITH HOLE

SNMG 4 3 1 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



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁● ◐●✠✠● ❁❁◐○○◔○◔❁ ○❁○○○○ ○
M	Stainless Steel	◐◐✠✠● ◐ ◔❁❁❁ ○○ ○ ❁
K	Cast Iron	●◐✠◔❁ ◔❁❁ ○○ ○ ❁○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐○◔❁ ◔●◐●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated: NEW MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FP	**SNMG431FP**	SNMG120404-FP	.016			●	●																						●				★										
	SNMG432FP	SNMG120408-FP	.031			●	●																						●				★										
	SNMG433FP	SNMG120412-FP	.047			●	●																						●				★										
Finish Cutting																																												
FH	**SNMG321FH**	SNMG090304-FH	.016																														★										
	SNMG322FH	SNMG090308-FH	.031																											●			★										
	SNMG431FH	SNMG120404-FH	.016																										●				★										
	SNMG432FH	SNMG120408-FH	.031																										●														
Finish Cutting																																												
FS	**SNMG432FS**	SNMG120408-FS	.031																														★										
Finish Cutting																																												
LP	**SNMG431LP**	SNMG120404-LP	.016	●	●	●	●	●																					●														
	SNMG432LP	SNMG120408-LP	.031	●	●	●	●	●																					●														
	SNMG433LP	SNMG120412-LP	.047	●	●	●	●	●																																				
Light Cutting																																												
LM	**SNMG431LM**	SNMG120404-LM	.016								●	●	●																														
	SNMG432LM	SNMG120408-LM	.031								●	●	●																														
Light Cutting																																												

● = NEW

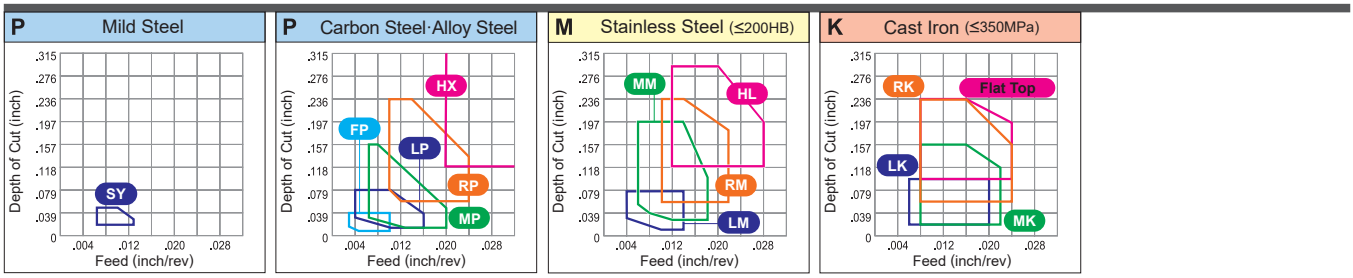
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

90° SN TYPE INSERTS WITH HOLE

SNMG 4 3 2 LK
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



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																								Coated Cermet				Cermet		Carbide									
			NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
	P	Steel	●	✣	○	◔	❁	❁	●																❁	❁	◕	○	○	○	◔	○	◔	❁								○
	M	Stainless Steel								●	◕	✣	✣	●									◕		◔	❁	❁		○	○		○		❁								
	K	Cast Iron													●	◕	✣	◔	❁						◔	❁	❁		○	○		○		❁	○	◔						○
	N	Non-ferrous Metal																															◔	●							○
	S	Heat resistant Alloy, Titanium Alloy																		●	◕	✣	○	◕	○	◔	❁						◔	●	◕	●	◕				
Shape		Order Number	(ISO) Number	RE (inch)																																						
LK		SNMG432LK	SNMG120408-LK	.031												★	●	●																								
		SNMG433LK	SNMG120412-LK	.047												●	★	●	●																								
Light Cutting																																									
SH		SNMG432SH	SNMG120408-SH	.031	●	●																											★									
Light Cutting																																									
SA		SNMG431SA	SNMG120404-SA	.016																												●									
		SNMG432SA	SNMG120408-SA	.031	●	●																										●									
		SNMG433SA	SNMG120412-SA	.047																												●									
Light Cutting																																									
SY		SNMG432SY	SNMG120408-SY	.031																										●												
Light Cutting																																									
MP		SNMG431MP	SNMG120404-MP	.016	●	●	●	●	●																					●												
		SNMG432MP	SNMG120408-MP	.031	●	●	●	●	●																					●												
		SNMG433MP	SNMG120412-MP	.047	●	●	●	●	●																					●												
Medium Cutting																																									

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	● ✣ ○ ◔ ❁ ❁ ● ● ◐ ✣ ✣ ● ● ◐ ✣ ◔ ❁ ● ◐ ✣ ◔ ❁ ❁ ◐ ○ ○ ◔ ○ ◔ ❁ ○
M	Stainless Steel	● ◐ ✣ ✣ ● ◐ ✣ ◔ ❁ ❁ ○ ○ ○ ◔ ❁
K	Cast Iron	● ◐ ✣ ◔ ❁ ◔ ❁ ○ ○ ○ ❁ ○ ◔ ○
N	Non-ferrous Metal	◔ ● ○
S	Heat resistant Alloy, Titanium Alloy	● ◐ ✣ ○ ◐ ○ ◔ ❁ ◔ ● ◐ ● ● ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																						Coated Cermet			Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
MM	**SNMG432MM**	SNMG120408-MM	.031								●	●	●																										
	SNMG433MM	SNMG120412-MM	.047								●	●	●																										
	SNMG434MM	SNMG120416-MM	.063								●	●	●																										
	SNMG542MM	SNMG150608-MM	.031								●	●	●																										
	SNMG543MM	SNMG150612-MM	.047								●	●	●																										
	SNMG544MM	SNMG150616-MM	.063								●	●	●																										
	SNMG643MM	SNMG190612-MM	.047								●	●	●																										
Medium Cutting	**SNMG644MM**	SNMG190616-MM	.063								●	●	●																										
MK	**SNMG432MK**	SNMG120408-MK	.031													★	●	★	●	●																			
	SNMG433MK	SNMG120412-MK	.047													●	●	★	●	●																			
	SNMG434MK	SNMG120416-MK	.063													★	★	★	●	●																			
	SNMG543MK	SNMG150612-MK	.047													★	●	★	★	●																			
	SNMG544MK	SNMG150616-MK	.063													★	●	★	★	●																			
Medium Cutting	**SNMG643MK**	SNMG190612-MK	.047													★			●	●																			
	SNMG644MK	SNMG190616-MK	.063													★			●	●																			
***MS**	**SNMG431MS**	SNMG120404-MS	.016																		●	●	●															●
	SNMG432MS	SNMG120408-MS	.031																		●	●	●															●
	SNMG433MS	SNMG120412-MS	.047																		●	●	●															●
	SNMG543MS	SNMG150612-MS	.047																		●	●	●															●
	SNMG544MS	SNMG150616-MS	.063																		●	●	●															●
Medium Cutting	**SNMG643MS**	SNMG190612-MS	.047																		●	●	●															
MS	**SNMG321MS**	SNMG090304-MS	.016											★																								
	SNMG322MS	SNMG090308-MS	.031											★																								
	SNMG431MS	SNMG120404-MS	.016											●																								
	SNMG432MS	SNMG120408-MS	.031											●										●		★	★	★	●							●		●	
	SNMG433MS	SNMG120412-MS	.047											●										●		★	★	★										
	SNMG434MS	SNMG120416-MS	.063											★																								
Medium Cutting	**SNMG644MS**	SNMG190616-MS	.063											★																								
GK	**SNMG431GK**	SNMG120404-GK	.016														●	★	●	●																		
	SNMG432GK	SNMG120408-GK	.031														●	★	●	●																		
	SNMG433GK	SNMG120412-GK	.047														●	★	●	●																		
Medium Cutting	NEW **SNMG434GK**	SNMG120416-GK	.063														★	●																				
	NEW **SNMG543GK**	SNMG150612-GK	.047														★	●																				

* New design MS breaker : MP9005, MP9015, MP9025, MT9015

● = NEW

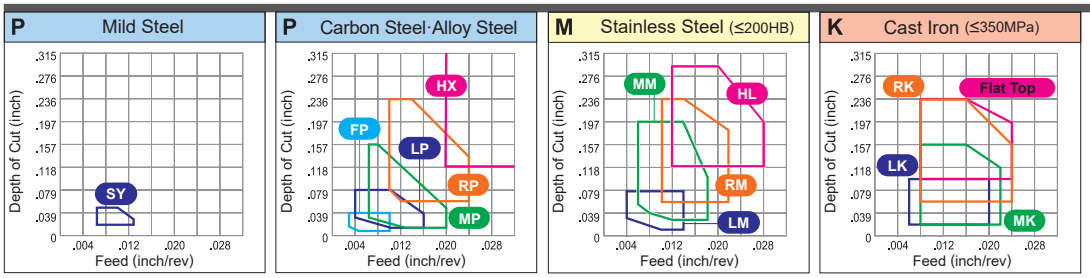
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

90° SN TYPE INSERTS WITH HOLE

SNMG 4 3 1 GM
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



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔✠✠●◕●✠✠●○◕◔✠✠●○◕◔✠✠○
M	Stainless Steel	●◕✠✠●◕✠✠○
K	Cast Iron	●◕✠◔✠✠✠○◕○◔○
N	Non-ferrous Metal	◔●○
S	Heat resistant Alloy, Titanium Alloy	●◕✠○◕○◔✠◔●◕●◕

Shape	Order Number	(ISO) Number	RE (inch)	Coated: NEW MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	NEW US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	NEW US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
GM	**SNMG431GM**	SNMG120404-GM	.016								●	●	●																														
	SNMG432GM	SNMG120408-GM	.031								●	●	●																														
	SNMG433GM	SNMG120412-GM	.047								●	●	●																														
Medium Cutting																																											
MA	**SNMG431MA**	SNMG120404-MA	.016	●	●	●	●				●	●	●			★	★	●	●		●	●					●								●									
	SNMG432MA	SNMG120408-MA	.031	●	●	●	●	●			●	●	●			●	●	●	●		●	●					●								●									
	SNMG433MA	SNMG120412-MA	.047	●	●	●	●	●			●	●	●			●	★	●	●		●	●					●								●									
	SNMG434MA	SNMG120416-MA	.063													★	★				●	●																					
	SNMG542MA	SNMG150608-MA	.031	●	●								★																														
	SNMG543MA	SNMG150612-MA	.047	●	●	●	●	●					●			★	★																										
	SNMG544MA	SNMG150616-MA	.063			●	●	●																																			
	SNMG643MA	SNMG190612-MA	.047	●	●	●	●	●					●																														
	SNMG644MA	SNMG190616-MA	.063	●	●	●	●	●					★																														
Medium Cutting																																											
MH	**SNMG432MH**	SNMG120408-MH	.031	●	●	●	●	●																																			
	SNMG433MH	SNMG120412-MH	.047	●	●	●	●	●																																			
	SNMG643MH	SNMG190612-MH	.047	●	●																																						
	SNMG644MH	SNMG190616-MH	.063	●	●																																						
Medium Cutting																																											

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation)　◐ : General Cutting (1st recommendation)　✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation)　◔ : General Cutting (2nd recommendation)　✣ : Unstable Cutting (2nd recommendation)

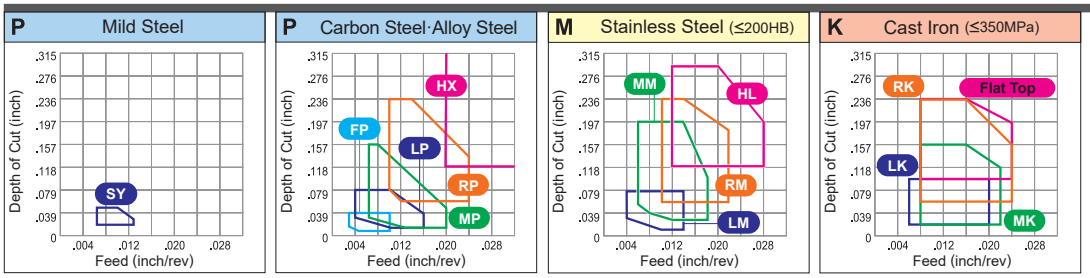
| Workpiece Material | | |

90° SN TYPE INSERTS WITH HOLE

SNMG 4 3 2 RS
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



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

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

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet				Cermet		Carbide									
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
RS	**SNMG432RS**	SNMG120408-RS	.031																		●	●																				●	
	SNMG433RS	SNMG120412-RS	.047																		●	●																				●	
	SNMG434RS	SNMG120416-RS	.063																		●	●																				●	
	SNMG544RS	SNMG150616-RS	.063																		●	●																				●	
	SNMG643RS	SNMG190612-RS	.047																		●	●																					
Rough Cutting	**SNMG644RS**	SNMG190616-RS	.063																		●	●																				●	
GH	**SNMG432GH**	SNMG120408-GH	.031	●	●								★																														
	SNMG433GH	SNMG120412-GH	.047	●	●								★																														
	SNMG434GH	SNMG120416-GH	.063	●	●								★																														
	SNMG543GH	SNMG150612-GH	.047	●	●																																						
	SNMG643GH	SNMG190612-GH	.047	●	●								●																														
Rough Cutting	**SNMG644GH**	SNMG190616-GH	.063	●	●								●																														
	SNMG866GH	SNMG250924-GH	.094										●																														
HX	**SNMM432HX**	SNMM120408-HX	.031				★	★																																		
	SNMM433HX	SNMM120412-HX	.047				★	★																																		
	SNMM543HX	SNMM150612-HX	.047				★	★																																		
	SNMM643HX	SNMM190612-HX	.047				★	★	★																																		
	SNMM644HX	SNMM190616-HX	.063				★	★	★																																		
	SNMM646HX	SNMM190624-HX	.094				★	★	★																																		
	SNMM856HX	SNMM250724-HX	.094				★	★	★																																		
Heavy Cutting	**SNMM866HX**	SNMM250924-HX	.094				★	★	★																																		
HL	**SNMM432HL**	SNMM120408-HL	.031				★	★						★																												
	SNMM433HL	SNMM120412-HL	.047				★	★						★																												
	SNMM543HL	SNMM150612-HL	.047				★	★						★																												
	SNMM643HL	SNMM190612-HL	.047				★	★						★																												
	SNMM644HL	SNMM190616-HL	.063				★	★						★																												
Heavy Cutting	**SNMM646HL**	SNMM190624-HL	.094				★	★						★																												

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❁❁● ◐●✣✣● ✣◐◔❁ ◐○○◔○◔❁ ○
M	Stainless Steel	◐ ◔✣❁❁ ○○ ○ ❁ ○
K	Cast Iron	●◐✣◔❁ ◔❁ ○○ ○ ❁○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✣○◐○◔❁ ◔●◐●◐ ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide							
				NEW MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
HR Heavy Cutting	**SNMM856HR**	SNMM250724-HR	.094				★★																																	
	SNMM866HR	SNMM250924-HR	.094				★★																																	
HV Heavy Cutting	**SNMM644HV**	SNMM190616-HV	.063				★★★																																	
	SNMM646HV	SNMM190624-HV	.094				★★★																																	
	SNMM856HV	SNMM250724-HV	.094				★★★																																	
	SNMM866HV	SNMM250924-HV	.094				★★★																																	
HZ Heavy Cutting	**SNMM432HZ**	SNMM120408-HZ	.031				★★																																	
	SNMM433HZ	SNMM120412-HZ	.047				★★																																	
	SNMM643HZ	SNMM190612-HZ	.047					★																																	
	SNMM644HZ	SNMM190616-HZ	.063					★																																	
HM Heavy Cutting	**SNMM543HM**	SNMM150612-HM	.047				★★							★																											
	SNMM643HM	SNMM190612-HM	.047				★★							★																											
	SNMM644HM	SNMM190616-HM	.063				★★							★																											
	SNMM646HM	SNMM190624-HM	.094				★★							★																											
	SNMM856HM	SNMM250724-HM	.094				★★																																	
	SNMM866HM	SNMM250924-HM	.094				★★																																	
Flat Top	**SNMA321**	SNMA090304	.016																																	★				
	SNMA322	SNMA090308	.031													●●★●●																					●				
	SNMA432	SNMA120408	.031													★●★●●																				●★★				
	SNMA433	SNMA120412	.047													●●●●●																					★				
	SNMA434	SNMA120416	.063													★●★●●																									
	SNMA543	SNMA150612	.047													●●★★●																									
	SNMA544	SNMA150616	.063													★●★★●																									
	SNMA643	SNMA190612	.047													● ●●																									
	SNMA644	SNMA190616	.063													● ●●																									
Flat Top	**SNGA321**	SNGA090304	.016																														★							
	SNGA431	SNGA120404	.016																																	★				
	SNGA432	SNGA120408	.031																														★			★★				

● = NEW

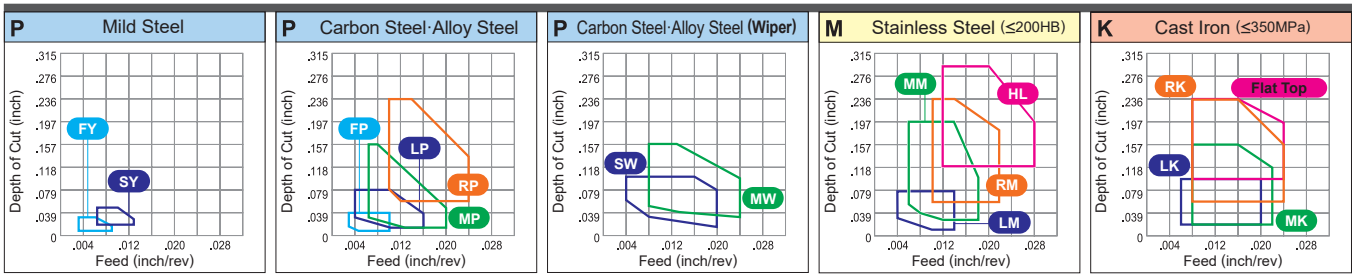
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

60° TN TYPE INSERTS WITH HOLE

TNMG 3 3 0.5 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



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																							Coated Cermet			Cermet		Carbide								
			NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		●	✠	○	◔	✠	✠	●														◕			✠	✠	◕	○	○	○	◔	○	◔	✠							○
M	Stainless Steel									●	◕	✠	✠	●									◕		◔	✠	✠		○	○		○		✠							
K	Cast Iron														●	◕	✠	◔	✠						◔	✠			○	○		○		✠	○	◔					○
N	Non-ferrous Metal																																			◔	●				○
S	Heat resistant Alloy, Titanium Alloy																			●	◕	✠	○	◕	○	◔	✠									◔	●	◕	◕	●	◕

Shape	Order Number	(ISO) Number	RE (inch)	MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FP  Finish Cutting	**TNMG330.5FP**	TNMG160402-FP	.008			●	●																						●				★									
	TNMG331FP	TNMG160404-FP	.016			●	●																						●				★									
	TNMG332FP	TNMG160408-FP	.031			●	●																						●				★									
	TNMG333FP	TNMG160412-FP	.047			●	●																						●				★									
FH  Finish Cutting	**TNMG221FH**	TNMG110304-FH	.016																														★									
	TNMG330.5FH	TNMG160402-FH	.008																										●				●									
	TNMG331FH	TNMG160404-FH	.016																										●				★									
	TNMG332FH	TNMG160408-FH	.031																										●				★									
FS  Finish Cutting	**TNMG331FS**	TNMG160404-FS	.016																														★									
	TNMG332FS	TNMG160408-FS	.031																														●									
FS NEW  Finish Cutting	**TNGG330.5FS**	TNGG160402-FS	.008																		●	●	●																			●
	TNGG331FS	TNGG160404-FS	.016																		●	●	●																			●
	TNGG332FS	TNGG160408-FS	.031																		●	●	●																			●
FY  Finish Cutting	**TNMG331FY**	TNMG160404-FY	.016																										●	★			★	●								
	TNMG332FY	TNMG160408-FY	.031																										●	★			★									

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✣: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ❁: Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❁❁● ●◐✣✣● ◐✣○○◔○◔✣ ○◔✣○○○ ○◔✣○○○ ○◔✣○○○ ○
M	Stainless Steel	●◐✣✣● ◐○○○ ○◔✣○○○ ○ ○◔✣○○○ ○
K	Cast Iron	●◐✣◔❁ ◔✣❁ ○○○ ○ ❁○◔ ○ ○◔✣○○○ ○
N	Non-ferrous Metal	◔● ●◐●●● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✣○◐○◔✣ ◔●●●●

Shape	Order Number	(ISO) Number	RE (inch)	Coated: NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
R/L-FS	**TNGG330.5RFS**	TNGG160402R-FS	.008							●																							★										
	TNGG330.5LFS	TNGG160402L-FS	.008							●																							★										
	TNGG331RFS	TNGG160404R-FS	.016							●																							★										
	TNGG331LFS	TNGG160404L-FS	.016							●																							★										
	TNGG332RFS	TNGG160408R-FS	.031							●																																		
Finish Cutting	**TNGG332LFS**	TNGG160408L-FS	.031							●																																		
R/L-F	**TNGG330.5RF**	TNGG160402R-F	.008																								●			●			★★										
	TNGG330.5LF	TNGG160402L-F	.008																								●			●			★★										
	TNGG331RF	TNGG160404R-F	.016																								●			●			★★										
	TNGG331LF	TNGG160404L-F	.016																								●			●			★★										
	TNGG332RF	TNGG160408R-F	.031																								●			●			★★										
Finish Cutting	**TNGG332LF**	TNGG160408L-F	.031																								●			●			★★										
LP	**TNMG331LP**	TNMG160404-LP	.016	●	●	●	●	●																						●													
	TNMG332LP	TNMG160408-LP	.031	●	●	●	●	●																						●													
	TNMG333LP	TNMG160412-LP	.047	●	●	●	●	●																						●													
	TNMG432LP	TNMG220408-LP	.031	●	●	●	●	●																						●													
Light Cutting	**TNMG433LP**	TNMG220412-LP	.047	●	●	●	●	●																																			
LM	**TNMG331LM**	TNMG160404-LM	.016								●	●	●																														
	TNMG332LM	TNMG160408-LM	.031								●	●	●																														
	TNMG333LM	TNMG160412-LM	.047								●	●	●																														
Light Cutting																																											
LK	**TNMG331LK**	TNMG160404-LK	.016													★	★	●	●																								
	TNMG332LK	TNMG160408-LK	.031													●	★	●	●																								
	TNMG333LK	TNMG160412-LK	.047													★	★	●	●																								
Light Cutting																																											
LS	**TNMG330.5LS**	TNMG160402-LS	.008																		●	●	●																		●	
	TNMG331LS	TNMG160404-LS	.016																		●	●	●																		●	
	TNMG332LS	TNMG160408-LS	.031																		●	●	●																		●	
Light Cutting																																											
LS NEW	**TNGG330.5LS**	TNGG160402-LS	.008																		●	●	●																		●	
	TNGG331LS	TNGG160404-LS	.016																		●	●	●																		●	
	TNGG332LS	TNGG160408-LS	.031																		●	●	●																		●	
Light Cutting																																											
SH	**TNMG331SH**	TNMG160404-SH	.016	●	●	●	●						●																		★			★	●								
	TNMG332SH	TNMG160408-SH	.031	●	●	●	●						●																		★			★	●								
	TNMG432SH	TNMG220408-SH	.031	●	●								●																														
Light Cutting																																											

● = NEW

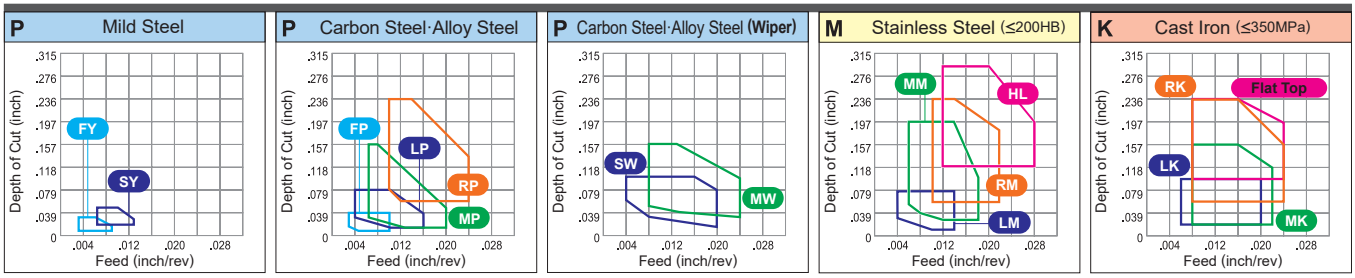
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

60° TN TYPE INSERTS WITH HOLE

TNMG 3 3 1 SA
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



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔✠✠●◐●✠✠●○◐◔✠✠○◐◔✠○
M	Stainless Steel	●◐✠✠●◐◔✠✠○◐◔✠✠○○○◔✠
K	Cast Iron	●◐✠◔✠✠◔✠✠○○○◔✠○◔○
N	Non-ferrous Metal	◔●○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐○◔✠◔●◐●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated: NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
SA	**TNMG331SA**	TNMG160404-SA	.016	●	●	●	●																										★	●									
	TNMG332SA	TNMG160408-SA	.031	●	●	●	●																										★	●									
	TNMG333SA	TNMG160412-SA	.047	●	●																													●									
	TNMG432SA	TNMG220408-SA	.031	●	●																																							
Light Cutting																																												
***SW**	**TNMX331SW**	TNMX160404-SW	.016			●																									●			★	●									
	TNMX332SW	TNMX160408-SW	.031			●																									●			★	●									
Light Cutting (Wiper)																																												
SY	**TNMG331SY**	TNMG160404-SY	.016																												●	★		★	●									
	TNMG332SY	TNMG160408-SY	.031																												●	★		★										
Light Cutting																																												
MJ	**TNMG331MJ**	TNMG160404-MJ	.016																			●	●	★		●	●															●		
	TNMG332MJ	TNMG160408-MJ	.031																			●	●	★		●	●															●		
	TNMG333MJ	TNMG160412-MJ	.047																			●	●	★		★	★																	
Light Cutting																																												
R/L-K	**TNGG330.5RK**	TNGG160402R-K	.008																												●			★	★									
	TNGG330.5LK	TNGG160402L-K	.008																												●			★	★									
	TNGG331RK	TNGG160404R-K	.016																												●			★	★									
	TNGG331LK	TNGG160404L-K	.016																												●				★									
	TNGG332RK	TNGG160408R-K	.031																												●													
Light Cutting	**TNGG332LK**	TNGG160408L-K	.031																												●													

* Please refer to page A032 before using the SW breaker (wiper insert). ● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	● ✠ ○ ◔ ✠ ✠ ● ◐ ✠ ✠ ● ◐ ✠ ✠ ◐ ○ ○ ○ ◔ ○ ◔ ✠ ○
M	Stainless Steel	● ◐ ✠ ✠ ● ◐ ✠ ✠ ○ ○ ○ ◔ ✠ ✠ ○ ○ ○ ◔ ✠
K	Cast Iron	● ◐ ✠ ◔ ✠ ◔ ✠ ○ ○ ○ ◔ ✠ ○ ○ ◔ ○
N	Non-ferrous Metal	◔ ● ◐ ● ● ○
S	Heat resistant Alloy, Titanium Alloy	● ◐ ✠ ○ ◐ ○ ◔ ✠ ◔ ● ◐ ● ● ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
MP	**TNMG331MP**	TNMG160404-MP	.016	●	●	●	●	●																					●												
	TNMG332MP	TNMG160408-MP	.031	●	●	●	●	●																					●												
	TNMG333MP	TNMG160412-MP	.047	●	●	●	●	●																					●												
	TNMG432MP	TNMG220408-MP	.031	●	●	●	●	●																																	
Medium Cutting	**TNMG433MP**	TNMG220412-MP	.047	●	●	●	●	●																																	
MM	**TNMG332MM**	TNMG160408-MM	.031								●	●	●																												
	TNMG333MM	TNMG160412-MM	.047								●	●	●																												
	TNMG432MM	TNMG220408-MM	.031								●	●	●																												
	TNMG433MM	TNMG220412-MM	.047								●	●	●																												
Medium Cutting	**TNMG434MM**	TNMG220416-MM	.063								●	●	●																												
MK	**TNMG331MK**	TNMG160404-MK	.016													★	●	★	●	●																					
	TNMG332MK	TNMG160408-MK	.031													★	●	★	●	●																					
	TNMG333MK	TNMG160412-MK	.047													★	★	★	●	●																					
	TNMG432MK	TNMG220408-MK	.031													●	★	★	●	●																					
	TNMG433MK	TNMG220412-MK	.047													★	●	★	●	●																					
Medium Cutting	**TNMG434MK**	TNMG220416-MK	.063													★	★	★	●	●																					
***MS**	**TNMG331MS**	TNMG160404-MS	.016																		●	●	●																	●	
	TNMG332MS	TNMG160408-MS	.031																		●	●	●																	●	
	TNMG333MS	TNMG160412-MS	.047																		●	●	●																	●	
	TNMG432MS	TNMG220408-MS	.031																		●	●	●																	●	
Medium Cutting	**TNMG433MS**	TNMG220412-MS	.047																		●	●	●																	●	
MS	**TNMG331MS**	TNMG160404-MS	.016											●										●		●	●	★							★						
	TNMG332MS	TNMG160408-MS	.031											●										●		●	●	★	●				●						●		
	TNMG333MS	TNMG160412-MS	.047											★										★		★	●														
	TNMG432MS	TNMG220408-MS	.031											●										●		●	●	★	●												
Medium Cutting	**TNMG433MS**	TNMG220412-MS	.047											★																											
GK	**TNMG331GK**	TNMG160404-GK	.016														★	★	●	●																					
	TNMG332GK	TNMG160408-GK	.031														●	★	●	●																					
	TNMG333GK	TNMG160412-GK	.047														★	★	●	●																					
	NEW **TNMG334GK**	TNMG160416-GK	.063														★	★																							
	TNMG432GK	TNMG220408-GK	.031														●	★	●	●																					
Medium Cutting	**TNMG433GK**	TNMG220412-GK	.047														★	★	●	●																					
GM	**TNMG331GM**	TNMG160404-GM	.016								●	●	●																												
	TNMG332GM	TNMG160408-GM	.031								●	●	●																												
	TNMG333GM	TNMG160412-GM	.047								●	●	●																												
	TNMG432GM	TNMG220408-GM	.031								●	●	●																												
Medium Cutting	**TNMG433GM**	TNMG220412-GM	.047								●	●	●																												

* New design MS breaker : MP9005, MP9015, MP9025, MT9015

● = NEW

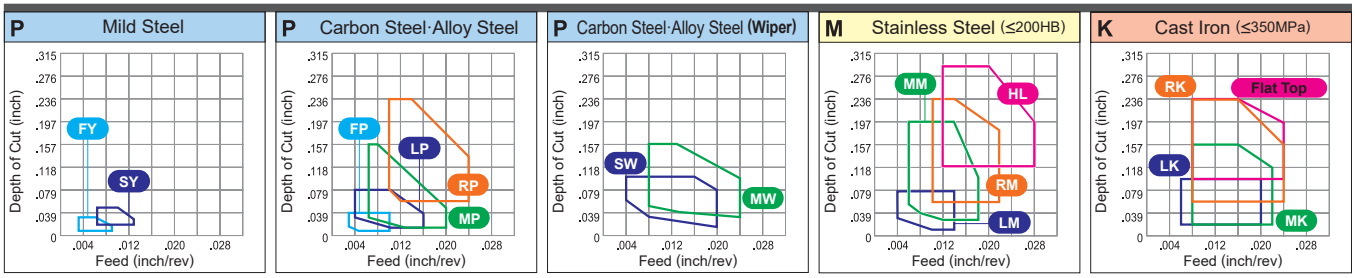
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

60° TN TYPE INSERTS WITH HOLE

TNMG 3 3 1 MA
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



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁●✠✠●○◐✠✠●○○◔○◔❁○
M	Stainless Steel	●◐✠✠●◐○✠✠○○○○❁
K	Cast Iron	●◐✠◔❁◐✠✠○○○❁○◔○
N	Non-ferrous Metal	◔●○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐○◔✠◔●◐●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated																						Coated Cermet			Cermet		Carbide								
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
MA	**TNMG331MA**	TNMG160404-MA	.016	●	●	●	●				●	●	●			★	★	●	●		●	●					●						●								
	TNMG332MA	TNMG160408-MA	.031	●	●	●	●	●			●	●	●			●	●	●	●		●	●					●						●								
	TNMG333MA	TNMG160412-MA	.047	●	●	●	●	●			●	●	●			●	★	●	●		●	●					●						●								
	TNMG334MA	TNMG160416-MA	.063													★	★																								
	TNMG432MA	TNMG220408-MA	.031	●	●	●	●	●			●	●	●			●	★	●	●		●	●					●														
	TNMG433MA	TNMG220412-MA	.047	●	●	●	●	●			●	●	●			●	★	●	●		●	●					●														
	TNMG434MA	TNMG220416-MA	.063													★	★				●	●																			
	TNMG542MA	TNMG270608-MA	.031	●	●																																			
	TNMG543MA	TNMG270612-MA	.047	●	●									●																											
	TNMG544MA	TNMG270616-MA	.063																			●	●																	
Medium Cutting	**TNMG666MA**	TNMG330924-MA	.094																			●	●																	
MH	**TNMG331MH**	TNMG160404-MH	.016	●	●																																			
	TNMG332MH	TNMG160408-MH	.031	●	●	●	●	●																																
	TNMG333MH	TNMG160412-MH	.047	●	●	●	●	●																																
	TNMG432MH	TNMG220408-MH	.031	●	●	●	●	●																																
Medium Cutting	**TNMG433MH**	TNMG220412-MH	.047	●	●	●	●	●																																
Standard	**TNMG221**	TNMG110304	.016			●	●																												★		★					
	TNMG222	TNMG110308	.031			●	●																																
	TNMG321	TNMG160304	.016			●	●																												●							
	TNMG322	TNMG160308	.031			●	●																												●							
	TNMG331	TNMG160404	.016	●	●	●	●																				●						★	●	●	★	●				
	TNMG332	TNMG160408	.031	●	●	●	●	●																			●						★	●	●	★	●				
	TNMG333	TNMG160412	.047	●	●	●	●	●																									★								
Medium Cutting	**TNMG334**	TNMG160416	.063			●	●	●																									★								
	TNMG431	TNMG220404	.016	●	●	●	●	●																										●	●							

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	● ✣ ○ ◔ ❁ ❁ ● ◕ ◕ ✣ ✣ ● ○ ○ ○ ◔ ○ ◔ ❁ ◕ ❁ ❁ ◕ ○ ○ ○ ◔ ○ ◔ ❁ ○
M	Stainless Steel	● ◕ ✣ ✣ ● ◕ ❁ ❁ ❁ ○ ○ ○ ◔ ❁
K	Cast Iron	● ◕ ✣ ◔ ❁ ◔ ❁ ❁ ○ ○ ○ ◔ ❁ ○ ◔ ○
N	Non-ferrous Metal	◔ ● ○
S	Heat resistant Alloy, Titanium Alloy	◔ ● ◕ ● ◕ ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																										Coated Cermet			Cermet		Carbide								
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
Standard	**TNMG432**	TNMG220408	.031	●	●	●	●	●																									★	●	●							
	TNMG433	TNMG220412	.047	●	●	●	●	●																																		
	TNMG434	TNMG220416	.063			●	●	●																																		
	TNMG542	TNMG270608	.031			●	●	●																																		
Medium Cutting	**TNMG543**	TNMG270612	.047			●	●	●																											●							
	TNMG666	TNMG330924	.094																																●							
***MW**	**TNMX332MW**	TNMX160408-MW	.031			●												●	●																							
	TNMX333MW	TNMX160412-MW	.047			●												●	●																							
Medium Cutting (Wiper)																																										
R/L-ES	**TNMG331RES**	TNMG160404R-ES	.016										★																													
	TNMG331LES	TNMG160404L-ES	.016										★																													
	TNMG332RES	TNMG160408R-ES	.031										★																													
	TNMG332LES	TNMG160408L-ES	.031										★																													
	TNMG432RES	TNMG220408R-ES	.031										★																													
Medium Cutting	**TNMG432LES**	TNMG220408L-ES	.031										★																													
R/L-2G	**TNMG331R2G**	TNMG160404R-2G	.016																														★									
	TNMG331L2G	TNMG160404L-2G	.016																														★									
	TNMG332R2G	TNMG160408R-2G	.031																														★									
	TNMG332L2G	TNMG160408L-2G	.031																														★									
Medium Cutting																																										
R/L	**TNGG220.5R**	TNGG110302R	.008																															★									
	TNGG220.5L	TNGG110302L	.008																														★	★								
	TNGG221R	TNGG110304R	.016																														★	★								
	TNGG221L	TNGG110304L	.016																														★	★								
	TNGG222R	TNGG110308R	.031																															★								
	TNGG222L	TNGG110308L	.031																														★	★								
	TNGG321R	TNGG160304R	.016																														★	★	★							
	TNGG321L	TNGG160304L	.016																														★	★								
	TNGG330.5R	TNGG160402R	.008																													●	★	★	★	★		★				
	TNGG330.5L	TNGG160402L	.008																													●	★	★								
	TNGG331R	TNGG160404R	.016																													●	★	●	★	★	★					
	TNGG331L	TNGG160404L	.016																													●	★	●	★		★					
	TNGG332R	TNGG160408R	.031																													●	★	●	★	★	★					
	TNGG332L	TNGG160408L	.031																													●	★	●	★	★	★					
	TNGG431R	TNGG220404R	.016																														★	●	★							
	TNGG431L	TNGG220404L	.016																														★	●	★							
	TNGG432R	TNGG220408R	.031																														★	●	★							
Medium Cutting	**TNGG432L**	TNGG220408L	.031																														★	●	★							

* Please refer to A032 before using the MW breaker (wiper insert).

● = NEW

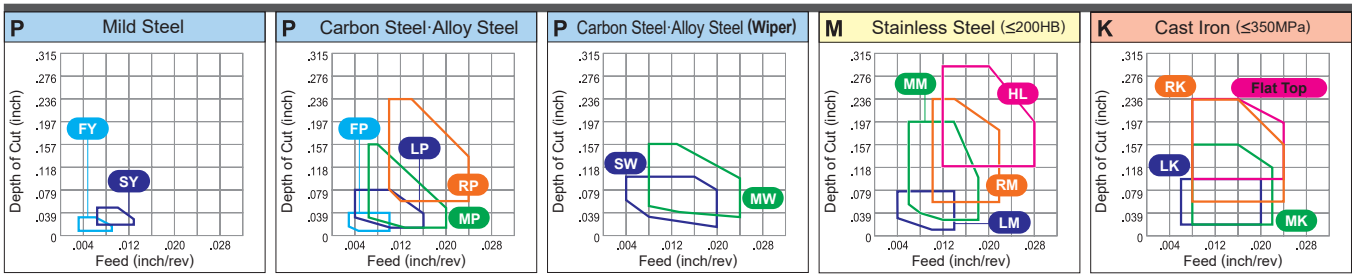
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

60° TN TYPE INSERTS WITH HOLE

TNMG 3 3 2 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



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	● ✠ ○ ◔ ❁ ❁ ● ◐ ✠ ✠ ● ● ◐ ✠ ◔ ❁ ○ ◐ ✠ ○ ◐ ○ ◐ ❁ ❁ ○ ○ ○ ◔ ○ ◔ ❁ ○
M	Stainless Steel	● ◐ ✠ ✠ ● ◐ ○ ○ ◔ ❁ ❁ ❁ ○ ○ ○ ○ ❁
K	Cast Iron	● ◐ ✠ ◔ ❁ ◔ ❁ ❁ ○ ○ ○ ❁ ○ ◔ ○ ○
N	Non-ferrous Metal	◔ ● ○
S	Heat resistant Alloy, Titanium Alloy	● ◐ ✠ ○ ◐ ○ ◔ ❁ ◔ ● ◐ ● ◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated																										Coated Cermet				Cermet		Carbide									
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
RP	**TNMG332RP**	TNMG160408-RP	.031	●	●	●	●	●																																			
	TNMG333RP	TNMG160412-RP	.047	●	●	●	●	●																																			
	TNMG432RP	TNMG220408-RP	.031	●	●	●	●	●																																			
	TNMG433RP	TNMG220412-RP	.047	●	●	●	●	●																																			
	TNMG434RP	TNMG220416-RP	.063	●	●	●	●	●																																			
	TNMG543RP	TNMG270612-RP	.047	●	●	●	●	●																																			
Rough Cutting	**TNMG544RP**	TNMG270616-RP	.063	●	●	●	●	●																																			
RM	**TNMG332RM**	TNMG160408-RM	.031								●	●	●																														
	TNMG333RM	TNMG160412-RM	.047								●	●	●																														
	TNMG432RM	TNMG220408-RM	.031								●	●	●																														
	TNMG433RM	TNMG220412-RM	.047								●	●	●																														
Rough Cutting	**TNMG434RM**	TNMG220416-RM	.063								●	●	●																														
RK	**TNMG332RK**	TNMG160408-RK	.031													★	●	★	●	●																							
	TNMG333RK	TNMG160412-RK	.047													★	★	★	●	●																							
	TNMG334RK	TNMG160416-RK	.063													●	★	★	●	●																							
	TNMG432RK	TNMG220408-RK	.031													★	●	★	●	●																							
	TNMG433RK	TNMG220412-RK	.047													★	●	★	●	●																							
Rough Cutting	**TNMG434RK**	TNMG220416-RK	.063													★	●	★	●	●																							
RS	**TNMG332RS**	TNMG160408-RS	.031																		●	●																					●
	TNMG333RS	TNMG160412-RS	.047																		●	●																					●
	TNMG432RS	TNMG220408-RS	.031																		●	●																					●
	TNMG433RS	TNMG220412-RS	.047																		●	●																					●
Rough Cutting																																										

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❁❁● ●◐✣✣● ✣✣◐ ○○○◔○◔✣
M	Stainless Steel	●◐✣✣● ◐ ◔✣✣ ○○ ○ ✣
K	Cast Iron	●◐✣◔❁ ◔✣ ○○ ○ ✣○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✣○◐○◔✣ ◔●●●●

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet				Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
GH	**TNMG332GH**	TNMG160408-GH	.031	●●									●																												
	TNMG333GH	TNMG160412-GH	.047	●●									●																												
	TNMG432GH	TNMG220408-GH	.031	●●									●																												
	TNMG433GH	TNMG220412-GH	.047	●●									●																												
	TNMG434GH	TNMG220416-GH	.063	●●																																				
	TNMG543GH	TNMG270612-GH	.047	●●									●																												
Rough Cutting	**TNMG544GH**	TNMG270616-GH	.063	●●																																				
	TNMG666GH	TNMG330924-GH	.094										●																												
HL	**TNMM332HL**	TNMM160408-HL	.031				★★						★																												
	TNMM333HL	TNMM160412-HL	.047				★★						★																												
	TNMM432HL	TNMM220408-HL	.031				★★						★																												
	TNMM433HL	TNMM220412-HL	.047				★★						★																												
Heavy Cutting	**TNMM434HL**	TNMM220416-HL	.063				★★						★																												
HZ	**TNMM332HZ**	TNMM160408-HZ	.031				★★																																		
	TNMM333HZ	TNMM160412-HZ	.047				★★																																		
Heavy Cutting																																									
Flat Top	**TNMA331**	TNMA160404	.016													★★★	●●																			★★					
	TNMA332	TNMA160408	.031													★★★	●●																			★★	●				
	TNMA333	TNMA160412	.047													★★★	●●																								
	TNMA334	TNMA160416	.063													★★★	●●																								
	TNMA335	TNMA160420	.079													★★★	●●																								
	TNMA431	TNMA220404	.016																																		★				
	TNMA432	TNMA220408	.031													★●★	●●																	★		★	●				
	TNMA433	TNMA220412	.047													★★★	●●																								
	TNMA434	TNMA220416	.063													★★★	●●																			●					
Flat Top	**TNGA221**	TNGA110304	.016																																		★				
	TNGA222	TNGA110308	.031																															★			★				
	TNGA330.5	TNGA160402	.008																															★			★				
	TNGA331	TNGA160404	.016																																	★★	★				
	TNGA332	TNGA160408	.031																																		★★				
	TNGA431	TNGA220404	.016																																	★					
	TNGA432	TNGA220408	.031																																		★				

● = NEW

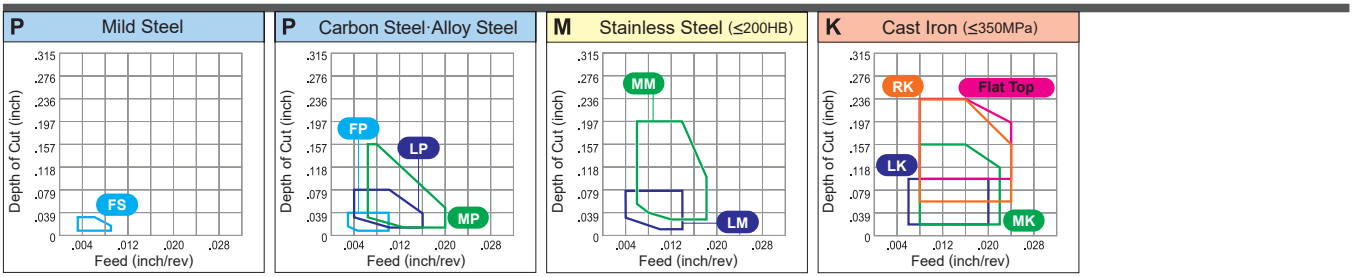
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

35° VN TYPE INSERTS WITH HOLE

VNMG 3 3 0.5 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



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔✠✠●◕●✠✠●○◔✠✠◕○○◔○◔✠○
M	Stainless Steel	●◕✠✠●◕◔✠✠○○○✠✠
K	Cast Iron	●◕✠◔✠◔✠✠○○○✠✠○◔○
N	Non-ferrous Metal	◔●○
S	Heat resistant Alloy, Titanium Alloy	●◕✠○◕○◔✠◔●◕●●◕

Shape	Order Number	(ISO) Number	RE (inch)	Coated: NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FP	**VNMG330.5FP**	VNMG160402-FP	.008			●	●																						●				★									
	VNMG331FP	VNMG160404-FP	.016			●	●																						●				★									
	VNMG332FP	VNMG160408-FP	.031			●	●																						●				★									
	VNMG333FP	VNMG160412-FP	.047			●	●																						●				★									
Finish Cutting																																											
FH	**VNMG330.5FH**	VNMG160402-FH	.008																										●				●	●									
	VNMG331FH	VNMG160404-FH	.016																										●	★			★									
	VNMG332FH	VNMG160408-FH	.031																										●	★			★	●								
Finish Cutting																																											
FS	**VNMG331FS**	VNMG160404-FS	.016																											●			★									
	VNMG332FS	VNMG160408-FS	.031																											●			★									
Finish Cutting																																											
FS NEW	**VNGG33V5FS**	VNGG1604V5-FS	.002																		●	●																				●	
	VNGG330.2FS	VNGG160401-FS	.004																		●	●	●																			●	
	VNGG330.5FS	VNGG160402-FS	.008																		●	●	●																			●	
	VNGG331FS	VNGG160404-FS	.016																		●	●	●																			●	
	VNGG332FS	VNGG160408-FS	.031																		●	●	●																			●	
Finish Cutting																																											
FJ	**VNGG33V5FJ**	VNGG1604V5-FJ	.002																								●													●			
	VNGG330.2FJ	VNGG160401-FJ	.004																								●													●			
	VNGG330.5FJ	VNGG160402-FJ	.008																								●													●			
Finish Cutting																																											
R/L-F	**VNGG330.5RF**	VNGG160402R-F	.008																								●			●				●	●								
	VNGG330.5LF	VNGG160402L-F	.008																								●			●				●	●								
	VNGG331RF	VNGG160404R-F	.016																								●			●				●	●								
	VNGG331LF	VNGG160404L-F	.016																								●			●				●	●								
Finish Cutting																																											

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	● ✠ ○ ◔ ❁ ❁ ● ◐ ✠ ✠ ● ● ◐ ✠ ◔ ❁ ✠ ✠ ◐ ○ ○ ◔ ○ ◔ ❁ ○
M	Stainless Steel	◐ ✠ ❁ ❁ ○ ○ ○ ○ ◔ ○ ○ ○
K	Cast Iron	● ◐ ✠ ◔ ❁ ◔ ❁ ○ ○ ○ ❁ ○ ◔ ○
N	Non-ferrous Metal	◔ ● ◐ ◐ ● ○
S	Heat resistant Alloy, Titanium Alloy	◔ ● ◐ ◐ ◐ ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
LP	**VNMG331LP**	VNMG160404-LP	.016	●	●	●	●	●																					●												
	VNMG332LP	VNMG160408-LP	.031	●	●	●	●	●																					●												
Light Cutting																																									
LM	**VNMG331LM**	VNMG160404-LM	.016								●	●	●																												
	VNMG332LM	VNMG160408-LM	.031								●	●	●																												
Light Cutting																																									
LK	**VNMG331LK**	VNMG160404-LK	.016													●	★	●	●																						
	VNMG332LK	VNMG160408-LK	.031													●	★	●	●																						
Light Cutting																																									
LS	**VNMG330.5LS**	VNMG160402-LS	.008																		●	●	●																	●	
	VNMG331LS	VNMG160404-LS	.016																		●	●	●																	●	
	VNMG332LS	VNMG160408-LS	.031																		●	●	●																	●	
Light Cutting																																									
LS NEW	**VNGG330.5LS**	VNGG160402-LS	.008																		●	●	●																	●	
	VNGG331LS	VNGG160404-LS	.016																		●	●	●																	●	
	VNGG332LS	VNGG160408-LS	.031																		●	●	●																	●	
Light Cutting																																									
SH	**VNMG331SH**	VNMG160404-SH	.016	●	●	●	●																							★		★	●							
	VNMG332SH	VNMG160408-SH	.031	●	●	●	●																							★		★	●							
Light Cutting																																									
SA	**VNMG331SA**	VNMG160404-SA	.016		●	●																										★							
	VNMG332SA	VNMG160408-SA	.031		●	●																										★							
Light Cutting																																									
MJ	**VNMG331MJ**	VNMG160404-MJ	.016																		●	●	★			●	●												●		
	VNMG332MJ	VNMG160408-MJ	.031																		●	●	★			●	●												●		
	VNMG333MJ	VNMG160412-MJ	.047																		●	●	★			★	★														
Light Cutting																																									

● = NEW

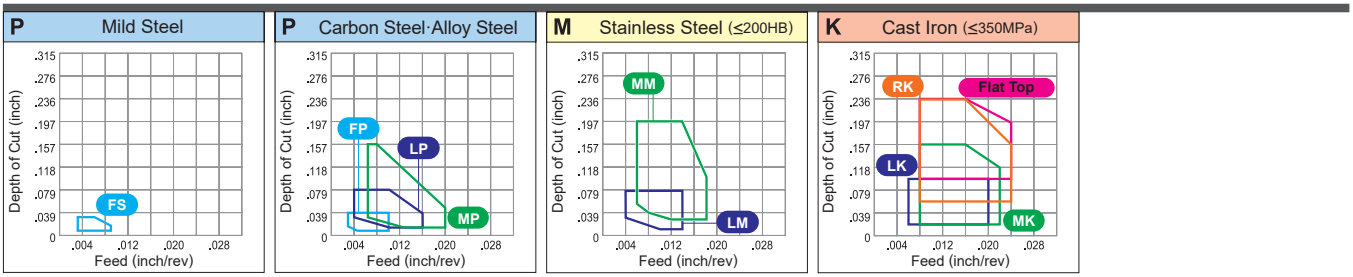
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

35° VN TYPE INSERTS WITH HOLE

VNMG 3 3 1 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···



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔✠✠●◕●●✠✠●◕✠✠✠●○○○◔○◔✠○
M	Stainless Steel	●◕●✠✠●◕◔✠✠○○○○✠
K	Cast Iron	●◕●✠◔✠◔✠✠○○○○✠○◔○
N	Non-ferrous Metal	◔●○
S	Heat resistant Alloy, Titanium Alloy	●◕●✠○◕○◔✠◔●●●◕

Shape	Order Number	(ISO) Number	RE (inch)	Coated																						Coated Cermet				Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
MJ	**VNGM331MJ**	VNGM160404-MJ	.016																							●												●			
	VNGM332MJ	VNGM160408-MJ	.031																							●												●			
	VNGM431MJ	VNGM220404-MJ	.016																							●												●			
	VNGM432MJ	VNGM220408-MJ	.031																							●												●			
Light Cutting																																									
MP	**VNMG331MP**	VNMG160404-MP	.016	●	●	●	●	●																					●												
	VNMG332MP	VNMG160408-MP	.031	●	●	●	●	●																						●												
	VNMG333MP	VNMG160412-MP	.047	●	●	●	●	●																																		
Medium Cutting																																									
MM	**VNMG332MM**	VNMG160408-MM	.031								●	●	●																												
Medium Cutting																																									
MK	**VNMG331MK**	VNMG160404-MK	.016													●	●	★	●	●																					
	VNMG332MK	VNMG160408-MK	.031													★	●	●	●	●																					
	VNMG333MK	VNMG160412-MK	.047													★	●	★	●	●																					
Medium Cutting																																									
***MS**	**VNMG331MS**	VNMG160404-MS	.016																		●	●	●																	●	
	VNMG332MS	VNMG160408-MS	.031																		●	●	●																	●	
Medium Cutting																																									
MS	**VNMG331MS**	VNMG160404-MS	.016										●											●		●	●	★												
	VNMG332MS	VNMG160408-MS	.031										●											●		★	●						●						●		
Medium Cutting																																									

* New design MS breaker : MP9005, MP9015, MP9025, MT9015

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✣: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ❁: Unstable Cutting (2nd recommendation)

Workpiece Material			Shape	Order Number	(ISO) Number	RE (inch)	Coated																						Coated Cermet			Cermet		Carbide								
							NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		GK	VNMG331GK	VNMG160404-GK	.016													★	★	●	●																						
M	Stainless Steel			VNMG332GK	VNMG160408-GK	.031													●	●	●	●																						
K	Cast Iron			VNMG333GK	VNMG160412-GK	.047													●	★	★	●																						
N	Non-ferrous Metal																																											
S	Heat resistant Alloy, Titanium Alloy		Medium Cutting																																								
P	Steel		GM	VNMG331GM	VNMG160404-GM	.016								●	●	●																											
M	Stainless Steel			VNMG332GM	VNMG160408-GM	.031								●	●	●																											
K	Cast Iron		Medium Cutting																																								
N	Non-ferrous Metal		MA	VNMG331MA	VNMG160404-MA	.016	●	●	●	●				●	●	●				●	★	●	●							●													
S	Heat resistant Alloy, Titanium Alloy			VNMG332MA	VNMG160408-MA	.031	●	●	●	●	●			●	●	●				●	●	●	●							●													
P	Steel		Medium Cutting																																								
M	Stainless Steel		MH	VNMG331MH	VNMG160404-MH	.016	●	●																																		
K	Cast Iron			VNMG332MH	VNMG160408-MH	.031	●	●	●	●	●																																
N	Non-ferrous Metal		Medium Cutting																																								
S	Heat resistant Alloy, Titanium Alloy		Standard	VNMG331	VNMG160404	.016	●	●	●	●																			●		●			★	●	●		●				
P	Steel			VNMG332	VNMG160408	.031	●	●	●	●	●																			●		●			★	●	●		●				
M	Stainless Steel			VNMG333	VNMG160412	.047	●	●	●	●	●																								★								
K	Cast Iron		Medium Cutting																																								
N	Non-ferrous Metal		R/L	VNGG331R	VNGG160404R	.016																															★	●	★		★			
S	Heat resistant Alloy, Titanium Alloy			VNGG331L	VNGG160404L	.016																															★	●	★					
P	Steel		Medium Cutting																																								
M	Stainless Steel		Flat Top	VNMA331	VNMA160404	.016													★	●	★	★	●																				
K	Cast Iron			VNMA332	VNMA160408	.031													★	●	★	★	●																				
N	Non-ferrous Metal			VNMA333	VNMA160412	.047													★	★	★	★	●																				
S	Heat resistant Alloy, Titanium Alloy		Flat Top	VNGA331	VNGA160404	.016																																	★	●					
P	Steel			VNGA332	VNGA160408	.031																																	★	●					
M	Stainless Steel																																										
K	Cast Iron																																										
N	Non-ferrous Metal																																										
S	Heat resistant Alloy, Titanium Alloy																																										

● = NEW

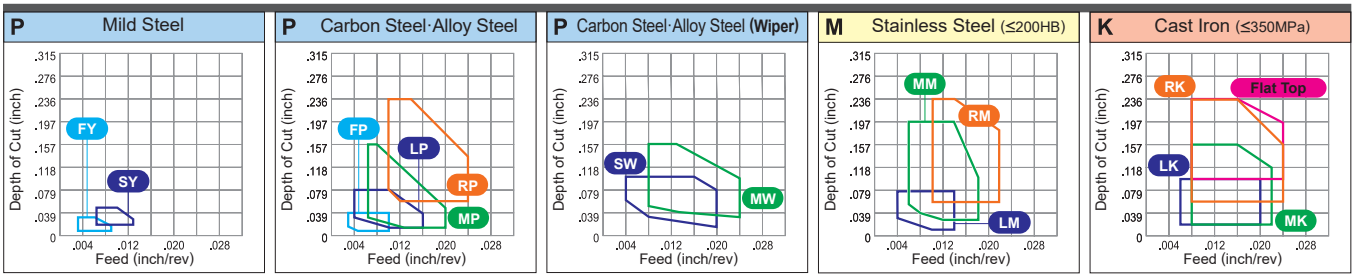
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° WN TYPE INSERTS WITH HOLE

WNMG 4 3 0.5 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---



●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✠: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ❁: Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁●◐◐✠✠●◐◐✠◔❁❁◐○○◔○◔❁○
M	Stainless Steel	◐◐✠✠●◐❁◔❁❁○○○❁
K	Cast Iron	●◐✠◔❁◔❁❁○○❁○◔●●●●
N	Non-ferrous Metal	○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐○◔❁◔●●●●

Shape	Order Number	(ISO) Number	RE (inch)	Coated																										Coated Cermet			Cermet		Carbide								
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FP	**WNMG430.5FP**	WNMG080402-FP	.008			●	●																							●			★								
	WNMG431FP	WNMG080404-FP	.016			●	●																							●			★								
	WNMG432FP	WNMG080408-FP	.031			●	●																							●			★								
	WNMG433FP	WNMG080412-FP	.047			●	●																							●			★								
Finish Cutting																																										
FH	**WNMG431FH**	WNMG080404-FH	.016																											●			★								
	WNMG432FH	WNMG080408-FH	.031																											●	●		★								
Finish Cutting																																										
FS	**WNMG431FS**	WNMG080404-FS	.016																														★								
	WNMG432FS	WNMG080408-FS	.031																														★								
Finish Cutting																																										
FY	**WNMG431FY**	WNMG080404-FY	.016																											●			★								
	WNMG432FY	WNMG080408-FY	.031																											●	★		★								
Finish Cutting																																										
LP	**WNMG32.51LP**	WNMG06T304-LP	.016			●	●	●																						●												
	WNMG32.52LP	WNMG06T308-LP	.031			●	●	●																						●												
	WNMG331LP	WNMG060404-LP	.016			●	●	●																						●												
	WNMG332LP	WNMG060408-LP	.031			●	●	●																						●												
	WNMG431LP	WNMG080404-LP	.016	●	●	●	●	●																						●												
	WNMG432LP	WNMG080408-LP	.031	●	●	●	●	●																						●												
Light Cutting	**WNMG433LP**	WNMG080412-LP	.047	●	●	●	●	●																																			

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✣: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ❁: Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❁❁● ◐●✣✣● ◔✣❁ ◐○○◔○◔❁ ○◔○❁○◔○ ○
M	Stainless Steel	◐✣● ◔❁❁ ○○ ○ ❁ ○
K	Cast Iron	●◐✣◔❁ ◔❁ ○○ ○ ❁○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✣○◐○◔❁ ◔●◐●◐ ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
LM	**WNMG331LM**	WNMG060404-LM	.016								●	●	●																											
	**WNMG332LM**	WNMG060408-LM	.031								●	●	●																											
	WNMG431LM	WNMG080404-LM	.016								●	●	●																											
Light Cutting	**WNMG432LM**	WNMG080408-LM	.031								●	●	●																											
LK	**WNMG431LK**	WNMG080404-LK	.016														●	●	●	●																				
	**WNMG432LK**	WNMG080408-LK	.031														●	★	●	●																				
	WNMG433LK	WNMG080412-LK	.047														★	★	●	●																				
Light Cutting																																								
LS	**WNMG430.5LS**	WNMG080402-LS	.008																		●	●	●																	●
	**WNMG431LS**	WNMG080404-LS	.016																		●	●	●																	●
	WNMG432LS	WNMG080408-LS	.031																		●	●	●																	●
Light Cutting																																								
SH	**WNMG32.51SH**	WNMG06T304-SH	.016										●																											
	WNMG32.52SH	WNMG06T308-SH	.031										●																											
	WNMG331SH	WNMG060404-SH	.016										●																											
	**WNMG332SH**	WNMG060408-SH	.031										●																											
	WNMG431SH	WNMG080404-SH	.016	●	●	●	●						●																				★							
	WNMG432SH	WNMG080408-SH	.031	●	●	●	●						●																				★							
Light Cutting	**WNMG433SH**	WNMG080412-SH	.047	●	●	●	●						●																											
SA	**WNMG431SA**	WNMG080404-SA	.016	●	●	●	●						●																				★	●						
	**WNMG432SA**	WNMG080408-SA	.031	●	●	●	●						●																				★	●						
	WNMG433SA	WNMG080412-SA	.047	●	●	●	●																											●						
Light Cutting																																								
***SW**	**WNMG331SW**	WNMG060404-SW	.016		●																									●			★							
	**WNMG332SW**	WNMG060408-SW	.031		●																									●			★							
	WNMG431SW	WNMG080404-SW	.016	●	●	●												●	●											●			★	●						
Light Cutting (Wiper)	**WNMG432SW**	WNMG080408-SW	.031	●	●	●												●	●											●			★	●						
	WNMG433SW	WNMG080412-SW	.047	●	●	●																								●			●	●						
SY	**WNMG431SY**	WNMG080404-SY	.016																											●			★							
	**WNMG432SY**	WNMG080408-SY	.031																											●		★	★	●						
Light Cutting																																								
MJ	**WNMG432MJ**	WNMG080408-MJ	.031																		●	●	★			★	★														
	**WNMG433MJ**	WNMG080412-MJ	.047																		●	●	★			★	★														
	WNMG434MJ	WNMG080416-MJ	.063																		●	●	★			★	★														
Light Cutting																																								

*Please refer to page A032 before using the SW breaker (wiper insert).

● = NEW

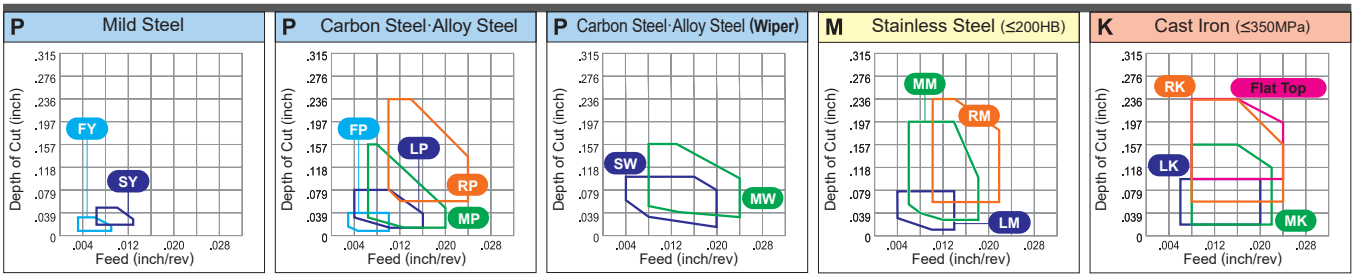
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° WN TYPE INSERTS WITH HOLE

WNMG 3 2.5 1 MP
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---



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁●◕●✠✠●◕●✠●◕◕◔○◔○◔❁❁❁◕○○○◔○◔❁❁○
M	Stainless Steel	●◕●✠✠●◕✠●✠◔❁❁❁○○○○❁○◔●◕●✠✠●◕✠●✠◔❁❁❁○○○○❁○
K	Cast Iron	●◕●✠◔❁◕✠●✠◔❁❁○○○○❁○◔●◕●✠✠●◕✠●✠◔❁❁❁○○○○❁○
N	Non-ferrous Metal	◔●
S	Heat resistant Alloy, Titanium Alloy	●◕●✠○◕○◔❁❁◔●

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet				Cermet		Carbide									
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
MP	**WNMG32.51MP**	WNMG06T304-MP	.016		●	●	●																																		
	WNMG32.52MP	WNMG06T308-MP	.031		●	●	●																																		
	WNMG32.53MP	WNMG06T312-MP	.047		●	●	●																																		
	WNMG331MP	WNMG060404-MP	.016		●	●	●																																		
	WNMG332MP	WNMG060408-MP	.031		●	●	●																																		
	WNMG333MP	WNMG060412-MP	.047		●	●	●																																		
	WNMG431MP	WNMG080404-MP	.016	●	●	●	●	●																						●													
	WNMG432MP	WNMG080408-MP	.031	●	●	●	●	●																						●													
	WNMG433MP	WNMG080412-MP	.047	●	●	●	●	●																						●													
Medium Cutting	**WNMG434MP**	WNMG080416-MP	.063	●	●	●	●	●																																			
MM	**WNMG332MM**	WNMG060408-MM	.031								●	●	●																														
	WNMG333MM	WNMG060412-MM	.047								●	●	●																														
	WNMG432MM	WNMG080408-MM	.031								●	●	●																														
Medium Cutting	**WNMG433MM**	WNMG080412-MM	.047								●	●	●																														
MK	**WNMG431MK**	WNMG080404-MK	.016													●	●	★	●	●																							
	WNMG432MK	WNMG080408-MK	.031													●	●	●	●	●																							
	WNMG433MK	WNMG080412-MK	.047													★	●	★	●	●																							
Medium Cutting	**WNMG434MK**	WNMG080416-MK	.063													★	●	★	●	●																							
***MS**	**WNMG431MS**	WNMG080404-MS	.016																		●	●	●																			●
	WNMG432MS	WNMG080408-MS	.031																		●	●	●	●																		●
Medium Cutting	**WNMG433MS**	WNMG080412-MS	.047																		●	●	●	●																		●

* New design MS breaker : MP9005, MP9015, MP9025, MT9015

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ⊛ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔⊛⊛● ●◐✠✠● ●◐✠◔⊛ ◐○○◔○◔✠ ○
M	Stainless Steel	◐◔○⊛⊛ ○○○◔ ✠
K	Cast Iron	◐◐✠◔⊛ ◔⊛ ○○○◔✠○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐◔⊛ ◔●◐●◐ ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
MS	**WNMG322MS**	WNMG060308-MS	.031										●																											
	WNMG32.51MS	WNMG06T304-MS	.016										●																											
	WNMG32.52MS	WNMG06T308-MS	.031										●																											
	WNMG331MS	WNMG060404-MS	.016										●																											
	WNMG332MS	WNMG060408-MS	.031										●																											
	WNMG431MS	WNMG080404-MS	.016										●													●●	●														
	WNMG432MS	WNMG080408-MS	.031										●													●●	●													●	
Medium Cutting	**WNMG433MS**	WNMG080412-MS	.047										●													★	●														
GK	**WNMG331GK**	WNMG060404-GK	.016													●	★	●	●																					
	WNMG332GK	WNMG060408-GK	.031													●	★	●	●																					
	WNMG431GK	WNMG080404-GK	.016													●	★	●	●																					
	WNMG432GK	WNMG080408-GK	.031													●	★	●	●																					
Medium Cutting	**WNMG433GK**	WNMG080412-GK	.047													●	★	●	●																					
	NEW **WNMG434GK**	WNMG080416-GK	.063													★	★																							
GM	**WNMG331GM**	WNMG060404-GM	.016								●	●	●																											
	WNMG332GM	WNMG060408-GM	.031								●	●	●																											
	WNMG431GM	WNMG080404-GM	.016								●	●	●																											
	WNMG432GM	WNMG080408-GM	.031								●	●	●																											
Medium Cutting	**WNMG433GM**	WNMG080412-GM	.047								●	●	●																											
MA	**WNMG32.51MA**	WNMG06T304-MA	.016										★																											
	WNMG32.52MA	WNMG06T308-MA	.031										★																											
	WNMG32.53MA	WNMG06T312-MA	.047										★																											
	WNMG331MA	WNMG060404-MA	.016			●●							●																											
	WNMG332MA	WNMG060408-MA	.031			●●						●●	●				●★	●	●								●													
	WNMG333MA	WNMG060412-MA	.047			●●						●●	★				★★	●	●								●													
	WNMG431MA	WNMG080404-MA	.016	●●		●						●●	●				●★	●	●			●	●				●							●							
	WNMG432MA	WNMG080408-MA	.031	●●		●●						●●	●				●●	●	●			●	●				●							●							
Medium Cutting	**WNMG433MA**	WNMG080412-MA	.047	●●		●●						●●	●				●●	●	●			●	●				●							●							
	WNMG434MA	WNMG080416-MA	.063	●●													★●					●	●																	
MH	**WNMG431MH**	WNMG080404-MH	.016	●●																																				
	WNMG432MH	WNMG080408-MH	.031	●●		●●																																		
Medium Cutting	**WNMG433MH**	WNMG080412-MH	.047	●●		●●																																		
Standard	**WNMG431**	WNMG080404	.016	●●		●●																								●			★							
	WNMG432	WNMG080408	.031	●●		●●																					●			●			★	★						
Medium Cutting	**WNMG433**	WNMG080412	.047	●●		●●																					●							★						

● = NEW

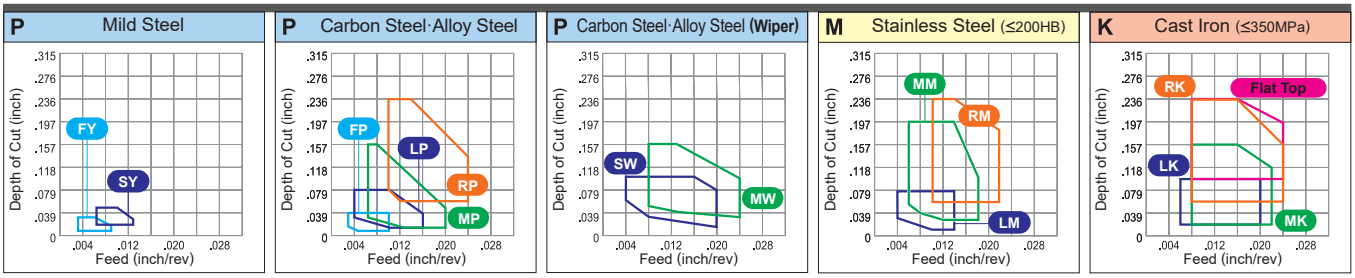
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° WN TYPE INSERTS WITH HOLE

WNMG 3 3 2 MW
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---



●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✠: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ✠: Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔✠✠●◐◐✠✠●◐✠✠✠◐○○○◔○◔✠✠○
M	Stainless Steel	●◐✠✠●◐✠✠◔✠✠✠○○○◔✠
K	Cast Iron	●◐✠◔✠◔✠✠○○◔○✠◔●◔○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐○◔✠◔●●●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated: NEW MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
*MW	WNMG332MW	WNMG060408-MW	.031		●	●												●	●																								
	WNMG333MW	WNMG060412-MW	.047		●	●												●	●																								
	WNMG432MW	WNMG080408-MW	.031	●	●	●												●	●																								
	WNMG433MW	WNMG080412-MW	.047	●	●	●												●	●																								
Medium Cutting (Wiper)																																											
RP	WNMG432RP	WNMG080408-RP	.031	●	●	●	●	●																																			
	WNMG433RP	WNMG080412-RP	.047	●	●	●	●	●																																			
Rough Cutting																																											
RM	WNMG332RM	WNMG060408-RM	.031								●	●	●																														
	WNMG333RM	WNMG060412-RM	.047								●	●	●																														
	WNMG432RM	WNMG080408-RM	.031								●	●	●																														
	WNMG433RM	WNMG080412-RM	.047								●	●	●																														
Rough Cutting																																											
RK	WNMG432RK	WNMG080408-RK	.031													●	●	●	●	●																							
	WNMG433RK	WNMG080412-RK	.047													●	●	★	●	●																							
	WNMG434RK	WNMG080416-RK	.063													★	●	★	●	●																							
Rough Cutting																																											
RS	WNMG432RS	WNMG080408-RS	.031																			●	●																				●
	WNMG433RS	WNMG080412-RS	.047																			●	●																				●
	WNMG434RS	WNMG080416-RS	.063																			●	●																				●
	WNMG543RS	WNMG100612-RS	.047																			●	●																				●
Rough Cutting																																											

* Please refer to A032 before using the MW breaker (wiper insert).

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation)　◕ : General Cutting (1st recommendation)　✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation)　◔ : General Cutting (2nd recommendation)　✠ : Unstable Cutting (2nd recommendation)

Workpiece Material			Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide							
							NEW								NEW		NEW							NEW																			
							MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
	P	Steel					●	✠	○	◔	✠	✠	●																✠	✠	◕	○	○	◔	○	◔	✠						○
	M	Stainless Steel												●	◕	✠	✠	●									◕		◔	✠	✠		○	○		○		✠						
	K	Cast Iron																	●	◕	✠	◔	✠						◔	✠		○	○		○		✠	○	◔					○
	N	Non-ferrous Metal																																					◔	●				○
	S	Heat resistant Alloy, Titanium Alloy																						●	◕	✠	○	◕	○	◔	✠								◔	◕	◕	◕	◕	
			GH	**WNMG432GH**	WNMG080408-GH	.031	●	●								●																											
				WNMG433GH	WNMG080412-GH	.047	●	●								●																											
			Rough Cutting																																								
			GJ	**WNMG432GJ**	WNMG080408-GJ	.031																			●	●														●		
				WNMG433GJ	WNMG080412-GJ	.047																			●	●														●		
				WNMG434GJ	WNMG080416-GJ	.063																			●	●														●		
			Rough Cutting	**WNMG543GJ**	WNMG100612-GJ	.047																				●														●		
			Flat Top	**WNMA332**	WNMA060408	.031													★	★	★	★	●																			
				WNMA333	WNMA060412	.047													●	★	★	★	●																			
				WNMA431	WNMA080404	.016													★	★	★	●	●																	★		
				WNMA432	WNMA080408	.031													●	●	●	●	●																	★		
				WNMA433	WNMA080412	.047													●	●	●	●	●																			
				WNMA434	WNMA080416	.063													★	●	★	●	●																			

● = NEW

EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A046
GRADES ➤ A034
IDENTIFICATION ➤ A002

55° KN TYPE INSERTS WITHOUT HOLE

●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✣: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ❁: Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																								Coated Cermet				Cermet		Carbide							
			NEW									NEW		NEW								NEW																			
			MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		●	✣	○	◔	❁	❁	●																	❁	❁	◐	○	○	◔	○	◔	❁							○
M	Stainless Steel									●	◐	✣	✣	●									◐		◔	❁	❁		○	○		○		❁							
K	Cast Iron														●	◐	✣	◔	❁						◔	❁			○	○		○		❁	○	◔					○
N	Non-ferrous Metal																																			◔	●				○
S	Heat resistant Alloy, Titanium Alloy																			●	◐	✣	○	◐	○	◔	❁								◔	●	◐	●	◐		
Shape	Order Number	(ISO) Number	RE (inch)																																						
	KNUX160405RM1	KNUX160405R-M1	.020																															●							

●: USA Stock ★: Stocked in Japan
<10 inserts in one case>

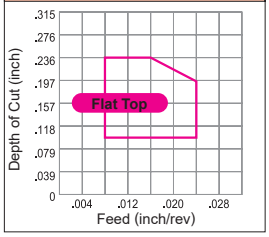
80° CN TYPE INSERTS WITHOUT HOLE

CNMN 4 3 2
Size Thickness Corner Radius
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Heavy Cutting ···

K Cast Iron (≤350MPa)



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																								Coated Cermet				Cermet		Carbide							
			NEW								NEW		NEW						NEW																					
			MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		●	✠	○	◔	❁	❁	●														◕			❁	❁	◕	○	○	○	◔	○	◔	❁						○
M	Stainless Steel									●	◕	✠	✠	●									◕		◔	❁	❁		○	○		○		❁						
K	Cast Iron														●	◕	✠	◔	❁						◔	❁			○	○		○		❁	○	◔					○
N	Non-ferrous Metal																																			◔	●				○
S	Heat resistant Alloy, Titanium Alloy																			●	◕	✠	○	◕	○	◔	❁								◔	●	◕	●	◕		
Shape	Order Number	(ISO) Number	RE (inch)																																						
Flat Top 	**CNMN432**	CNMN120408	.031												★	●	★	★	★																						
	CNMN433	CNMN120412	.047												★	●	★	★	★																						
	CNMN434	CNMN120416	.063												★	●	★	★	★																						

● = NEW

EXTERNAL TURNING	➤ –	CHIP BREAKER	➤ A078
BORING	➤ –	GRADES	➤ A034
		IDENTIFICATION	➤ A002

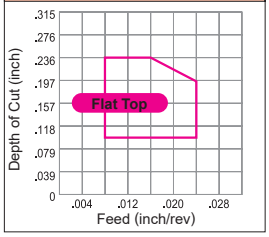
90° SN TYPE INSERTS WITHOUT HOLE

SNMN 4 3 2
Size Thickness Corner Radius
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Heavy Cutting ---

K Cast Iron (≤350MPa)



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																								Coated Cermet				Cermet		Carbide								
			NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		●✠○◔❁❁●							●◕✠✠●													◕				❁❁	◕○○○◔	○◔	❁			○									○
M	Stainless Steel														●◕✠✠●								◕		◔		❁❁		○○		○		❁								
K	Cast Iron														●◕✠◔❁										◔		❁		○○		○		❁	○	◔						○
N	Non-ferrous Metal																																		◔	●					○
S	Heat resistant Alloy, Titanium Alloy																			●◕✠○◕	○◔❁														◔	●◕●◕					
Shape	Order Number	(ISO) Number	RE (inch)																																						
Flat Top	SNMN432	SNMN120408	.031												●●★●●																★		★	★							
	SNMN433	SNMN120412	.047												★★★●●																★		★								
	SNMN434	SNMN120416	.063												★★★●●																										
	NEW SNMN435	SNMN120420	.079												★★★																										
	SNMN633	SNMN190412	.047																																★							
Flat Top	SNG322	SNGN090308	.031																																	★						
	SNG431	SNGN120404	.016																																★	★					
	SNG432	SNGN120408	.031																																★						

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

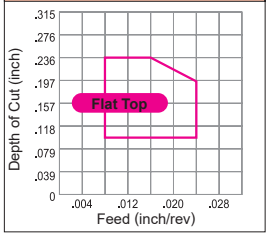
60° TN TYPE INSERTS WITHOUT HOLE

TNMN 3 2 2
Size Thickness Corner Radius
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Heavy Cutting---

K Cast Iron (≤350MPa)



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

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

Shape	Order Number	(ISO) Number	RE (inch)	Coated																												Coated Cermet				Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
Flat Top	TNMN322	TNMN160308	.031																														★										
	TNMN332	TNMN160408	.031													★★★	●●																★										
	TNMN333	TNMN160412	.047													★★★	●●																										
	TNMN334	TNMN160416	.063													★★★	●●																										
	TNMN335	TNMN160420	.079													★★★																										
	TNMN432	TNMN220408	.031																														★										
	TNMN433	TNMN220412	.047																																★								
Flat Top	TNG221	TNGN110304	.016																																	★							
	TNG222	TNGN110308	.031																																	★							
	TNG331	TNGN160404	.016																																	★							
	TNG332	TNGN160408	.031																																	★							

● = NEW

EXTERNAL TURNING ➤ –
BORING ➤ –

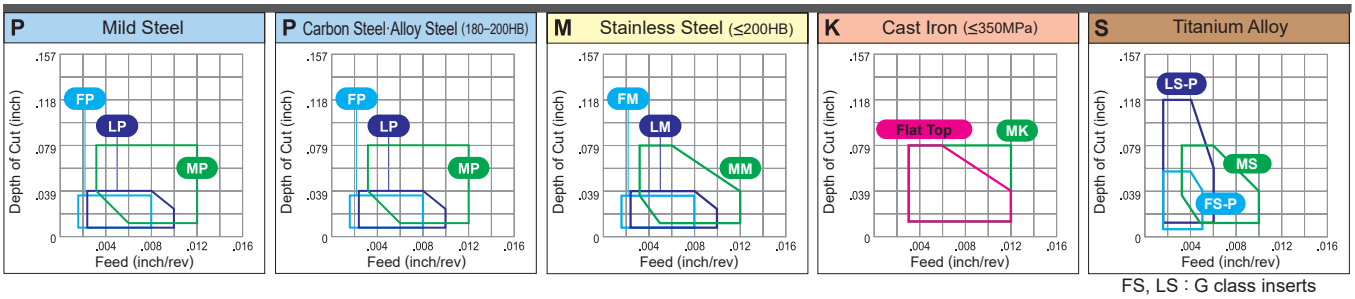
CHIP BREAKER ➤ A078
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° CC TYPE INSERTS WITH HOLE

CCMT 2 1.5 0.5 FP
Size / Thickness / Corner Radius / Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

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



FS, LS : G class inserts

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔✠✠●◐●✠✠●○◐●✠○◐✠✠●○○◔○◔✠○
M	Stainless Steel	●◐●✠✠●◐○✠◔✠✠○○○◔✠
K	Cast Iron	●◐●✠◔✠◔✠✠○○◔○✠◔○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐●✠○◐○◔✠◔●◐●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide										
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FP	**CCMT21.50.5FP**	CCMT060202-FP	.008	●	●	●	●																						●			●										
	CCMT21.51FP	CCMT060204-FP	.016	●	●	●	●																						●			●										
	CCMT32.50.5FP	CCMT09T302-FP	.008	●	●	●	●																						●			●										
	CCMT32.51FP	CCMT09T304-FP	.016	●	●	●	●																						●			●										
Finish Cutting	**CCMT32.52FP**	CCMT09T308-FP	.031	●	●	●	●																						●			●										
FM	**CCMT21.50.5FM**	CCMT060202-FM	.008																								●															
	CCMT21.51FM	CCMT060204-FM	.016																								●															
	CCMT32.50.5FM	CCMT09T302-FM	.008																								●															
	CCMT32.51FM	CCMT09T304-FM	.016																								●															
Finish Cutting	**CCMT32.52FM**	CCMT09T308-FM	.031																								●															
FS	**CCGT21.50.2MFS**	CCGT060201M-FS	.004*																		●	●	●																			
	CCGT21.50.5MFS	CCGT060202M-FS	.008*																		●	●	●																			
	CCGT32.50.2MFS	CCGT09T301M-FS	.004*																		●	●	●																			
	CCGT32.50.5MFS	CCGT09T302M-FS	.008*																		●	●	●																			
Finish Cutting	**CCGT32.51MFS**	CCGT09T304M-FS	.016*																		●	●	●																			
FS-P	**CCGT21.50.2MFS-P**	CCGT060201M-FS-P	.004*											●										●																	●		
	CCGT21.50.5MFS-P	CCGT060202M-FS-P	.008*											●										●																	●		
	CCGT32.50.2MFS-P	CCGT09T301M-FS-P	.004*											●										●																	●		
	CCGT32.50.5MFS-P	CCGT09T302M-FS-P	.008*											●										●																	●		
Finish Cutting	**CCGT32.51MFS-P**	CCGT09T304M-FS-P	.016*											●										●																	●		
FV	**CCMT21.50.5FV**	CCMT060202-FV	.008		●																						●			●	★	★	●									
	CCMT21.51FV	CCMT060204-FV	.016		●																						●			●	★	★	●									
	CCMT32.50.5FV	CCMT09T302-FV	.008		★																										●	●	●									
	CCMT32.51FV	CCMT09T304-FV	.016		●																									●	★	★	●									
Finish Cutting	**CCMT32.52FV**	CCMT09T308-FV	.031		●																									●	★	★	●									

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

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✠: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ❁: Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁● ●◐✠✠● ●◐✠◔❁ ●◐✠✠● ○◔◔✠ ○◔✠❁❁ ◐○○◔○ ○◔✠ ○○◔❁○ ○
M	Stainless Steel	●◐✠✠● ◐❁❁❁ ◐○○ ○ ✠ ◐ ● ○
K	Cast Iron	●◐✠◔❁ ◐❁❁ ○○○ ○ ✠○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐○◔❁ ◔●●●●● ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																												Coated Cermet				Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FJ	**CCGT21.5V5FJ**	CCGT0602V5-FJ	.002																							●																	
	CCGT21.50.2FJ	CCGT060201-FJ	.004																							●																	
	CCGT21.50.5FJ	CCGT060202-FJ	.008																							●																	
	CCGT32.5V5FJ	CCGT09T3V5-FJ	.002																							●																	
	CCGT32.50.2FJ	CCGT09T301-FJ	.004																							●														★			
	CCGT32.50.5FJ	CCGT09T302-FJ	.008																							●														★			
Finish Cutting	**CCGT32.51FJ**	CCGT09T304-FJ	.016																							●														★			
FJ-P	**CCGT21.5V5FJ-P**	CCGT0602V5-FJ-P	.002																																				●				
	CCGT21.50.2FJ-P	CCGT060201-FJ-P	.004																																				●				
	CCGT21.50.5FJ-P	CCGT060202-FJ-P	.008																																				●				
	CCGT32.5V5FJ-P	CCGT09T3V5-FJ-P	.002																																				●				
	CCGT32.50.2FJ-P	CCGT09T301-FJ-P	.004																																				●				
	CCGT32.50.5FJ-P	CCGT09T302-FJ-P	.008																																				●				
Finish Cutting	**CCGT32.51FJ-P**	CCGT09T304-FJ-P	.016																																				●				
AZ	**CCGT21.50.5AZ**	CCGT060202-AZ	.008																																		●					
	CCGT21.51AZ	CCGT060204-AZ	.016																																		●					
	CCGT32.50.5AZ	CCGT09T302-AZ	.008																																		●					
	CCGT32.51AZ	CCGT09T304-AZ	.016																																		●					
	CCGT32.52AZ	CCGT09T308-AZ	.031																																		●					
	CCGT430.5AZ	CCGT120402-AZ	.008																																		●					
Medium Cutting-Finish Cutting	**CCGT431AZ**	CCGT120404-AZ	.016																																		●					
	CCGT432AZ	CCGT120408-AZ	.031																																		●					
R/L-F	*1**CCGT03S1V3L-F**	CCGT03S1V3L-F	.001																								●								●							
	*1**CCGT03S101L-F**	CCGT03S101L-F	.004																								●								●							
	*1**CCGT03S102L-F**	CCGT03S102L-F	.008																								●				●				★							
	*1**CCGT03S104L-F**	CCGT03S104L-F	.016																								●				●				★							
	*1**CCGT04T0V3L-F**	CCGT04T0V3L-F	.001																								●								●							
	*1**CCGT04T001L-F**	CCGT04T001L-F	.004																								●								●							
	*1**CCGT04T002L-F**	CCGT04T002L-F	.008																								●				●				★							
	*1**CCGT04T004L-F**	CCGT04T004L-F	.016																								●				●				★							
	*1**CCGT03S101MR-F**	CCGT03S101MR-F	.004*2							●																																	
	*1**CCGT03S101ML-F**	CCGT03S101ML-F	.004*2							●																																	
	*1**CCGT03S102MR-F**	CCGT03S102MR-F	.008*2							●																																	
	*1**CCGT03S102ML-F**	CCGT03S102ML-F	.008*2							●																																	
	*1**CCGT03S104MR-F**	CCGT03S104MR-F	.016*2							●																																	
	*1**CCGT03S104ML-F**	CCGT03S104ML-F	.016*2							●																																	
	*1**CCGT04T001MR-F**	CCGT04T001MR-F	.004*2							●																																	
	*1**CCGT04T001ML-F**	CCGT04T001ML-F	.004*2							●																																	
	*1**CCGT04T002MR-F**	CCGT04T002MR-F	.008*2							●																																	
	*1**CCGT04T002ML-F**	CCGT04T002ML-F	.008*2							●																																	
	*1**CCGT04T004MR-F**	CCGT04T004MR-F	.016*2							●																																	
Finish Cutting	*1**CCGT04T004ML-F**	CCGT04T004ML-F	.016*2							●																																	

*1 Diameter of inscribed circle is special. (For SCLC type)
*2 Indicates the maximum value of the corner R. For more details, see page D003.

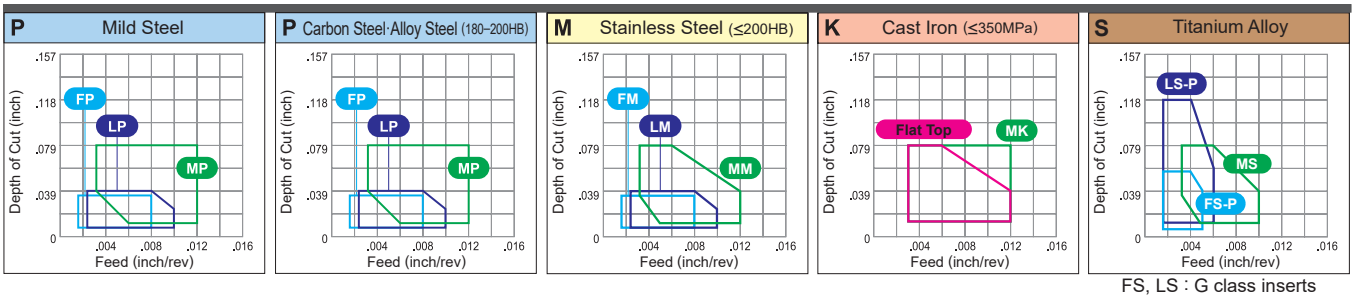
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A064
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° CC TYPE INSERTS WITH HOLE

CCGH 2 1.5 0.5 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 ---



FS, LS : G class inserts

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁●◐◐✠✠●◐✠◔❁❁●○○◔○◔○❁○
M	Stainless Steel	●◐✠✠●◐✠◔❁❁○○○○❁
K	Cast Iron	●◐✠◔❁◔❁❁○○○❁◔◔○
N	Non-ferrous Metal	◔●○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐○◔❁◔●◐●◐○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
R/L-F	CCGH21.50.5RF	CCGH060202R-F	.008																								●		★		★			●							
	CCGH21.50.5LF	CCGH060202L-F	.008																								●		★		★			●							
	CCGH21.51RF	CCGH060204R-F	.016																								●		★		★			●							
	CCGH21.51LF	CCGH060204L-F	.016																								●		★		★			●							
	CCGH21.50.5MRF	CCGH060202MR-F	.008*							●																															
	CCGH21.50.5MLF	CCGH060202ML-F	.008*							●																															
	CCGH21.51MRF	CCGH060204MR-F	.016*							●																															
Finish Cutting	CCGH21.51MLF	CCGH060204ML-F	.016*							●																															
LP	NEW CCMT21.50.5LP	CCMT060202-LP	.008		★																																			
	CCMT21.51LP	CCMT060204-LP	.016	●	●	●	●																						●				●								
	CCMT21.52LP	CCMT060208-LP	.031	●	●	●	●																						●				●								
	CCMT32.51LP	CCMT09T304-LP	.016	●	●	●	●																						●				●								
Light Cutting	CCMT32.52LP	CCMT09T308-LP	.031	●	●	●	●																						●				●								
LM	CCMT21.51LM	CCMT060204-LM	.016								●	●															●														
	CCMT21.52LM	CCMT060208-LM	.031								●	●															●														
	CCMT32.51LM	CCMT09T304-LM	.016								●	●															●														
Light Cutting	CCMT32.52LM	CCMT09T308-LM	.031								●	●															●														
LS	CCMT21.50.5LS	CCMT060202-LS	.008																		●	●	●																	●	
	CCMT21.51LS	CCMT060204-LS	.016																		●	●	●																	●	
	CCMT32.50.5LS	CCMT09T302-LS	.008																		●	●	●																	●	
	CCMT32.51LS	CCMT09T304-LS	.016																		●	●	●																	●	
Light Cutting	CCMT32.52LS	CCMT09T308-LS	.031																		●	●	●																	●	
LS	CCGT21.50.2MLS	CCGT060201M-LS	.004*																		●	●	●																		
	CCGT21.50.5MLS	CCGT060202M-LS	.008*																		●	●	●																		
	CCGT32.50.2MLS	CCGT09T301M-LS	.004*																		●	●	●																		
	CCGT32.50.5MLS	CCGT09T302M-LS	.008*																		●	●	●																		
Light Cutting	CCGT32.51MLS	CCGT09T304M-LS	.016*																		●	●	●																		

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

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✠: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ✠: Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																							Coated Cermet				Cermet		Carbide							
			NEW									NEW		NEW								NEW																	
			MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		●	✠	○	◔	✠	✠	●																	✠	✠	◐	○	○	◔	○	◔	✠						○
M	Stainless Steel									●	◐	✠	✠	●										◐		◔	✠	✠		○	○		○		✠						
K	Cast Iron														●	◐	✠	◔	✠							◔	✠			○	○		○		✠	○	◔				○
N	Non-ferrous Metal																																			◔	●				○
S	Heat resistant Alloy, Titanium Alloy																			●	◐	✠	○	◐	○	◔	✠									◔	●	◐	●	◐	

Shape	Order Number	(ISO) Number	RE (inch)																																					
LS-P	**CCGT21.50.2MLS-P**	CCGT060201M-LS-P	.004*2						●					●									●															●	
	CCGT21.50.5MLS-P	CCGT060202M-LS-P	.008*2						●					●									●															●	
	CCGT32.50.2MLS-P	CCGT09T301M-LS-P	.004*2						●					●									●															●	
	CCGT32.50.5MLS-P	CCGT09T302M-LS-P	.008*2						●					●									●															●	
Light Cutting	**CCGT32.51MLS-P**	CCGT09T304M-LS-P	.016*2						●					●									●															●	
MJ	**CCGT21.51MJ**	CCGT060204-MJ	.016																						●														
	CCGT32.52MJ	CCGT09T308-MJ	.031																						●														
Light Cutting																																								
MJ-P	**CCGT21.51MJ-P**	CCGT060204-MJ-P	.016																																		●			
	CCGT32.52MJ-P	CCGT09T308-MJ-P	.031																																		●			
Light Cutting																																								
SV	**CCMH21.50.5SV**	CCMH060202-SV	.008			●						●													★			●		★	★	●							
	CCMH21.51SV	CCMH060204-SV	.016			●						●													★			●		★	★	●							
Light Cutting																																								
*1**SW**	**CCMT21.50.5SW**	CCMT060202-SW	.008	●	★	●	●																					●		●		●							
	CCMT21.51SW	CCMT060204-SW	.016	★	★	●	●																					●		●		●							
	CCMT32.50.5SW	CCMT09T302-SW	.008	●	●	●	●																					●		●		●							
Light Cutting (Wiper)	**CCMT32.51SW**	CCMT09T304-SW	.016	●	●	●	●																					●		●		●							

*1 Please refer to page A032 before using the SW breaker (wiper insert).
*2 Indicates the maximum value of the corner R. For more details, see page D003.

● = NEW

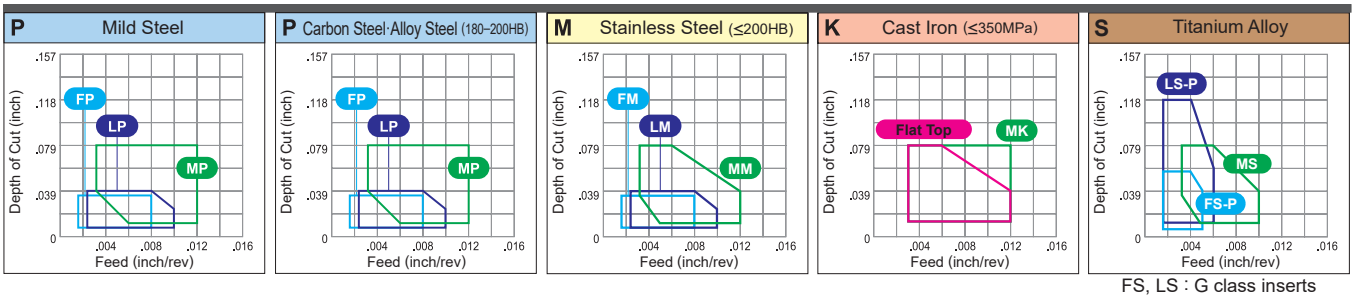
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A064
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° CC TYPE INSERTS WITH HOLE

CCGT 2 1.5 V3 R SS
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 ---



FS, LS : G class inserts

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

| Workpiece Material | | |

●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✣: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ❁: Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❁❁● ◐●✣✣● ◐◐✣◔❁ ✣❁❁◐○○◔○◔❁ ○
M	Stainless Steel	◐ ◔ ❁❁❁ ○○ ○ ❁
K	Cast Iron	◔❁❁ ○○ ○ ❁○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✣○◐○◔❁ ◔●◐●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide								
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
MP	NEW **CCMT21.50.5MP**	CCMT060202-MP	.008	●	●																																			
	CCMT21.51MP	CCMT060204-MP	.016	●	●	●	●																						●			●								
	CCMT21.52MP	CCMT060208-MP	.031	●	●	●	●																						●			●								
	NEW **CCMT2.520.5MP**	CCMT080302-MP	.008	★	★																																			
	NEW **CCMT2.521MP**	CCMT080304-MP	.016	★	★																																			
	NEW **CCMT2.522MP**	CCMT080308-MP	.031	★	★																																			
	NEW **CCMT32.50.5MP**	CCMT09T302-MP	.008	●	●																																			
	CCMT32.51MP	CCMT09T304-MP	.016	●	●	●	●																						●			●								
	CCMT32.52MP	CCMT09T308-MP	.031	●	●	●	●																						●			●								
	CCMT431MP	CCMT120404-MP	.016	●	●	●	●																						●			●								
	CCMT432MP	CCMT120408-MP	.031	●	●	●	●																						●			●								
Medium Cutting	**CCMT433MP**	CCMT120412-MP	.047	★	★	●	●																						●			●								
MM	**CCMT21.51MM**	CCMT060204-MM	.016								●	●															●													
	CCMT21.52MM	CCMT060208-MM	.031								●	●															●													
	CCMT32.51MM	CCMT09T304-MM	.016								●	●															●													
	CCMT32.52MM	CCMT09T308-MM	.031								●	●															●													
	CCMT431MM	CCMT120404-MM	.016								●	●															●													
	CCMT432MM	CCMT120408-MM	.031								●	●															●													
Medium Cutting	**CCMT433MM**	CCMT120412-MM	.047								●	●															●													
MK	**CCMT21.51MK**	CCMT060204-MK	.016													●	●	●																						
	CCMT21.52MK	CCMT060208-MK	.031													●	●	●																						
	CCMT32.51MK	CCMT09T304-MK	.016													●	●	●																						
	CCMT32.52MK	CCMT09T308-MK	.031													●	●	●																						
	CCMT431MK	CCMT120404-MK	.016													★	★	●																						
	CCMT432MK	CCMT120408-MK	.031													●	●	●																						
Medium Cutting	**CCMT433MK**	CCMT120412-MK	.047													●	★	★	●																					
MS	**CCMT21.50.5MS**	CCMT060202-MS	.008																		●	●	●																	●
	CCMT21.51MS	CCMT060204-MS	.016																		●	●	●																	●
	CCMT21.52MS	CCMT060208-MS	.031																		●	●	●																	●
	CCMT32.50.5MS	CCMT09T302-MS	.008																		●	●	●																	
	CCMT32.51MS	CCMT09T304-MS	.016																		●	●	●																	●
	CCMT32.52MS	CCMT09T308-MS	.031																		●	●	●																	●
	CCMT431MS	CCMT120404-MS	.016																		●	●	●																	●
	CCMT432MS	CCMT120408-MS	.031																		●	●	●																	●
Medium Cutting	**CCMT433MS**	CCMT120412-MS	.047																		●	●	●																	●

● = NEW

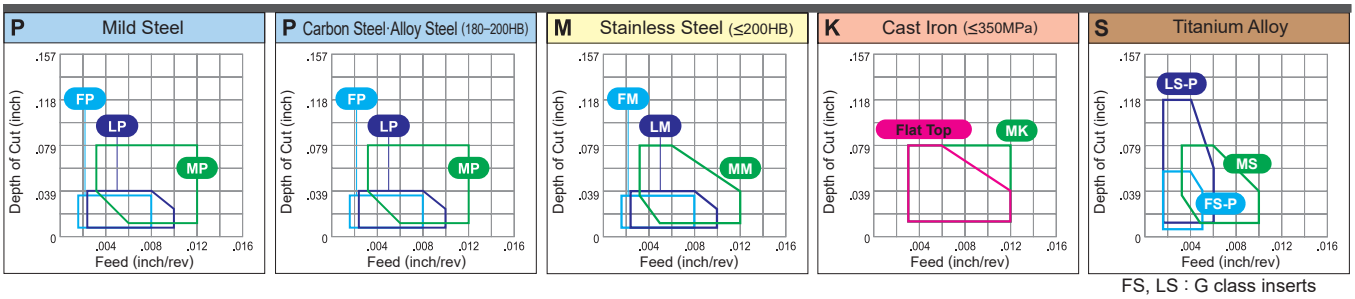
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A064
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° CC TYPE INSERTS WITH HOLE

CCMT 2 1.5 0.5
Size Thickness Corner Radius
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

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



FS, LS : G class inserts

● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

| Workpiece Material | | | Coated | | | | | | | | | | | | | | | | | | | | | | | | Coated Cermet | | | Cermet | | Carbide | | | | | | | | | | | | | | | | | | |

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❁❁● ◐●✣✣● ✣◐○◔❁ ◐○○◔○◔✣
M	Stainless Steel	◔ ◔❁❁ ○○ ○ ✣
K	Cast Iron	◐◐✣◔❁ ◔❁ ○○ ○ ✣○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✣○◐○◔❁ ◔●◐●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide								
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
R/L-SR	**CCET21.5V3RSR**	CCET0602V3R-SR	.001*																							●						★			●					
	CCET21.5V3LSR	CCET0602V3L-SR	.001*																							●						★			●					
	CCET21.50.2RSR	CCET060201R-SR	.004*																							●						★			●					
	CCET21.50.2LSR	CCET060201L-SR	.004*																							●						★			●					
	CCET21.50.5RSR	CCET060202R-SR	.008*																							●						★			●					
	CCET21.50.5LSR	CCET060202L-SR	.008*																							●						★			●					
	CCET21.51RSR	CCET060204R-SR	.016*																							●						★			●					
	CCET21.51LSR	CCET060204L-SR	.016*																							●						★			●					
	CCET32.5V3RSR	CCET09T3V3R-SR	.001*																							●						★			●					
	CCET32.5V3LSR	CCET09T3V3L-SR	.001*																							●						★			●					
	CCET32.50.2RSR	CCET09T301R-SR	.004*																							●						★			●					
	CCET32.50.2LSR	CCET09T301L-SR	.004*																							●						★			●					
	CCET32.50.5RSR	CCET09T302R-SR	.008*																							●						★			●					
	CCET32.50.5LSR	CCET09T302L-SR	.008*																							●						★			●					
	CCET32.51RSR	CCET09T304R-SR	.016*																							●						★			●					
Medium Cutting	**CCET32.51LSR**	CCET09T304L-SR	.016*																							●						★			●					
R/L-SN	**CCGT21.5V3RSN**	CCGT0602V3R-SN	.001																							●														
	CCGT21.50.2RSN	CCGT060201R-SN	.004																							●														
	CCGT21.50.2LSN	CCGT060201L-SN	.004																							●														
	CCGT21.50.5RSN	CCGT060202R-SN	.008																							●														
	CCGT21.50.5LSN	CCGT060202L-SN	.008																							●														
	CCGT32.5V3RSN	CCGT09T3V3R-SN	.001																							●														
	CCGT32.5V3LSN	CCGT09T3V3L-SN	.001																							●														
	CCGT32.50.2RSN	CCGT09T301R-SN	.004																							●														
	CCGT32.50.2LSN	CCGT09T301L-SN	.004																							●														
	CCGT32.50.5RSN	CCGT09T302R-SN	.008																							●														
	CCGT32.50.5LSN	CCGT09T302L-SN	.008																							●														
	CCGT32.51RSN	CCGT09T304R-SN	.016																							●														
	CCGT32.51LSN	CCGT09T304L-SN	.016																							●														
	CCGT21.50.2MRSN	CCGT060201MR-SN	.004*							●					●										●																
	CCGT21.50.2MLSN	CCGT060201ML-SN	.004*							●																															
	CCGT21.50.5MRSN	CCGT060202MR-SN	.008*							●					●										●																
	CCGT21.50.5MLSN	CCGT060202ML-SN	.008*							●																															
	CCGT32.50.2MRSN	CCGT09T301MR-SN	.004*							●					●										●																
	CCGT32.50.2MLSN	CCGT09T301ML-SN	.004*							●																															
	CCGT32.50.5MRSN	CCGT09T302MR-SN	.008*							●					●										●																
	CCGT32.50.5MLSN	CCGT09T302ML-SN	.008*							●																															
	CCGT32.51MRSN	CCGT09T304MR-SN	.016*							●					●										●																
Medium Cutting	**CCGT32.51MLSN**	CCGT09T304ML-SN	.016*							●																															

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

● = NEW

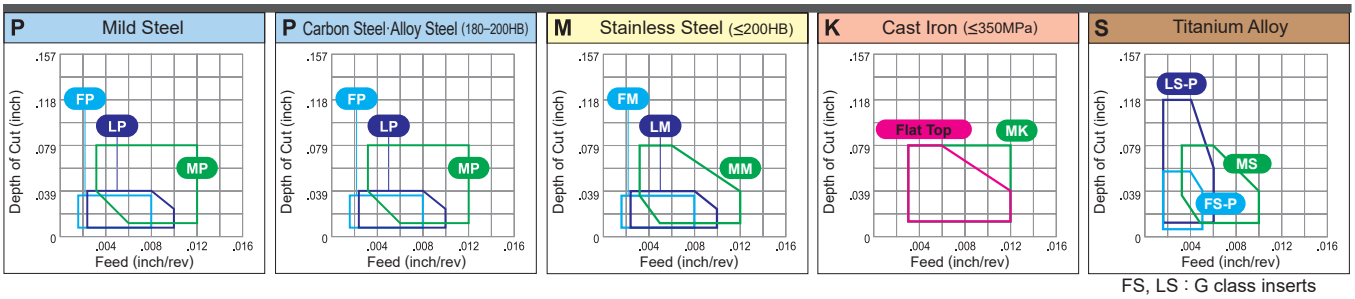
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A064
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° CC TYPE INSERTS WITH HOLE

CCET 2 1.5 V0 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 ---



FS, LS : G class inserts

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

| Workpiece Material | | |

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																								Coated Cermet			Cermet		Carbide							
			NEW										NEW		NEW							NEW																		
			MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		●	✠	○	◔	✠	✠	●															◐			✠	✠	◐	○	○	◔	○	○	◔	✠						○
M	Stainless Steel									●	◐	✠	✠	●									◐		◔	✠	✠		○	○		○		✠							
K	Cast Iron														●	◐	✠	◔	✠						◔	✠			○	○		○		✠	○	◔					○
N	Non-ferrous Metal																																			◔	●				○
S	Heat resistant Alloy, Titanium Alloy																			●	◐	✠	○	◐	○	◔	✠									◔	●	◐	●	◐	

Shape	Order Number	(ISO) Number	RE (inch)	
SMG	**CCGT21.50.2MSMG**	CCGT060201M-SMG	.004*	●
	CCGT21.50.5MSMG	CCGT060202M-SMG	.008*	●
	**CCGT21.51MSMG**	CCGT060204M-SMG	.016*	●
	CCGT32.50.2MSMG	CCGT09T301M-SMG	.004*	●
	CCGT32.50.5MSMG	CCGT09T302M-SMG	.008*	●
Medium Cutting	**CCGT32.51MSMG**	CCGT09T304M-SMG	.016*	●
Flat Top	**CCMW21.50.5**	CCMW060202	.008	★
	CCMW21.51	CCMW060204	.016	●● ★ ★
	CCMW21.52	CCMW060208	.031	●●
	CCMW32.51	CCMW09T304	.016	●● ★
	**CCMW32.52**	CCMW09T308	.031	●● ★ ★
	CCMW32.53	CCMW09T312	.047	●●
	CCMW431	CCMW120404	.016	●● ★
	CCMW432	CCMW120408	.031	●● ★
	CCMW433	CCMW120412	.047	●●
Flat Top	**CCGW21.5V0**	CCGW060200	0	●
	CCGW21.5V5	CCGW0602V5	.002	●
	CCGW21.50.5	CCGW060202	.008	★
	CCGW21.51	CCGW060204	.016	★
	**CCGW21.52**	CCGW060208	.031	★
	CCGW32.5V0	CCGW09T300	0	●
	CCGW32.5V5	CCGW09T3V5	.002	●
	CCGW21.50.5E	CCGW060202E	.008	★
	CCGW21.51E	CCGW060204E	.016	★
	CCGW21.52E	CCGW060208E	.031	★

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

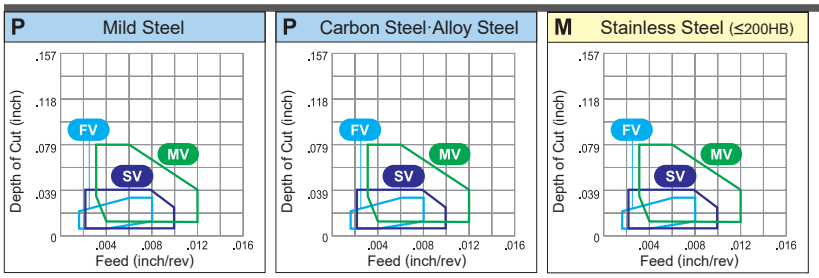
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A064
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° CP TYPE INSERTS WITH HOLE

CPMH 2.5 1.5 0.5 FV
Size Thickness Corner Radius Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting Light Cutting Medium Cutting



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																							Coated Cermet			Cermet		Carbide								
			NEW								NEW		NEW								NEW																		
			MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		●✠○◔✠✠●							●◐✠✠●					●◐✠◔✠							◐		✠✠	◔✠✠		●○○○◔	○◔	✠	○									○
M	Stainless Steel																						◐		◔✠✠		○○	○	✠											
K	Cast Iron														●◐✠◔✠										◔✠✠		○○	○	✠	○◔									○
N	Non-ferrous Metal																																		◔	●					○
S	Heat resistant Alloy, Titanium Alloy																		●◐✠○◐		○◔✠														◔	●◐	◐	◐	◐	◐	

Shape	Order Number	(ISO) Number	RE (inch)																																				
FV	CPMH2.51.50.5FV	CPMH080202-FV	.008	★																					●			●	●★										
	CPMH2.51.51FV	CPMH080204-FV	.016	★																					●			●	●★										
	CPMH320.5FV	CPMH090302-FV	.008	★																					●			●	●★										
	CPMH321FV	CPMH090304-FV	.016	★																					●			●	●★										
Finish Cutting	CPMH322FV	CPMH090308-FV	.031	★																					●			●	●★										
Standard	CPGT2.51.50.5	CPGT080202	.008																																●					
	CPGT2.51.51	CPGT080204	.016																																●					
	CPGT320.5	CPGT090302	.008																																●					
	CPGT321	CPGT090304	.016																																●					
Finish Cutting																																								
R/L-F	CPMH2.51.51RF	CPMH080204R-F	.016																						●				★			●							
	CPMH2.51.51LF	CPMH080204L-F	.016																						●				★			●							
	CPMH321RF	CPMH090304R-F	.016																						●				★			●							
	CPMH321LF	CPMH090304L-F	.016																						●			★	★			●							
Finish Cutting																																								
R/L-F	CPGT2.51.51RF	CPGT080204R-F	.016																													★							
	CPGT2.51.51LF	CPGT080204L-F	.016																													★							
	CPGT320.5RF	CPGT090302R-F	.008																													★							
	CPGT320.5LF	CPGT090302L-F	.008																													★							
	CPGT321RF	CPGT090304R-F	.016																													★							
Finish Cutting	CPGT321LF	CPGT090304L-F	.016																													★							
SQ	CPMT21.50.5SQ	CPMT060202-SQ	.008									●																												
	CPMT21.51SQ	CPMT060204-SQ	.016									●																												
	CPMT21.52SQ	CPMT060208-SQ	.031									●																												
	CPMT32.50.5SQ	CPMT09T302-SQ	.008									●																												
	CPMT32.51SQ	CPMT09T304-SQ	.016									●																												
Finish Cutting	CPMT32.52SQ	CPMT09T308-SQ	.031									●																												

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	● ✣ ○ ◔ ❁ ❁ ● ◐ ✣ ✣ ● ○ ◔ ✣ ❁ ❁ ◐ ○ ○ ◔ ○ ◔ ❁ ○
M	Stainless Steel	● ◐ ✣ ✣ ● ◐ ❁ ❁ ○ ○ ○ ○ ❁
K	Cast Iron	● ◐ ✣ ◔ ❁ ◔ ❁ ❁ ○ ○ ○ ❁ ○ ◔ ○
N	Non-ferrous Metal	◔ ● ○
S	Heat resistant Alloy, Titanium Alloy	◔ ● ◐ ● ● ◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet				Cermet		Carbide								
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
LP NEW  Light Cutting	**CPMH2.51.50.5LP**	CPMH080202-LP	.008		★																																				
	CPMH2.51.51LP	CPMH080204-LP	.016		★																																				
	CPMH320.5LP	CPMH090302-LP	.008		★																																				
	CPMH321LP	CPMH090304-LP	.016		★																																				
	CPMH322LP	CPMH090308-LP	.031		★																																				
SV  Light Cutting	**CPMH2.51.50.5SV**	CPMH080202-SV	.008			●							●												★			●		●	★ ●										
	CPMH2.51.51SV	CPMH080204-SV	.016			●							●												★			●		●	★ ●										
	CPMH320.5SV	CPMH090302-SV	.008			●							●												★			●		●	★ ●										
	CPMH321SV	CPMH090304-SV	.016			●							●												★			●		●	★ ●										
	CPMH322SV	CPMH090308-SV	.031			●							●												★			●		●	★ ●										
Standard  Medium Cutting	**CPMX2.51.51**	CPMX080204	.016																						★			★					★		★							
	CPMX2.51.52	CPMX080208	.031																						★			★							★							
	CPMX321	CPMX090304	.016																						★			★					★		★							
	CPMX322	CPMX090308	.031																						★			★							★							
MV  Medium Cutting	**CPMH2.51.51MV**	CPMH080204-MV	.016		●	●							●						●						●			● ●		●	★ ●										
	CPMH2.51.52MV	CPMH080208-MV	.031		●	●							●						●						●			● ●		●	★ ●										
	CPMH321MV	CPMH090304-MV	.016		●	●							●						●						●			● ●		●	★ ●										
	CPMH322MV	CPMH090308-MV	.031		●	●							●						●						●			● ●		●	★ ●										
MQ  Medium Cutting	**CPMT21.51MQ**	CPMT060204-MQ	.016										●																●													
	CPMT21.52MQ	CPMT060208-MQ	.031										●																●													
	CPMT32.51MQ	CPMT09T304-MQ	.016										●																●													
	CPMT32.52MQ	CPMT09T308-MQ	.031										●																●													
Standard NEW  Medium Cutting	**CPMH2.51.51**	CPMH080204	.016	★	★																																				
	CPMH2.51.52	CPMH080208	.031	★	●																																				
	CPMH321	CPMH090304	.016	★	★																																				
	CPMH322	CPMH090308	.031	★	●																																				

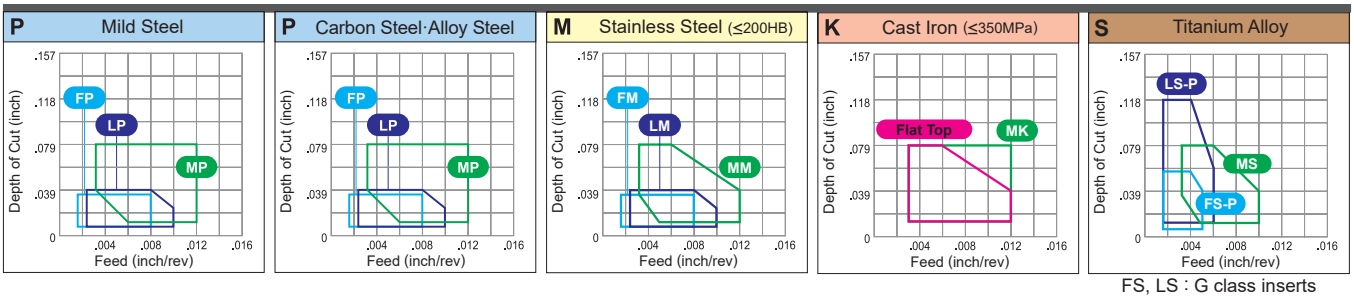
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A072
GRADES ➤ A034
IDENTIFICATION ➤ A002

55° DC TYPE INSERTS WITH HOLE

DCMT 2 1.5 0.5 FP
Size / Thickness / Corner Radius / Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

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



FS, LS : G class inserts

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔✠✠●◐◐✠✠●✠◐✠✠✠●○○○◔○◔✠○
M	Stainless Steel	◐◐✠✠●✠◔✠✠✠○○○✠✠
K	Cast Iron	●◐✠◔✠✠◔✠✠○○○✠✠○◔○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐○◔✠◔●◐●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide									
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FP	DCMT21.50.5FP	DCMT070202-FP	.008	●	●	●	●																						●			●									
	DCMT21.51FP	DCMT070204-FP	.016	●	●	●	●																						●			●									
	DCMT32.50.5FP	DCMT11T302-FP	.008	●	●	●	●																						●			●									
	DCMT32.51FP	DCMT11T304-FP	.016	●	●	●	●																						●			●									
Finish Cutting	DCMT32.52FP	DCMT11T308-FP	.031	●	●	●	●																						●			●									
FM	DCMT21.50.5FM	DCMT070202-FM	.008																							●															
	DCMT21.51FM	DCMT070204-FM	.016																							●															
	DCMT32.50.5FM	DCMT11T302-FM	.008																							●															
	DCMT32.51FM	DCMT11T304-FM	.016																							●															
Finish Cutting	DCMT32.52FM	DCMT11T308-FM	.031																							●															
FS	DCGT21.50.2MFS	DCGT070201M-FS	.004*																		●	●	●																			
	DCGT21.50.5MFS	DCGT070202M-FS	.008*																		●	●	●																			
	NEW DCGT21.51MFS	DCGT070204M-FS	.016*																		●	●	●																			
	DCGT32.50.2MFS	DCGT11T301M-FS	.004*																		●	●	●																			
	DCGT32.50.5MFS	DCGT11T302M-FS	.008*																		●	●	●																			
Finish Cutting	NEW DCGT32.51MFS	DCGT11T304M-FS	.016*																		●	●	●																			
FS-P	DCGT21.50.2MFS-P	DCGT070201M-FS-P	.004*											●										●																	●		
	DCGT21.50.5MFS-P	DCGT070202M-FS-P	.008*											●										●																	●		
	NEW DCGT21.51MFS-P	DCGT070204M-FS-P	.016*											●										●																	●		
	DCGT32.50.2MFS-P	DCGT11T301M-FS-P	.004*											●										●																	●		
	DCGT32.50.5MFS-P	DCGT11T302M-FS-P	.008*											●										●																	●		
Finish Cutting	NEW DCGT32.51MFS-P	DCGT11T304M-FS-P	.016*											●										●																	●		
FV	DCMT21.50.5FV	DCMT070202-FV	.008	★	★																					●				●			★	●							
	DCMT21.51FV	DCMT070204-FV	.016	★	●																					●				●			★	●							
	DCMT21.52FV	DCMT070208-FV	.031		★																					●							●	★							
	DCMT32.50.5FV	DCMT11T302-FV	.008		★																					●							●	★							
	DCMT32.51FV	DCMT11T304-FV	.016	★	●																					●				●			★	●							
Finish Cutting	DCMT32.52FV	DCMT11T308-FV	.031	★	●																					●				●			★	●							

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

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✣: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ❁: Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❁❁●◐✣✣●○◐○○◔○◔❁❁○○○◔○◔❁○
M	Stainless Steel	●◐✣✣●◐○○◔❁❁○○○◔❁○
K	Cast Iron	●◐✣◔❁◔❁❁○○○◔❁○
N	Non-ferrous Metal	◔●
S	Heat resistant Alloy, Titanium Alloy	◔●●●●●

Shape	Order Number	(ISO) Number	RE (inch)	Coated																							Coated Cermet			Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FJ	DCGT21.5V5FJ	DCGT0702V5-FJ	.002																							●														
	DCGT21.50.2FJ	DCGT070201-FJ	.004																							●														
	DCGT21.50.5FJ	DCGT070202-FJ	.008																							●														
	DCGT32.5V5FJ	DCGT11T3V5-FJ	.002																							●														
	DCGT32.50.2FJ	DCGT11T301-FJ	.004																							●														
Finish Cutting	DCGT32.50.5FJ	DCGT11T302-FJ	.008																							●														
FJ-P	DCGT21.5V5FJ-P	DCGT0702V5-FJ-P	.002																																		●			
	DCGT21.50.2FJ-P	DCGT070201-FJ-P	.004																																		●			
	DCGT21.50.5FJ-P	DCGT070202-FJ-P	.008																																		●			
	DCGT32.5V5FJ-P	DCGT11T3V5-FJ-P	.002																																		●			
	DCGT32.50.2FJ-P	DCGT11T301-FJ-P	.004																																		●			
Finish Cutting	DCGT32.50.5FJ-P	DCGT11T302-FJ-P	.008																																		●			
AZ	DCGT21.50.5AZ	DCGT070202-AZ	.008																																●					
	DCGT21.51AZ	DCGT070204-AZ	.016																																●					
	DCGT32.50.5AZ	DCGT11T302-AZ	.008																																●					
	DCGT32.51AZ	DCGT11T304-AZ	.016																																●					
Medium Cutting — Finish Cutting	DCGT32.52AZ	DCGT11T308-AZ	.031																																●					
R/L-F	DCGT21.50.5RF	DCGT070202R-F	.008																							●							★		●					
	DCGT21.50.5LF	DCGT070202L-F	.008																							●				●			★		●					
	DCGT21.51RF	DCGT070204R-F	.016																							●							★		●					
	DCGT21.51LF	DCGT070204L-F	.016																							●				●			★		●					
	DCGT32.50.5RF	DCGT11T302R-F	.008																							●							★		●					
	DCGT32.50.5LF	DCGT11T302L-F	.008																							●				●			★		●					
	DCGT32.51RF	DCGT11T304R-F	.016																							●							★		●					
Finish Cutting	DCGT32.51LF	DCGT11T304L-F	.016																							●				●			★		●					
R-SRF NEW	DCGT32.50.2MRSRF	DCGT11T301MR-SRF	.004*											●										●																
	DCGT32.50.5MRSRF	DCGT11T302MR-SRF	.008*											●										●																
	DCGT32.51MRSRF	DCGT11T304MR-SRF	.016*											●										●																
Finish Cutting																																									
LP	NEW DCMT21.50.5LP	DCMT070202-LP	.008		★																																			
	DCMT21.51LP	DCMT070204-LP	.016	●	●	●	●																							●				●							
	DCMT21.52LP	DCMT070208-LP	.031	★	●	●	●																							●				●							
	NEW DCMT32.50.5LP	DCMT11T302-LP	.008	★	★																																			
	DCMT32.51LP	DCMT11T304-LP	.016	●	●	●	●																							●				●							
Light Cutting	DCMT32.52LP	DCMT11T308-LP	.031	●	●	●	●																							●				●							
LM	DCMT21.51LM	DCMT070204-LM	.016								●	●															●													
	DCMT21.52LM	DCMT070208-LM	.031								●	●															●													
	DCMT32.51LM	DCMT11T304-LM	.016								●	●															●													
	DCMT32.52LM	DCMT11T308-LM	.031								●	●															●													
Light Cutting																																								

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

● = NEW

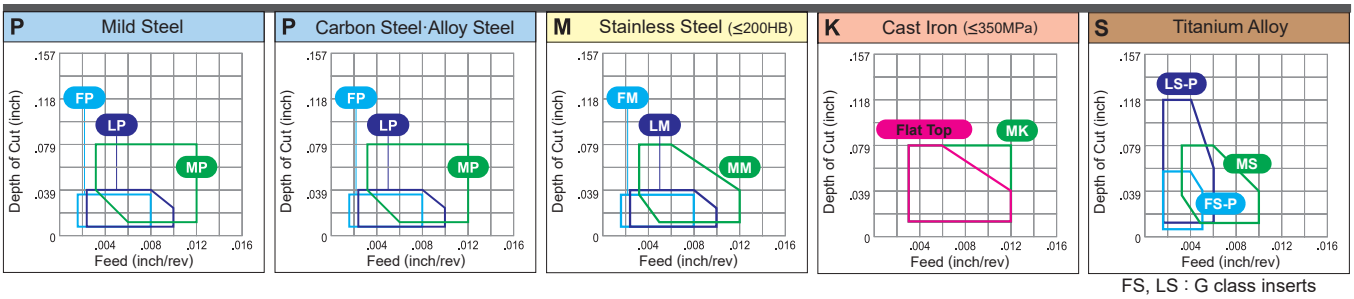
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A064
GRADES ➤ A034
IDENTIFICATION ➤ A002

55° DC TYPE INSERTS WITH HOLE

DCMT 2 1.5 0.5 LS
Size / Thickness / Corner Radius / Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

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



FS, LS : G class inserts

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

Workpiece Material		
P	Steel	●✠○◔✠✠● ●●✠✠● ●●✠◔✠ ●●○○◔ ○◔○ ◔✠ ○
M	Stainless Steel	●◔✠✠● ◔✠✠ ◔ ○○ ○ ✠
K	Cast Iron	●◔✠◔✠ ◔✠ ○○ ○ ✠○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◔✠○◔○◔✠ ◔●◔●◔

Shape	Order Number	(ISO) Number	RE (inch)	Coated																										Coated Cermet				Cermet		Carbide									
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
LS	**DCMT21.50.5LS**	DCMT070202-LS	.008																		●	●	●																	●			
	DCMT21.51LS	DCMT070204-LS	.016																		●	●	●																	●			
	DCMT32.50.5LS	DCMT11T302-LS	.008																		●	●	●																	●			
	DCMT32.51LS	DCMT11T304-LS	.016																		●	●	●																	●			
Light Cutting	**DCMT32.52LS**	DCMT11T308-LS	.031																		●	●	●																	●			
LS	**DCGT21.50.2MLS**	DCGT070201M-LS	.004*																		●	●	●																				
	DCGT21.50.5MLS	DCGT070202M-LS	.008*																		●	●	●																				
	DCGT21.51MLS	DCGT070204M-LS	.016*																		●	●	●																				
	DCGT32.50.2MLS	DCGT11T301M-LS	.004*																		●	●	●																				
	DCGT32.50.5MLS	DCGT11T302M-LS	.008*																		●	●	●																				
Light Cutting	**DCGT32.51MLS**	DCGT11T304M-LS	.016*																		●	●	●																				
LS-P	**DCGT21.50.2MLS-P**	DCGT070201M-LS-P	.004*							●					●									●																	●			
	DCGT21.50.5MLS-P	DCGT070202M-LS-P	.008*							●					●									●																	●			
	DCGT21.51MLS-P	DCGT070204M-LS-P	.016*							●					●									●																	●			
	DCGT32.50.2MLS-P	DCGT11T301M-LS-P	.004*							●					●									●																	●			
	DCGT32.50.5MLS-P	DCGT11T302M-LS-P	.008*							●					●									●																	●			
Light Cutting	**DCGT32.51MLS-P**	DCGT11T304M-LS-P	.016*							●					●									●																	●			
MJ	**DCGT21.51MJ**	DCGT070204-MJ	.016																							●																
	DCGT32.51MJ	DCGT11T304-MJ	.016																							●																
Light Cutting	**DCGT32.52MJ**	DCGT11T308-MJ	.031																							●																
MJ-P	**DCGT21.51MJ-P**	DCGT070204-MJ-P	.016																																		●						
	DCGT32.51MJ-P	DCGT11T304-MJ-P	.016																																		●						
Light Cutting	**DCGT32.52MJ-P**	DCGT11T308-MJ-P	.031																																		●						

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

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✣: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ❃: Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❃❃● ◐●✣✣● ◐✣✣◔❃ ●◐✣○◐○ ✣✣◐○○◔○◔✣ ○◔✣ ○
M	Stainless Steel	◐✣✣ ◔❃❃ ○○ ○ ✣ ○
K	Cast Iron	◐✣✣◔❃ ◔❃ ○○ ○ ✣○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✣○◐○◔❃ ◔●◐●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated																												Coated Cermet			Cermet		Carbide								
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
SV	**DCMT21.50.5SV**	DCMT070202-SV	.008										●													●					●	★	●										
	DCMT21.51SV	DCMT070204-SV	.016										●													●					●	★	●										
	DCMT21.52SV	DCMT070208-SV	.031										●													●					●	★	●										
	DCMT32.50.5SV	DCMT11T302-SV	.008										●													●					●	★	●										
	DCMT32.51SV	DCMT11T304-SV	.016										●													●					●	★	●										
Light Cutting	**DCMT32.52SV**	DCMT11T308-SV	.031										●													●					★	★	●										
R/L-SS	**DCGT21.5V3RSS**	DCGT0702V3R-SS	.001																							●																	
	DCGT21.5V3LSS	DCGT0702V3L-SS	.001																							●																	
	DCGT21.50.2RSS	DCGT070201R-SS	.004																							●																	
	DCGT21.50.2LSS	DCGT070201L-SS	.004																							●																	
	DCGT21.50.5RSS	DCGT070202R-SS	.008																							●																	
	DCGT21.50.5LSS	DCGT070202L-SS	.008																							●																	
	DCGT32.5V3RSS	DCGT11T3V3R-SS	.001																							●																	
	DCGT32.50.2RSS	DCGT11T301R-SS	.004																							●																	
	DCGT32.50.5RSS	DCGT11T302R-SS	.008																							●																	
	DCGT21.50.2MRSS	DCGT070201MR-SS	.004*							●																																		
	DCGT21.50.2MLSS	DCGT070201ML-SS	.004*							●																																		
	DCGT21.50.5MRSS	DCGT070202MR-SS	.008*							●																																		
	DCGT21.50.5MLSS	DCGT070202ML-SS	.008*							●																																		
	DCGT32.50.2MRSS	DCGT11T301MR-SS	.004*							●																																		
	DCGT32.50.2MLSS	DCGT11T301ML-SS	.004*							●																																		
	DCGT32.50.5MRSS	DCGT11T302MR-SS	.008*							●																																		
	DCGT32.50.5MLSS	DCGT11T302ML-SS	.008*							●																																		
	DCGT32.51MRSS	DCGT11T304MR-SS	.016*							●																																		
Light Cutting	**DCGT32.51MLSS**	DCGT11T304ML-SS	.016*							●																																		
MP	NEW **DCMT21.50.5MP**	DCMT070202-MP	.008	★	★																																						
	DCMT21.51MP	DCMT070204-MP	.016	●	●	●	●																							●			●									
	DCMT21.52MP	DCMT070208-MP	.031	★	●	●	●																							●			●									
	NEW **DCMT32.50.5MP**	DCMT11T302-MP	.008	★	●																																					
	DCMT32.51MP	DCMT11T304-MP	.016	●	●	●	●																							●			●									
	DCMT32.52MP	DCMT11T308-MP	.031	●	●	●	●																							●			●									
	NEW **DCMT32.53MP**	DCMT11T312-MP	.047	★	★																																					
	DCMT431MP	DCMT150404-MP	.016	●	●	●	●																							●			●									
	DCMT432MP	DCMT150408-MP	.031	●	●	●	●																							●			●									
Medium Cutting	NEW **DCMT433MP**	DCMT150412-MP	.047	★	★																																					
MM	**DCMT21.51MM**	DCMT070204-MM	.016									●	●													●																	
	DCMT21.52MM	DCMT070208-MM	.031									●	●													●																	
	DCMT32.51MM	DCMT11T304-MM	.016									●	●													●																	
	DCMT32.52MM	DCMT11T308-MM	.031									●	●													●																	
	DCMT431MM	DCMT150404-MM	.016									●	●													●																	
Medium Cutting	**DCMT432MM**	DCMT150408-MM	.031									●	●													●																	

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

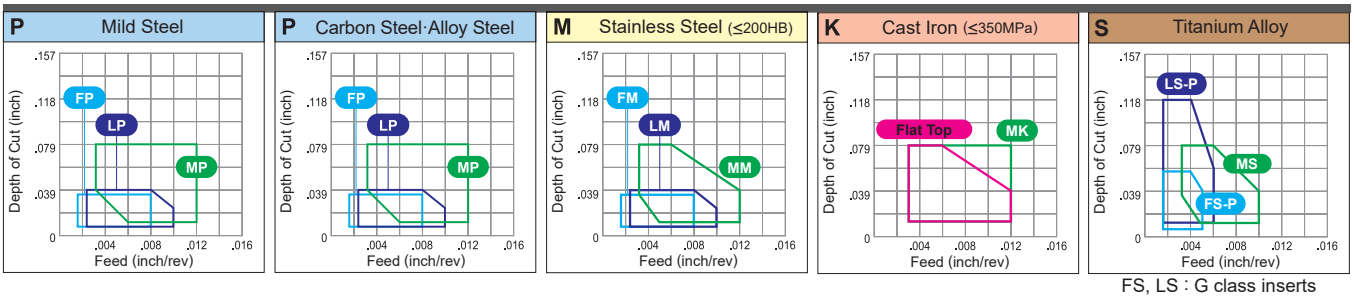
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A064
GRADES ➤ A034
IDENTIFICATION ➤ A002

55° DC TYPE INSERTS WITH HOLE

DCMT 2 1.5 1 MK
Size Thickness Corner Radius Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

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



FS, LS : G class inserts

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

| Workpiece Material | | |

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

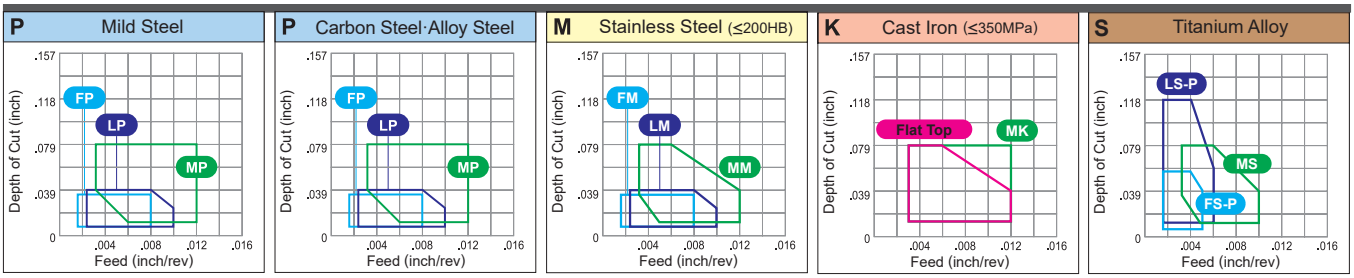
| Workpiece Material | | |

55° DC TYPE INSERTS WITH HOLE

DCET 2 1.5 V0 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



FS, LS : G class inserts

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❁❁●◐◐✣✣●◐✣◔❁○◐○◔○◔❁○
M	Stainless Steel	◐◐✣✣●◐✣◔❁○◐○○○❁
K	Cast Iron	◐◐✣◔❁◔❁○○○❁○◔○
N	Non-ferrous Metal	◔●
S	Heat resistant Alloy, Titanium Alloy	●◐✣○◐○◔❁◔●◐●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated: NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
R/L-SN	DCET21.5V0RSN	DCET070200R-SN	.000*2																								●						★			●						
	DCET21.5V0LSN	DCET070200L-SN	.000*2																								●						★			●						
	DCET21.5V3RSN	DCET0702V3R-SN	.001*2																								●						★			●						
	DCET21.5V3LSN	DCET0702V3L-SN	.001*2																								●						★			●						
	DCET21.50.2RSN	DCET070201R-SN	.004*2																								●						★			●						
	DCET21.50.2LSN	DCET070201L-SN	.004*2																								●						★			●						
	DCET21.50.5RSN	DCET070202R-SN	.008*2																								●						★			●						
	DCET21.50.5LSN	DCET070202L-SN	.008*2																								●						★			●						
	DCET21.51RSN	DCET070204R-SN	.016*2																								●						★			●						
	DCET21.51LSN	DCET070204L-SN	.016*2																								●						★			●						
	DCET32.5V0RSN	DCET11T300R-SN	0*2																								●						★			●						
	DCET32.5V0LSN	DCET11T300L-SN	0*2																								●						★			●						
	DCET32.5V3RSN	DCET11T3V3R-SN	.001*2																								●						★			●						
	DCET32.5V3LSN	DCET11T3V3L-SN	.001*2																								●						★			●						
	DCET32.50.2RSN	DCET11T301R-SN	.004*2																								●						★			●						
	DCET32.50.2LSN	DCET11T301L-SN	.004*2																								●						★			●						
	DCET32.50.5RSN	DCET11T302R-SN	.008*2																								●						★			●						
	DCET32.50.5LSN	DCET11T302L-SN	.008*2																								●						★			●						
	DCET32.51RSN	DCET11T304R-SN	.016*2																								●						★			●						
Medium Cutting	DCET32.51LSN	DCET11T304L-SN	.016*2																								●						★			●						
*1R/LW-SN	DCET21.5V3RWSN	DCET0702V3RW-SN	.001*2																								●															
	DCET21.5V3LWSN	DCET0702V3LW-SN	.001*2																								●															
	DCET32.5V3RWSN	DCET11T3V3RW-SN	.001*2																								●															
Medium Cutting (Wiper)	DCET32.5V3LWSN	DCET11T3V3LW-SN	.001*2																								●															

*1 Please refer to page A032 before using the R/LW SN breaker (wiper insert).
*2 Indicates the maximum value of the corner R. For more details, see page D003.

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material			Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide								
							NEW								NEW		NEW								NEW																			
							MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
	P	Steel					●	✠	○	◔	✠	✠	●															✠	✠	◕	○	○	◔	○	◔	✠							○
	M	Stainless Steel												●	◕	✠	✠	●				◕					◔	✠	✠		○	○		○		✠							
	K	Cast Iron																	●	◕	✠	◔	✠					◔	✠		○	○		○		✠	○	◔					○
	N	Non-ferrous Metal																																				◔	●				○
	S	Heat resistant Alloy, Titanium Alloy																						●	◕	✠	○	◕	○	◔	✠								◔	●	◕	●	◕		
			SMG	**DCGT21.50.2MSMG**	DCGT070201M-SMG	.004*							●																	●														
				DCGT21.50.5MSMG	DCGT070202M-SMG	.008*							●																	●														
				**DCGT21.51MSMG**	DCGT070204M-SMG	.016*							●																	●														
				DCGT32.50.2MSMG	DCGT11T301M-SMG	.004*							●																															
				DCGT32.50.5MSMG	DCGT11T302M-SMG	.008*							●																	●														
			Medium Cutting	**DCGT32.51MSMG**	DCGT11T304M-SMG	.016*							●																	●														
			Flat Top	**DCMW21.51**	DCMW070204	.016															●	●																	★					
				DCMW32.51	DCMW11T304	.016															●	●																●	★					
				**DCMW32.52**	DCMW11T308	.031															●	●																	★					
				DCMW431	DCMW150404	.016																																	★					
				DCMW432	DCMW150408	.031																																	★					
			Flat Top	**DCGW21.5V0**	DCGW070200	0																																	★					
				DCGW21.5V5	DCGW0702V5	.002																																	★					
				**DCGW32.5V0**	DCGW11T300	0																																	★					
				DCGW32.5V5	DCGW11T3V5	.002																																	★					

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

EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A064
GRADES ➤ A034
IDENTIFICATION ➤ A002

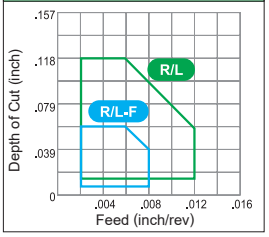
55° DE TYPE INSERTS WITH HOLE

DEGX 4 3 0.5 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

N Aluminum Alloy



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material			Shape	Order Number	(ISO) Number	RE (inch)	Coated																										Coated Cermet				Cermet		Carbide								
							NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
	P	Steel	R/L-F	**DEGX430.5RF**	DEGX150402R-F	.008																																		★						
	M	Stainless Steel		**DEGX430.5LF**	DEGX150402L-F	.008																																		★						
	K	Cast Iron		**DEGX431RF**	DEGX150404R-F	.016																																		★						
	N	Non-ferrous Metal		**DEGX431LF**	DEGX150404L-F	.016																																		★						
	S	Heat resistant Alloy, Titanium Alloy	Finish Cutting (For Aluminium Alloy)																																											
			R/L	**DEGX430.5R**	DEGX150402R	.008																																		●						
				DEGX430.5L	DEGX150402L	.008																																		●						
				DEGX431R	DEGX150404R	.016																																		●						
				DEGX431L	DEGX150404L	.016																																		●						
			Medium Cutting (For Aluminium Alloy)	**DEGX432R**	DEGX150408R	.031																																		●						

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

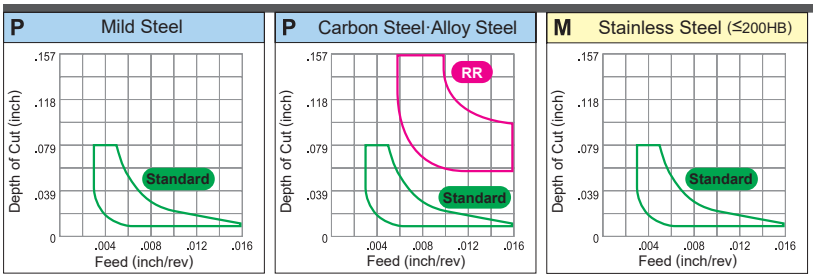
CHIP BREAKER ➤ A076

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···



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

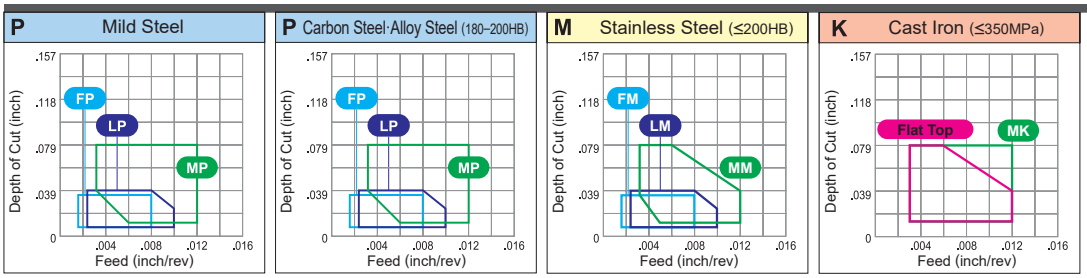
| Workpiece Material | | | Coated | | | | | | | | | | | | | | | | | | | | | | | | Coated Cermet | | | Cermet | | | Carbide | | | | | | | | | | | | | | | | | | |

90° SC TYPE INSERTS WITH HOLE

SCMT 3 2.5 1 FP
Size Thickness Corner Radius Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting Light Cutting Medium Cutting



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

| Workpiece Material | | |

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																								Coated Cermet			Cermet		Carbide							
			NEW									NEW		NEW						NEW																			
			MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		●	✠	○	◔	✠	✠	●																		✠	✠	◐	○	○	◔	○	◔	✠						○
M	Stainless Steel									●	◐	✠	✠	●									◐		◔	✠	✠		○	○		○		✠						
K	Cast Iron														●	◐	✠	◔	✠						◔	✠			○	○		○		✠	○	◔				○
N	Non-ferrous Metal																																			◔	●				○
S	Heat resistant Alloy, Titanium Alloy																			●	◐	✠	○	◐	○	◔	✠									◔	●	◐	●	◐	

Shape	Order Number	(ISO) Number	RE (inch)																																					
MM	**SCMT32.51MM**	SCMT09T304-MM	.016								●	●														●													
	**SCMT32.52MM**	SCMT09T308-MM	.031								●	●														●													
	SCMT431MM	SCMT120404-MM	.016								●	●														●													
	SCMT432MM	SCMT120408-MM	.031								●	●														●													
Medium Cutting																																								
MK	**SCMT32.51MK**	SCMT09T304-MK	.016														●	●																						
	**SCMT32.52MK**	SCMT09T308-MK	.031														●	●																						
	SCMT431MK	SCMT120404-MK	.016														●	●																						
	SCMT432MK	SCMT120408-MK	.031														●	●																						
Medium Cutting																																								
MS	**SCMT32.51MS**	SCMT09T304-MS	.016																	●	●	●																		
	**SCMT32.52MS**	SCMT09T308-MS	.031																	●	●	●																		
	SCMT431MS	SCMT120404-MS	.016																	●	●	●																		
	SCMT432MS	SCMT120408-MS	.031																	●	●	●																		
Medium Cutting	**SCMT433MS**	SCMT120412-MS	.047																	●	●	●																		
Standard	**SCMT32.51**	SCMT09T304	.016										●																●	●			★	●	●					
	**SCMT32.52**	SCMT09T308	.031										●																●	●			★	●	★					
	SCMT431	SCMT120404	.016										●																●				★	●						
	SCMT432	SCMT120408	.031										●																●	●			★	●	★					
Medium Cutting																																								
Flat Top	**SCMW32.51**	SCMW09T304	.016														●	●																	★		★				
	**SCMW32.52**	SCMW09T308	.031														●	●																						
	SCMW432	SCMW120408	.031														●	●																						

● = NEW

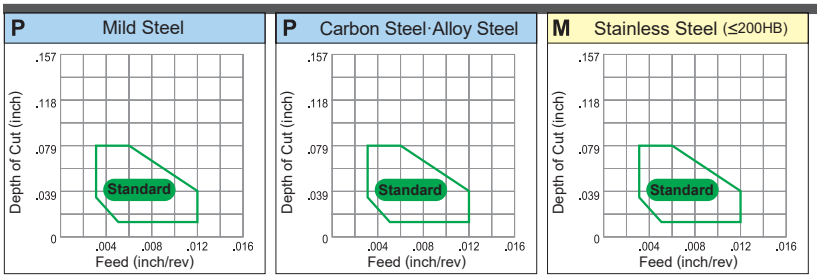
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A064
GRADES ➤ A034
IDENTIFICATION ➤ A002

90° SP TYPE INSERTS WITH HOLE

SPMT 3 2 1
Size Thickness Corner Radius
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																								Coated Cermet			Cermet	Carbide								
			NEW									NEW		NEW							NEW																		
			MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
	P	Steel	●	✠	○	◔	❁	❁	●																	❁	❁	◐	○	○	○	◔	○	◔	❁								○
	M	Stainless Steel								●	◐	✠	✠	●									◐		◔	❁	❁		○	○		○		✠								
	K	Cast Iron													●	◐	✠	◔	❁						◔	❁			○	○		○		✠	○	◔						○
	N	Non-ferrous Metal																																		◔	●					○
	S	Heat resistant Alloy, Titanium Alloy																		●	◐	✠	○	◐	○	◔	❁									◔	●	◐	●	◐		
Shape	Order Number	(ISO) Number	RE (inch)																																					
Standard	SPMT321	SPMT090304	.016																												★									
	SPMT322	SPMT090308	.031																												★									
	SPMT422	SPMT120308	.031																												★		★							
Medium Cutting																																								
Flat Top	SPMW321	SPMW090304	.016																							●	★				★		★	★						
	SPMW322	SPMW090308	.031																							★	★				★		★	★						
	SPMW421	SPMW120304	.016																							●	●				★		●							
	SPMW422	SPMW120308	.031																							●	●				★		●							
Flat Top	SPGX321	SPGX090304	.016																												★						★			
	SPGX322	SPGX090308	.031																																		★			
	SPGX421	SPGX120304	.016																																		★			
	SPGX422	SPGX120308	.031																																		★			

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

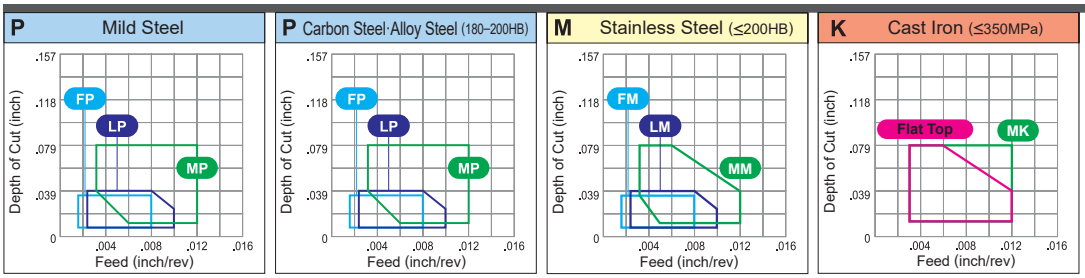
CHIP BREAKER ➤ A072

60° TC TYPE INSERTS WITH HOLE

TCMT 1.8 1.5 0.5 FP
Size Thickness Corner Radius Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting Light Cutting Medium Cutting



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	● ✠ ○ ◔ ✠ ✠ ● ◐ ● ✠ ✠ ● ✠ ✠ ✠ ◐ ○ ○ ○ ◔ ○ ◔ ✠ ○
M	Stainless Steel	● ◐ ✠ ✠ ● ◐ ✠ ✠ ✠ ○ ◔ ✠ ✠ ○ ○ ○ ○ ✠
K	Cast Iron	● ◐ ✠ ◔ ✠ ◔ ✠ ✠ ○ ○ ○ ✠ ○ ◔ ● ○
N	Non-ferrous Metal	◔ ● ○
S	Heat resistant Alloy, Titanium Alloy	● ◐ ✠ ○ ◐ ○ ◔ ✠ ✠ ◔ ● ◐ ● ◐ ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated: NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FP	**TCMT1.81.50.5FP**	TCMT090202-FP	.008	★	★	●	●																						●				●										
	TCMT1.81.51FP	TCMT090204-FP	.016	●	★	●	●																						●				●										
	TCMT21.50.5FP	TCMT110202-FP	.008	●	●	●	●																						●				●										
	TCMT21.51FP	TCMT110204-FP	.016	●	●	●	●																						●				●										
Finish Cutting	**TCMT32.51FP**	TCMT16T304-FP	.016	★	★	●	●																						●				●										
FM	**TCMT1.81.50.5FM**	TCMT090202-FM	.008																								●																
	TCMT1.81.51FM	TCMT090204-FM	.016																								●																
	TCMT21.50.5FM	TCMT110202-FM	.008																								●																
	TCMT21.51FM	TCMT110204-FM	.016																								●																
Finish Cutting	**TCMT32.51FM**	TCMT16T304-FM	.016																								●																
FV	**TCMT21.51FV**	TCMT110204-FV	.016		●																									●		★	★	●									
	TCMT32.51FV	TCMT16T304-FV	.016		★																									●			★	●									
Finish Cutting																																												
FJ-P	**TCGT21.5V5FJ-P**	TCGT1102V5-FJ-P	.002																																					●				
	TCGT21.50.2FJ-P	TCGT110201-FJ-P	.004																																					●				
	TCGT21.50.5FJ-P	TCGT110202-FJ-P	.008																																					●				
	TCGT32.5V5FJ-P	TCGT16T3V5-FJ-P	.002																																					●				
	TCGT32.50.2FJ-P	TCGT16T301-FJ-P	.004																																					●				
Finish Cutting	**TCGT32.50.5FJ-P**	TCGT16T302-FJ-P	.008																																					●				
AZ	**TCGT21.50.5AZ**	TCGT110202-AZ	.008																																			●					
	TCGT21.51AZ	TCGT110204-AZ	.016																																			●					
	TCGT21.52AZ	TCGT110208-AZ	.031																																			●					
	TCGT32.50.5AZ	TCGT16T302-AZ	.008																																			●					
	TCGT32.51AZ	TCGT16T304-AZ	.016																																			●					
Medium Cutting-Finish Cutting	**TCGT32.52AZ**	TCGT16T308-AZ	.031																																			●					

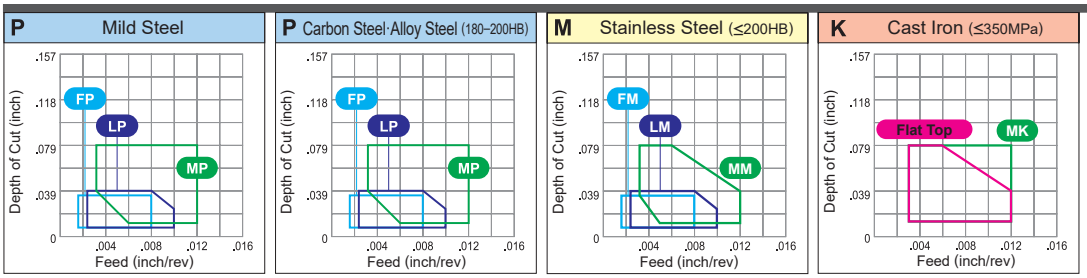
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A064
GRADES ➤ A034
IDENTIFICATION ➤ A002

60° TC TYPE INSERTS WITH HOLE

TCGT 1.2 1 V3 L 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



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔✠✠●◐◐✠✠●◐◐✠◔✠✠◐○○◔○◔✠○✠✠◔○
M	Stainless Steel	◐◐✠✠●◐✠✠✠○○○✠✠
K	Cast Iron	●◐✠◔✠◔✠✠○○○✠✠○◔●◐○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐○◔✠◔●◐●◐ ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet	Carbide								
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
R/L-F	TCGT1.21V3LF	TCGT0601V3L-F	.001																												★										
	TCGT1.210.2LF	TCGT060101L-F	.004																								●				★										
	TCGT1.210.5RF	TCGT060102R-F	.008																								★				★				★						
	TCGT1.210.5LF	TCGT060102L-F	.008																								●				★				●						
	TCGT1.211RF	TCGT060104R-F	.016																												★				★						
	TCGT1.211LF	TCGT060104L-F	.016																								●				★				●						
	TCGT1.210.2MRF	TCGT060101MR-F	.004*							●																															
	TCGT1.210.2MLF	TCGT060101ML-F	.004*							●																															
	TCGT1.210.5MRF	TCGT060102MR-F	.008*							●																															
	TCGT1.210.5MLF	TCGT060102ML-F	.008*							●																															
	TCGT1.211MRF	TCGT060104MR-F	.016*							●																															
Finish Cutting	TCGT1.211MLF	TCGT060104ML-F	.016*							●																															
LP	TCMT1.81.51LP	TCMT090204-LP	.016	★	★	●	●																							●			●								
	TCMT1.81.52LP	TCMT090208-LP	.031	★	★	●	●																							●			●								
	TCMT21.51LP	TCMT110204-LP	.016	●	●	●	●																							●			●								
	TCMT21.52LP	TCMT110208-LP	.031	★	●	●	●																							●			●								
	TCMT32.51LP	TCMT16T304-LP	.016	●	★	●	●																							●			●								
Light Cutting	TCMT32.52LP	TCMT16T308-LP	.031	●	●	●	●																							●			●								
LM	TCMT1.81.51LM	TCMT090204-LM	.016									●	●														●														
	TCMT1.81.52LM	TCMT090208-LM	.031									●	●														●														
	TCMT21.51LM	TCMT110204-LM	.016									●	●														●														
	TCMT21.52LM	TCMT110208-LM	.031									●	●														●														
	TCMT32.51LM	TCMT16T304-LM	.016									●	●														●														
Light Cutting	TCMT32.52LM	TCMT16T308-LM	.031									●	●														●														
LS	TCMT1.81.50.5LS	TCMT090202-LS	.008																		●	●	●																●		
	TCMT21.50.5LS	TCMT110202-LS	.008																		●	●	●																●		
Light Cutting																																								

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

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material			Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide									
							NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		MJ	TCGT21.51MJ	TCGT110204-MJ	.016																							●															
M	Stainless Steel			TCGT32.51MJ	TCGT16T304-MJ	.016																							●															
K	Cast Iron			TCGT32.52MJ	TCGT16T308-MJ	.031																							●															
N	Non-ferrous Metal																																												
S	Heat resistant Alloy, Titanium Alloy		Light Cutting																																										
			MJ-P	TCGT21.51MJ-P	TCGT110204-MJ-P	.016																																			●			
				TCGT32.51MJ-P	TCGT16T304-MJ-P	.016																																			●			
			Light Cutting	TCGT32.52MJ-P	TCGT16T308-MJ-P	.031																																			●			
			MP	TCMT1.81.51MP	TCMT090204-MP	.016	●	●	●	●																							●			●								
				TCMT1.81.52MP	TCMT090208-MP	.031	★	★	●	●																							●			●								
				NEW TCMT21.50.5MP	TCMT110202-MP	.008	★	★																																				
				TCMT21.51MP	TCMT110204-MP	.016	●	●	●	●																							●			●								
				TCMT21.52MP	TCMT110208-MP	.031	●	●	●	●																							●			●								
				TCMT2.521MP	TCMT130304-MP	.016	★	●	●	●																							●			●								
				TCMT32.51MP	TCMT16T304-MP	.016	●	●	●	●																							●			●								
				TCMT32.52MP	TCMT16T308-MP	.031	●	●	●	●																							●			●								
			Medium Cutting	TCMT32.53MP	TCMT16T312-MP	.047	●	★	●	●																							●			●								
			MM	TCMT1.81.51MM	TCMT090204-MM	.016								●	●															●														
				TCMT1.81.52MM	TCMT090208-MM	.031								●	●															●														
				TCMT21.51MM	TCMT110204-MM	.016								●	●															●														
				TCMT21.52MM	TCMT110208-MM	.031								●	●															●														
				TCMT2.521MM	TCMT130304-MM	.016								●	●															●														
				TCMT32.51MM	TCMT16T304-MM	.016								●	●															●														
				TCMT32.52MM	TCMT16T308-MM	.031								●	●															●														
			Medium Cutting	TCMT32.53MM	TCMT16T312-MM	.047								●	●															●														
			MK	TCMT21.51MK	TCMT110204-MK	.016															●	●																							
				TCMT21.52MK	TCMT110208-MK	.031															●	●																							
				TCMT32.51MK	TCMT16T304-MK	.016															●	●																							
				TCMT32.52MK	TCMT16T308-MK	.031															●	●																							
			Medium Cutting	TCMT32.53MK	TCMT16T312-MK	.047															●	●																							
			MS	TCMT1.81.51MS	TCMT090204-MS	.016																		●	●	●																	●		
				TCMT1.81.52MS	TCMT090208-MS	.031																		●	●	●																	●		
				TCMT21.51MS	TCMT110204-MS	.016																		●	●	●																			
				TCMT21.52MS	TCMT110208-MS	.031																		●	●	●																			
				TCMT32.51MS	TCMT16T304-MS	.016																		●	●	●																	●		
				TCMT32.52MS	TCMT16T308-MS	.031																		●	●	●																	●		
			Medium Cutting	TCMT32.53MS	TCMT16T312-MS	.047																		●	●	●																	●		

● = NEW

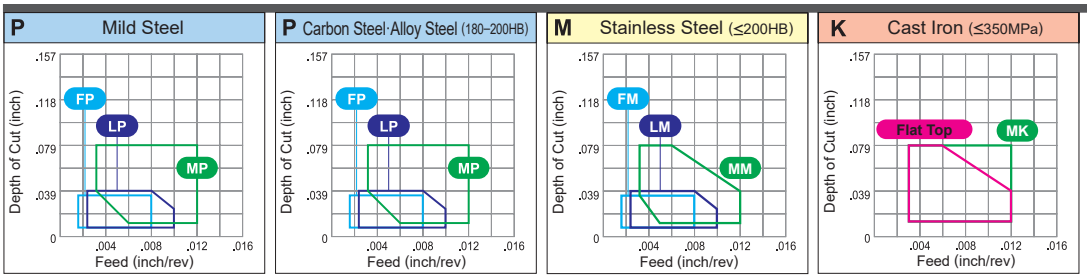
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A064
GRADES ➤ A034
IDENTIFICATION ➤ A002

60° TC TYPE INSERTS WITH HOLE

TCMT 1.5 1.5 1
Size Thickness Corner Radius
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

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



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁● ●◕●✠✠● ○◕✠✠❁ ◕○○○◔○◔❁ ●◔○❁❁◕ ●◕●●●◕ ○
M	Stainless Steel	●◕●✠✠● ◕❁❁❁ ○○ ○ ❁ ◔❁❁❁ ○○ ○ ❁ ◕ ● ○
K	Cast Iron	●◕●✠◔❁ ◔❁❁ ○○ ○ ❁ ○◔◕ ○
N	Non-ferrous Metal	◔● ● ○
S	Heat resistant Alloy, Titanium Alloy	●◕●✠○◕○◔❁ ◔● ◕●●◕ ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet				Cermet		Carbide									
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
Standard	**TCMT1.51.51**	TCMT080204	.016																										●				●	★								
	TCMT1.81.51	TCMT090204	.016											★																●	●			★	●	★		●					
	TCMT21.50.5	TCMT110202	.008											●														●						★	●								
	TCMT21.51	TCMT110204	.016											●														●						★	●	●		●					
	TCMT21.52	TCMT110208	.031																									●															
	TCMT2.520.5	TCMT130302	.008																									●	●														
	TCMT2.521	TCMT130304	.016											●														●						●									
	TCMT32.51	TCMT16T304	.016											●														●	●					★	●	●		●					
Medium Cutting	**TCMT32.52**	TCMT16T308	.031											●														●	●					★	●	●		●					
Flat Top	**TCMW21.51**	TCMW110204	.016															●	●																		★						
	TCMW2.521	TCMW130304	.016																																		★						
	TCMW32.51	TCMW16T304	.016															●	●																		★						
	TCMW32.52	TCMW16T308	.031															●	●																		★						
	TCMW32.53	TCMW16T312	.047															●	●																								
Flat Top	**TCGW21.51**	TCGW110204	.016																																								★
	TCGW21.51E	TCGW110204E	.016																															★									
	TCGW21.52	TCGW110208	.031																																								★
	TCGW21.52E	TCGW110208E	.031																															★									

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

CHIP BREAKER ➤ A064

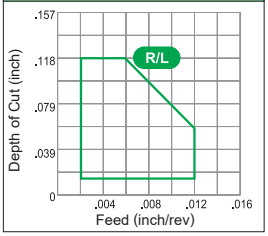
60° TE TYPE INSERTS WITH HOLE

TEGX 3 2 0.5 R
Size Thickness Corner Radius R/L
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting···

N Aluminum Alloy



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁● ◕✠✠● ✠✠◕○○○◔○◔✠ ○
M	Stainless Steel	◕◕✠✠● ◔ ✠❁❁ ○○ ○ ✠
K	Cast Iron	●◕✠◔❁ ◔✠❁ ○○ ○ ✠○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◕✠○◕○◔❁ ◔●◕●◕

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet				Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
R/L	**TEGX320.5R**	TEGX160302R	.008																																	●						
	TEGX320.5L	TEGX160302L	.008																																	●						
	TEGX321R	TEGX160304R	.016																																	●						
	TEGX321L	TEGX160304L	.016																																	●						
Medium Cutting (For Aluminium Alloy)																																									

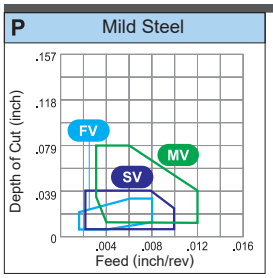
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A076
GRADES ➤ A034
IDENTIFICATION ➤ A002

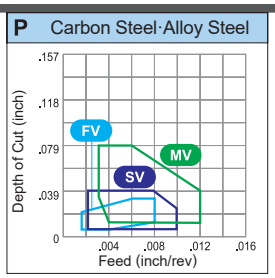
60° TP TYPE INSERTS WITH HOLE

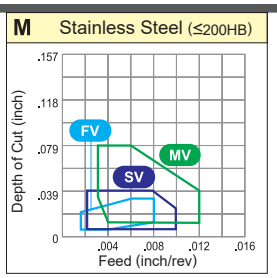
TPMH 1.5 1.5 0.5 FV
Size / Thickness / Corner Radius / Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

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







● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✣○◔❁❁●◐◐✣✣●●◐✣◔❁❁◐○○◔○◔❁❁○
M	Stainless Steel	●◐◐✣✣●◐◔❁❁○○○❁❁
K	Cast Iron	●◐✣◔❁◔❁❁○○○❁○◔●●○
N	Non-ferrous Metal	◔●○
S	Heat resistant Alloy, Titanium Alloy	●◐✣○◐○◔❁◔●●●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated: MC6115 (NEW)	MC6125 (NEW)	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025 (NEW)	MC5105 (NEW)	MC5115 (NEW)	MC5125 (NEW)	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FV	TPMH1.51.50.5FV	TPMH080202-FV	.008	★																							●				●★											
	TPMH1.51.51FV	TPMH080204-FV	.016	★																							●				●★											
	TPMH1.81.50.5FV	TPMH090202-FV	.008	●																							●				●★											
	TPMH1.81.51FV	TPMH090204-FV	.016	★																							●				●★											
	TPMH220.5FV	TPMH110302-FV	.008	★																							●				●★											
	TPMH221FV	TPMH110304-FV	.016	★																							●				●★											
	TPMH222FV	TPMH110308-FV	.031	★																							●				●★											
	TPMH320.5FV	TPMH160302-FV	.008	★																							●				●★											
	TPMH321FV	TPMH160304-FV	.016	★																							●				●★											
Finish Cutting	TPMH322FV	TPMH160308-FV	.031	●																							●				●★											
R/L-FS	TPGH1.51.50.5RFS	TPGH080202R-FS	.008																								●				★					●						
	TPGH1.51.50.5LFS	TPGH080202L-FS	.008																								●				●★				★							
	TPGH1.51.51RFS	TPGH080204R-FS	.016																								●				★					●						
	TPGH1.51.51LFS	TPGH080204L-FS	.016																								●				●★				★							
	TPGH1.81.50.5RFS	TPGH090202R-FS	.008																								●				★					●						
	TPGH1.81.50.5LFS	TPGH090202L-FS	.008																								●				●★				★							
	TPGH1.81.51RFS	TPGH090204R-FS	.016																								●				★					●						
	TPGH1.81.51LFS	TPGH090204L-FS	.016																								●				●★				★							
	TPGH220.5RFS	TPGH110302R-FS	.008																								●				★					●						
	TPGH220.5LFS	TPGH110302L-FS	.008																								●				●★				★							
	TPGH221RFS	TPGH110304R-FS	.016																								●				★					●						
	TPGH221LFS	TPGH110304L-FS	.016																								●				●★				★							
	TPGH321RFS	TPGH160304R-FS	.016																								●				★					●						
	TPGH321LFS	TPGH160304L-FS	.016																								●				★					●						
	TPGH322RFS	TPGH160308R-FS	.031																								●				★					●						
Finish Cutting	TPGH322LFS	TPGH160308L-FS	.031																								●				★					●						

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✠: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ❁: Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁● ◐●✠✠● ◐◔✠❁ ✠◐○○◔○◔✠ ○
M	Stainless Steel	◐●✠✠● ◐ ◔✠❁❁ ○○ ○ ✠
K	Cast Iron	●◐✠◔❁ ◔✠❁ ○○ ○ ✠○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐○◔✠ ◔●◐●◐ ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																										Coated Cermet			Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	NEW MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
SQ	**TPMT1.81.51SQ**	TPMT090204-SQ	.016										●																												
	TPMT21.50.5SQ	TPMT110202-SQ	.008										●																												
	TPMT21.51SQ	TPMT110204-SQ	.016										●																												
	TPMT21.52SQ	TPMT110208-SQ	.031										●																												
	TPMT32.51SQ	TPMT16T304-SQ	.016										●																												
Finish Cutting	**TPMT32.52SQ**	TPMT16T308-SQ	.031										●																												
R/L	**TPGX1.51.50.5R**	TPGX080202R	.008																														★									
	TPGX1.51.50.5L	TPGX080202L	.008																														★		★		●					
	TPGX1.51.51R	TPGX080204R	.016																														★				★					
	TPGX1.51.51L	TPGX080204L	.016																										★				★		★		●					
	TPGX1.81.50.5R	TPGX090202R	.008																														★									
	TPGX1.81.50.5L	TPGX090202L	.008																														★		★		●					
	TPGX1.81.51R	TPGX090204R	.016																														★				●					
	TPGX1.81.51L	TPGX090204L	.016																										★				★		★		●					
	TPGX1.81.52R	TPGX090208R	.031																																		★					
	TPGX1.81.52L	TPGX090208L	.031																														★				★					
	TPGX220.5L	TPGX110302L	.008																														★		★		★					
	TPGX221R	TPGX110304R	.016																										★				★				★					
	TPGX221L	TPGX110304L	.016																										★				★		★		★					
	TPGX222R	TPGX110308R	.031																														★				★					
Finish Cutting	**TPGX222L**	TPGX110308L	.031																										★				★		★	★	●					
L	**TPMX1.81.51L**	TPMX090204L	.016																														★									
	TPMX221L	TPMX110304L	.016																														★									
Finish Cutting																																										
LP NEW	**TPMH1.51.50.5LP**	TPMH080202-LP	.008		★																																				
	TPMH1.51.51LP	TPMH080204-LP	.016		★																																				
	TPMH1.81.50.5LP	TPMH090202-LP	.008		★																																				
	TPMH1.81.51LP	TPMH090204-LP	.016		★																																				
	TPMH220.5LP	TPMH110302-LP	.008		★																																				
	TPMH221LP	TPMH110304-LP	.016		★																																				
	TPMH222LP	TPMH110308-LP	.031		★																																				
	TPMH320.5LP	TPMH160302-LP	.008		★																																				
	TPMH321LP	TPMH160304-LP	.016		●																																				
Light Cutting	**TPMH322LP**	TPMH160308-LP	.031		●																																				

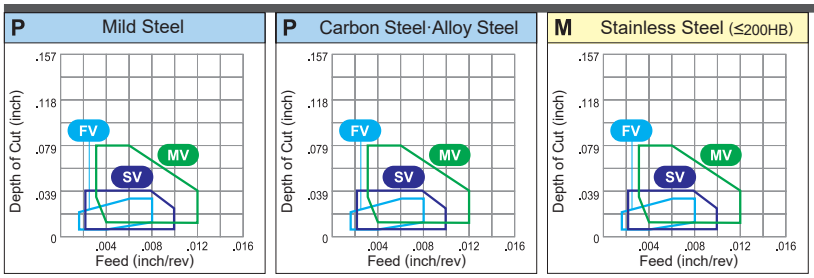
EXTERNAL TURNING ➤ –
BORING ➤ E002
CHIP BREAKER ➤ A072
GRADES ➤ A034
IDENTIFICATION ➤ A002

60° TP TYPE INSERTS WITH HOLE

TPMH 1.5 1.5 0.5 SV
Size / Thickness / Corner Radius / Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting Light Cutting Medium Cutting



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

| Workpiece Material | | |

● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																								Coated Cermet			Cermet		Carbide							
			NEW										NEW		NEW								NEW																
Shape	Order Number	(ISO) Number	RE (inch)	MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
Flat Top	**TPGX1.51.50.5**	TPGX080202	.008																																●		●					
	TPGX1.51.51	TPGX080204	.016																									★★					★		●		●					
	TPGX1.51.52	TPGX080208	.031																														★		●		★					
	TPGX1.81.50.5	TPGX090202	.008																																		●					
	TPGX1.81.51	TPGX090204	.016																										★					★		●		●					
	TPGX1.81.52	TPGX090208	.031																										★					★		●		●					
	TPGX220.5	TPGX110302	.008																																		●					
	TPGX221	TPGX110304	.016																										★★					★		●	★	●					
	TPGX222	TPGX110308	.031																										★					★		●	★	●					
	TPGX321	TPGX160304	.016																															★		★		●					
	TPGX322	TPGX160308	.031																																	★		●					

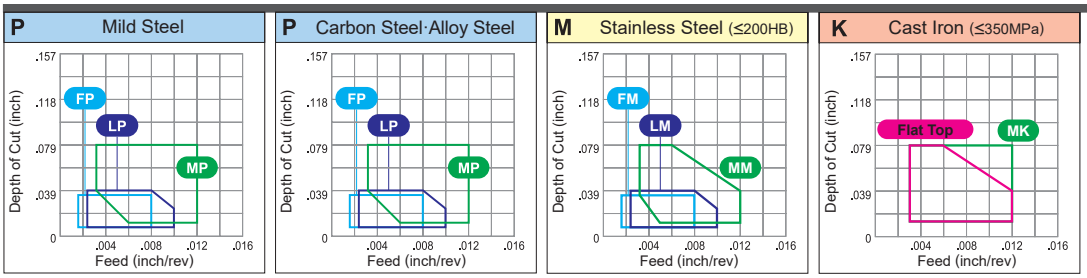
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A072
GRADES ➤ A034
IDENTIFICATION ➤ A002

35° VB TYPE INSERTS WITH HOLE

VBMT 2 2 0.5 FP
Size Thickness Corner Radius Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting Light Cutting Medium Cutting



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔✠✠●◐●✠✠●✠✠✠◐○○○◔○◔✠○
M	Stainless Steel	●◐●✠✠●◐○✠✠✠○○○✠✠
K	Cast Iron	●◐●✠◔✠✠◔✠✠○○✠✠○
N	Non-ferrous Metal	◔●○
S	Heat resistant Alloy, Titanium Alloy	●◐●✠○◐○◔✠◔●◐●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated: NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FP	**VBMT220.5FP**	VBMT110302-FP	.008	●	●	●	●																						●				●										
	VBMT221FP	VBMT110304-FP	.016	●	●	●	●																						●				●										
	VBMT222FP	VBMT110308-FP	.031	●	●	●	●																						●				●										
	VBMT331FP	VBMT160404-FP	.016	●	●	●	●																						●				●										
Finish Cutting	**VBMT332FP**	VBMT160408-FP	.031	★	★	●	●																						●				●										
FM	**VBMT220.5FM**	VBMT110302-FM	.008																								●																
	VBMT221FM	VBMT110304-FM	.016																								●																
	VBMT222FM	VBMT110308-FM	.031																								●																
	VBMT331FM	VBMT160404-FM	.016																								●																
Finish Cutting	**VBMT332FM**	VBMT160408-FM	.031																								●																
FV	**VBMT221FV**	VBMT110304-FV	.016		★																						●								●	★							
	VBMT222FV	VBMT110308-FV	.031		★																						●								●	★							
	VBMT331FV	VBMT160404-FV	.016		★																						●								●	★							
Finish Cutting	**VBMT332FV**	VBMT160408-FV	.031		★																						●								●	★							
FJ	**VBGT33V5FJ**	VBGT1604V5-FJ	.002																									●															
	VBGT330.2FJ	VBGT160401-FJ	.004																									●															
	VBGT330.5FJ	VBGT160402-FJ	.008																									●															
Finish Cutting																																												
FJ-P	**VBGT33V5FJ-P**	VBGT1604V5-FJ-P	.002																																					●				
	VBGT330.2FJ-P	VBGT160401-FJ-P	.004																																					●				
	VBGT330.5FJ-P	VBGT160402-FJ-P	.008																																					●				
Finish Cutting																																												

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔✠✠● ◐●✠✠● ◐✠✠ ✠✠◐○○◔○◔✠ ○
M	Stainless Steel	◐●✠✠● ◐ ◔✠✠ ○○ ○ ✠
K	Cast Iron	●◐✠◔✠ ◔✠ ○○ ○ ✠○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◐✠○◐○◔✠ ◔●◐●◐ ○

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
R/L-F	**VBGT220.5RF**	VBGT110302R-F	.008																							●			●★			★			●				
	VBGT220.5LF	VBGT110302L-F	.008																							●			●★			★			●				
	VBGT221RF	VBGT110304R-F	.016																							●			★			★			●				
	VBGT221LF	VBGT110304L-F	.016																							●			★			★			●				
	VBGT330.5RF	VBGT160402R-F	.008																							★			★			★			★				
	VBGT330.5LF	VBGT160402L-F	.008																							★			★			★			★				
	VBGT331RF	VBGT160404R-F	.016																							★			★			★			★				
Finish Cutting	**VBGT331LF**	VBGT160404L-F	.016																							★			★			★			★				
LP	**VBMT221LP**	VBMT110304-LP	.016	●★	●	●																							●			●							
	VBMT222LP	VBMT110308-LP	.031	●●	●	●																							●			●							
	VBMT331LP	VBMT160404-LP	.016	●●	●	●																							●			●							
Light Cutting	**VBMT332LP**	VBMT160408-LP	.031	●●	●	●																							●			●							
LM	**VBMT221LM**	VBMT110304-LM	.016									●●																●												
	VBMT222LM	VBMT110308-LM	.031									●●																●												
	VBMT331LM	VBMT160404-LM	.016									●●																●												
Light Cutting	**VBMT332LM**	VBMT160408-LM	.031									●●																●												
LS	**VBMT220.5LS**	VBMT110302-LS	.008																		●●	●																	●	
	VBMT221LS	VBMT110304-LS	.016																		●●	●																	●	
	VBMT222LS	VBMT110308-LS	.031																		●●	●																	●	
Light Cutting	**VBMT331LS**	VBMT160404-LS	.016																		●●	●																	●	
	VBMT332LS	VBMT160408-LS	.031																		●●	●																	●	
SV	**VBMT221SV**	VBMT110304-SV	.016																								●							●						
	VBMT222SV	VBMT110308-SV	.031																								●							●						
	VBMT331SV	VBMT160404-SV	.016																								●							●						
Light Cutting	**VBMT332SV**	VBMT160408-SV	.031																								●							●						
MJ	**VBGT331MJ**	VBGT160404-MJ	.016																							●													
	VBGT332MJ	VBGT160408-MJ	.031																							●													
Light Cutting																																								
MJ-P	**VBGT331MJ-P**	VBGT160404-MJ-P	.016																																		●			
	VBGT332MJ-P	VBGT160408-MJ-P	.031																																		●			
Light Cutting																																								

● = NEW

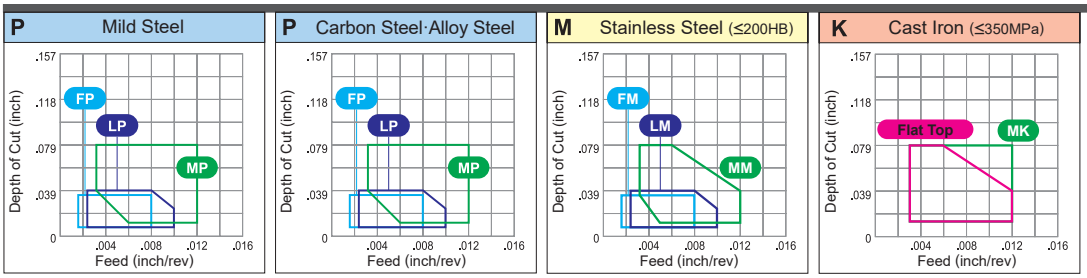
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A058
GRADES ➤ A034
IDENTIFICATION ➤ A002

35° VB TYPE INSERTS WITH HOLE

VBMT 3 3 1 MP
Size Thickness Corner Radius Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting··· Light Cutting··· Medium Cutting···



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

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

Shape	Order Number	(ISO) Number	RE (inch)	Coated																						Coated Cermet				Cermet		Carbide									
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
MP	**VBMT331MP**	VBMT160404-MP	.016	●	●	●	●																						●			●									
	VBMT332MP	VBMT160408-MP	.031	●	●	●	●																						●			●									
Medium Cutting																																										
MM	**VBMT331MM**	VBMT160404-MM	.016								●	●															●															
	VBMT332MM	VBMT160408-MM	.031								●	●															●															
Medium Cutting																																										
MK	**VBMT331MK**	VBMT160404-MK	.016															●	●																							
	VBMT332MK	VBMT160408-MK	.031															●	●																							
Medium Cutting																																										
MS	**VBMT330.5MS**	VBMT160402-MS	.008																		●	●	●																	●	
	VBMT331MS	VBMT160404-MS	.016																		●	●	●																	●	
	VBMT332MS	VBMT160408-MS	.031																		●	●	●																	●	
	VBMT333MS	VBMT160412-MS	.047																		●	●	●																	●	
Medium Cutting																																										
Standard	**VBMT332**	VBMT160408	.031										●																													
Medium Cutting																																										
MV	**VBMT221MV**	VBMT110304-MV	.016		●		●						●						●								●			●	●	★	★	●								
	VBMT222MV	VBMT110308-MV	.031		●		●						●						●								●			●	●	★	★	●								
	VBMT331MV	VBMT160404-MV	.016		★		●						●						●								●			●	●	★	★	●								
	VBMT332MV	VBMT160408-MV	.031		●		●						●						●								●			●	●	★	★	●								
Medium Cutting																																										

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✣: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ❁: Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																								Coated Cermet				Cermet		Carbide								
			NEW										NEW		NEW								NEW																			
			MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
	P	Steel	●	✣	○	◔	❁	❁	●																	❁	❁	◐	○	○	◔	○	○	◔	❁							○
	M	Stainless Steel								●	◐	✣	✣	●										◐		◔	❁	❁		○	○		○		❁							
	K	Cast Iron													●	◐	✣	◔	❁							◔	❁			○	○		○		❁	○	◔					○
	N	Non-ferrous Metal																																			◔	●				○
	S	Heat resistant Alloy, Titanium Alloy																		●	◐	✣	○	◐	○	◔	❁										◔	●	◐	●	◐		

Shape	Order Number	(ISO) Number	RE (inch)																																							
R/L-SR	**VBET22V3RSR**	VBET1103V3R-SR	.001*2																							●					★			●						
	VBET22V3LSR	VBET1103V3L-SR	.001*2																							●					★			●						
	VBET220.2RSR	VBET110301R-SR	.004*2																							●					★			●						
	VBET220.2LSR	VBET110301L-SR	.004*2																							●					★			●						
	VBET220.5RSR	VBET110302R-SR	.008*2																							●					★			●						
	VBET220.5LSR	VBET110302L-SR	.008*2																							●					★			●						
Medium Cutting	**VBET221RSR**	VBET110304R-SR	.016*2																							●					★			●						
	VBET221LSR	VBET110304L-SR	.016*2																							●					★			●						
R/L-SN	**VBET22V0RSN**	VBET110300R-SN	0*2																							●					★			●						
	VBET22V0LSN	VBET110300L-SN	0*2																							●					★			●						
	VBET22V3RSN	VBET1103V3R-SN	.001*2																							●					★			●						
	VBET22V3LSN	VBET1103V3L-SN	.001*2																							●					★			●						
	VBET220.2RSN	VBET110301R-SN	.004*2																							●					★			●						
	VBET220.2LSN	VBET110301L-SN	.004*2																							●					★			●						
	VBET220.5RSN	VBET110302R-SN	.008*2																							●					★			●						
	VBET220.5LSN	VBET110302L-SN	.008*2																							●					★			●						
Medium Cutting	**VBET221RSN**	VBET110304R-SN	.016*2																							●					★			●						
	VBET221LSN	VBET110304L-SN	.016*2																							●					★			●						
R/LW-SN *1	**VBET22V3RWSN**	VBET1103V3RW-SN	.001*2																							●																
	VBET22V3LWSN	VBET1103V3LW-SN	.001*2																							●																
Medium Cutting (Wiper)																																										
Flat Top	**VBMW332**	VBMW160408	.031														●	●																									

*1 Please refer to A032 before using the R/LW-SN breaker (wiper insert).
*2 Indicates the maximum value of the corner R. For more details, see page D003.

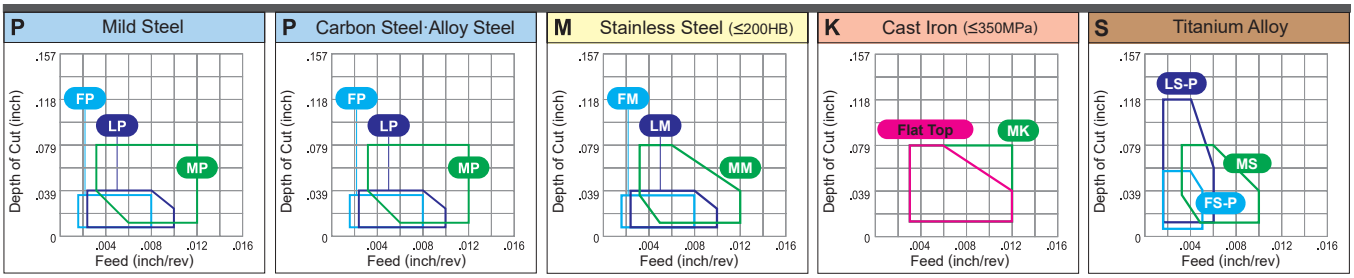
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A058
GRADES ➤ A034
IDENTIFICATION ➤ A002

35° VC TYPE INSERTS WITH HOLE

VCMT 2 2 0.5 FP
Size Thickness Corner Radius Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting Light Cutting Medium Cutting



FS, LS : G class inserts

● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔✠✠●◕●✠✠●✠✠◕○○○◔○◔✠○
M	Stainless Steel	●◕✠✠●◕◔✠✠✠○○○✠✠
K	Cast Iron	●◕✠◔✠◔✠✠○○✠○◔○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◕✠○◕○◔✠◔●◕●◕

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FP	**VCMT220.5FP**	VCMT110302-FP	.008	★	★	●	●																						●				●								
	VCMT221FP	VCMT110304-FP	.016	●	●	●	●																						●				●								
	VCMT331FP	VCMT160404-FP	.016	●	●	●	●																						●				●								
	VCMT332FP	VCMT160408-FP	.031	★	★	●	●																						●				●								
Finish Cutting																																									
FM	**VCMT220.5FM**	VCMT110302-FM	.008																								●														
	VCMT221FM	VCMT110304-FM	.016																								●														
	VCMT331FM	VCMT160404-FM	.016																								●														
	VCMT332FM	VCMT160408-FM	.031																								●														
Finish Cutting																																									
FV	**VCMT1.51.50.5FV**	VCMT080202-FV	.008		●		●																				●						●	★							
	VCMT1.51.51FV	VCMT080204-FV	.016		●		●																				●						●	★							
	VCMT331FV	VCMT160404-FV	.016	★	●																									●			★	●							
	VCMT332FV	VCMT160408-FV	.031	★	●																									●			★	●							
Finish Cutting																																									
AZ	**VCGT331AZ**	VCGT160404-AZ	.016																																		●					
	VCGT332AZ	VCGT160408-AZ	.031																																		●					
	VCGT333AZ	VCGT160412-AZ	.047																																		●					
Medium Cutting-Finish Cutting																																									
R/L-F	**VCGT1.51.50.5RF**	VCGT080202R-F	.008																								●			●			★				●				
	VCGT1.51.50.5LF	VCGT080202L-F	.008																								●			●			★				●				
	VCGT1.51.51RF	VCGT080204R-F	.016																								●			●			★				●				
	VCGT1.51.51LF	VCGT080204L-F	.016																								●			●			★				●				
Finish Cutting																																									

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

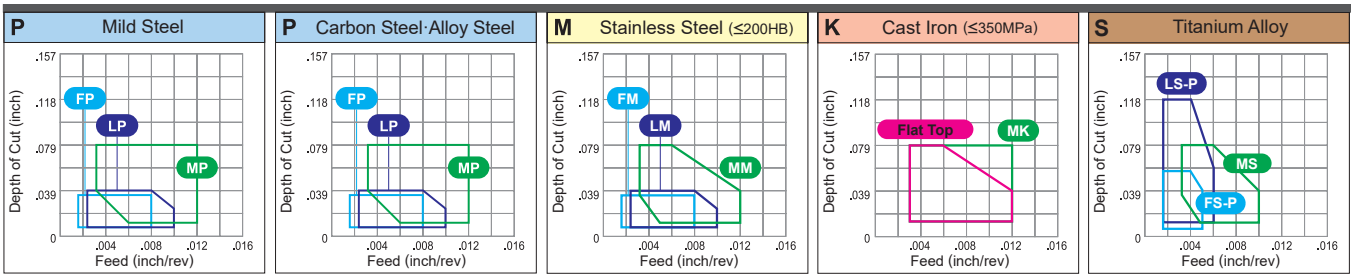
| Workpiece Material | | |

35° VC TYPE INSERTS WITH HOLE

VCMT 3 3 1 MM
Size Thickness Corner Radius Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

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



FS, LS : G class inserts

● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ✠ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔✠✠●◕●✠✠●◕●✠✠●◕○◔✠✠○
M	Stainless Steel	◕●✠✠●◕✠✠✠○○◔○✠
K	Cast Iron	●◕✠◔✠◔✠✠○○◔✠○◔○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◕✠○◕○◔✠◔●◕●◕

Shape	Order Number	(ISO) Number	RE (inch)	Coated: NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
MM	**VCMT331MM**	VCMT160404-MM	.016									●	●														●																
	VCMT332MM	VCMT160408-MM	.031									●	●														●																
	VCMT333MM	VCMT160412-MM	.047									●	●														●																
Medium Cutting																																												
MK	**VCMT331MK**	VCMT160404-MK	.016																●	●																								
	VCMT332MK	VCMT160408-MK	.031																●	●																								
Medium Cutting																																												
MS	**VCMT220.5MS**	VCMT110302-MS	.008																		●	●	●																				
	VCMT221MS	VCMT110304-MS	.016																		●	●	●																			●	
	VCMT222MS	VCMT110308-MS	.031																		●	●	●																			●	
	VCMT331MS	VCMT160404-MS	.016																		●	●	●																			●	
	VCMT332MS	VCMT160408-MS	.031																		●	●	●																			●	
Medium Cutting																																												
Standard	**VCMT221**	VCMT110304	.016											●													●				●	●		★	★	★							
	VCMT331	VCMT160404	.016											●													●				●	●		★	●	★							
	VCMT332	VCMT160408	.031											●													●				●	●		★	●								
	VCMT333	VCMT160412	.047											●																				★	●								
Medium Cutting																																												
MV	**VCMT1.51.50.5MV**	VCMT080202-MV	.008	●		●								●													●				●	●	★	★	●								
	VCMT1.51.51MV	VCMT080204-MV	.016	●		●								●						●							●				●	●	★	★	●								
Medium Cutting																																												
Flat Top	**VCMW221**	VCMW110304	.016																																				★					
	VCMW331	VCMW160404	.016																●	●																				★					
	VCMW332	VCMW160408	.031																●	●																				★					

● = NEW

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

CHIP BREAKER ➤ A064

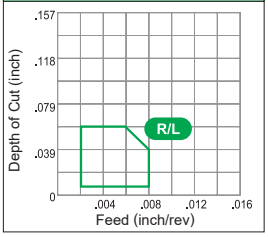
35° VD TYPE INSERTS WITH HOLE

VDGX 3 2 0.5 R
Size Thickness Corner Radius R/L
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting···

N Aluminum Alloy



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material					Coated																										Coated Cermet				Cermet		Carbide							
					NEW								NEW		NEW								NEW																					
Shape	Order Number	(ISO) Number	RE (inch)		MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
R/L	**VDGX320.5R**	VDGX160302R	.008																																		●						
	VDGX320.5L	VDGX160302L	.008																																		●						
	VDGX321R	VDGX160304R	.016																																		●						
	VDGX321L	VDGX160304L	.016																																		●						
Medium Cutting (For Aluminium)																																											

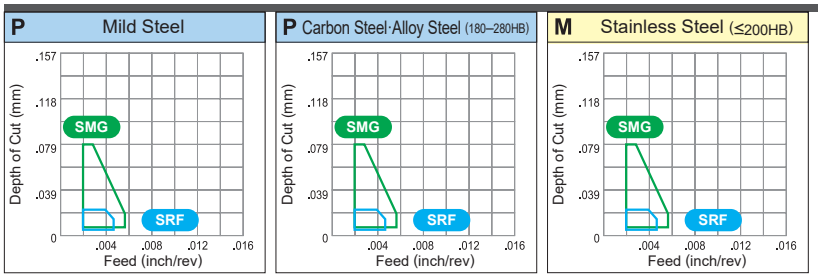
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A076
GRADES ➤ A034
IDENTIFICATION ➤ A002

35° VP TYPE INSERTS WITH HOLE

VPET 1.5 1.5 0.2 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---



● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																								Coated Cermet				Cermet		Carbide									
			NEW									NEW		NEW								NEW																				
			MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
	P	Steel	●	✠	○	◔	❁	❁	●																	❁	❁	◐	○	○	○	◔	○	◔	❁								○
	M	Stainless Steel								●	◐	✠	✠	●									◐		◔	❁	❁		○	○		○			❁							
	K	Cast Iron													●	◐	✠	◔	❁						◔	❁			○	○		○			❁	○	◔					○
	N	Non-ferrous Metal																																			◔	●				○
	S	Heat resistant Alloy, Titanium Alloy																		●	◐	✠	○	◐	○	◔	❁										◔	●	◐	●	◐	
Shape		Order Number	(ISO) Number	RE (inch)																																						
R/L-SRF		VPET1.51.50.2RSRF	VPET080201R-SRF	.004*																						●															
		VPET1.51.50.2LSRF	VPET080201L-SRF	.004*																						●															
		VPET1.51.50.5RSRF	VPET080202R-SRF	.008*																						●															
		VPET1.51.50.5LSRF	VPET080202L-SRF	.008*																						●															
		VPET22V3RSRF	VPET1103V3R-SRF	.001*																						●															
		VPET22V3LSRF	VPET1103V3L-SRF	.001*																						●															
		VPET220.2RSRF	VPET110301R-SRF	.004*																						●															
		VPET220.2LSRF	VPET110301L-SRF	.004*																						●															
		VPET220.5RSRF	VPET110302R-SRF	.008*																						●															
	Finish Cutting	VPET220.5LSRF	VPET110302L-SRF	.008*																						●															
SMG		VPGT1.51.50.2MSMG	VPGT080201M-SMG	.004*																						●															
		VPGT1.51.50.5MSMG	VPGT080202M-SMG	.008*																						●															
		VPGT220.2MSMG	VPGT110301M-SMG	.004*																						●															
	Medium Cutting	VPGT220.5MSMG	VPGT110302M-SMG	.008*																						●															

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

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

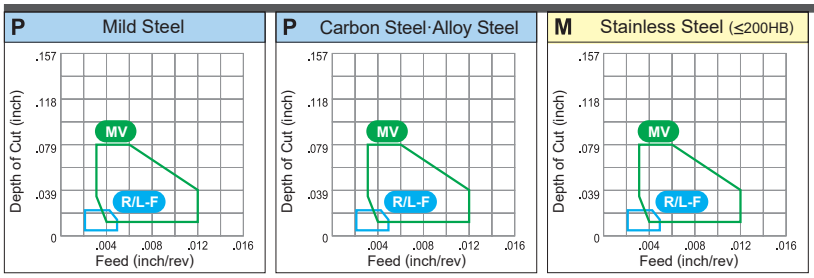
CHIP BREAKER ➤ A072

80° WB TYPE INSERTS WITH HOLE

WBGT 1.2 1 V3 L F
Size Thickness Corner Radius R/L Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- Medium Cutting---



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																								Coated Cermet			Cermet		Carbide									
			NEW								NEW		NEW							NEW																					
			MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
	P	Steel	●	✠	○	◔	❁	❁	●														◕			❁	❁	◕	○	○	○	◔	○	◔	❁							○
	M	Stainless Steel								●	◕	✠	✠	●									◕		◔	❁	❁		○	○		○		❁								
	K	Cast Iron													●	◕	✠	◔	❁						◔	❁			○	○		○		❁	○	◔						○
	N	Non-ferrous Metal																																		◔	●					○
	S	Heat resistant Alloy, Titanium Alloy																		●	◕	✠	○	◕	○	◔	❁									◔	●	◕	●	◕		
Shape		Order Number	(ISO) Number	RE (inch)																																						
R/L-F		WBGT1.21V3LF	WBGT0201V3L-F	.001																						●					★										
		WBGT1.210.2LF	WBGT020101L-F	.004																						●					★										
		WBGT1.210.5LF	WBGT020102L-F	.008																						●			●		★										
		WBGT1.211LF	WBGT020104L-F	.016																						●			●		★										
		WBGT1.51.5V3LF	WBGTL302V3L-F	.001																						●					★										
		WBGT1.51.50.2LF	WBGTL30201L-F	.004																						●					★										
		WBGT1.51.50.5RF	WBGTL30202R-F	.008																						●					★										
		WBGT1.51.50.5LF	WBGTL30202L-F	.008																						●			●		★										
		WBGT1.51.51RF	WBGTL30204R-F	.016																						●					★										
Finish Cutting		WBGT1.51.51LF	WBGTL30204L-F	.016																						●			●		★										
R/L-MV		WBMT1.51.50.5RMV	WBMTL30202R-MV	.008		★		●																		★			●		★	★	●								
		WBMT1.51.50.5LMV	WBMTL30202L-MV	.008		★		●																		★			●		★	★	●								
		WBMT1.51.51RMV	WBMTL30204R-MV	.016		★		●																		★			●		★	★	●								
Medium Cutting		WBMT1.51.51LMV	WBMTL30204L-MV	.016		★		●																		★			●		★	★	●								

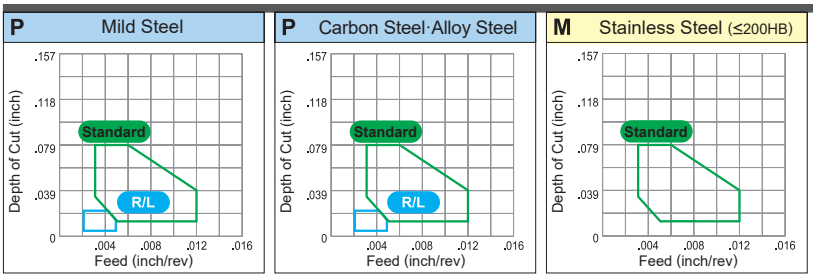
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A058
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° WC TYPE INSERTS WITH HOLE

WCGT 2 1.5 V5 FJ-P
Size Thickness Corner Radius Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting··· Medium Cutting···



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁● ●◕✠✠● ✠✠◕○○◔○◔❁ ❁○○○○ ○
M	Stainless Steel	●◕✠✠● ◕ ◔✠✠ ◕○○ ○ ❁
K	Cast Iron	●◕✠◔❁ ◔✠ ◔○○ ○ ❁○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◕✠○◕○◔✠ ◔● ◕◕◕

Shape	Order Number	(ISO) Number	RE (inch)	Coated																												Coated Cermet				Cermet		Carbide							
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
FJ-P	**WCGT21.5V5FJ-P**	WCGT0402V5-FJ-P	.002																																			●					
	WCGT21.50.2FJ-P	WCGT040201-FJ-P	.004																																			●					
	WCGT21.50.5FJ-P	WCGT040202-FJ-P	.008																																			●					
	WCGT32.5V5FJ-P	WCGT06T3V5-FJ-P	.002																																			●					
	WCGT32.50.2FJ-P	WCGT06T301-FJ-P	.004																																			●					
Finish Cutting	**WCGT32.50.5FJ-P**	WCGT06T302-FJ-P	.008																																			●					
R/L	**WCGT1.210.5R**	WCGT020102R	.008																															★									
	WCGT1.210.5L	WCGT020102L	.008																															★			●						
	WCGT1.211R	WCGT020104R	.016																															★									
	WCGT1.211L	WCGT020104L	.016																															★			●						
Finish Cutting	**WCGT1.51.50.5L**	WCGTL30202L	.008																															★									
	WCGT1.51.51L	WCGTL30204L	.016																															★									
MJ	**WCGT21.51MJ**	WCGT040204-MJ	.016																								●																
	WCGT32.51MJ	WCGT06T304-MJ	.016																								●																
	WCGT32.52MJ	WCGT06T308-MJ	.031																								●																
Light Cutting																																												
MJ-P	**WCGT21.51MJ-P**	WCGT040204-MJ-P	.016																																			●					
	WCGT32.51MJ-P	WCGT06T304-MJ-P	.016																																			●					
	WCGT32.52MJ-P	WCGT06T308-MJ-P	.031																																			●					
Light Cutting																																												

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

● : Stable Cutting (1st recommendation)　◕ : General Cutting (1st recommendation)　✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation)　◔ : General Cutting (2nd recommendation)　✠ : Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																												Coated Cermet			Cermet		Carbide							
			NEW										NEW		NEW								NEW																				
			MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		●	✠	○	◔	✠	✠	●																		✠	✠	◕	○	○	◔	○	◔	✠							○
M	Stainless Steel									●	◕	✠	✠	●									◕			◔	✠	✠		○	○		○		✠							
K	Cast Iron														●	◕	✠	◔	✠							◔	✠			○	○		○		✠	○	◔					○
N	Non-ferrous Metal																																			◔	●					○
S	Heat resistant Alloy, Titanium Alloy																			●	◕	✠	○	◕	○	◔	✠									◔	●	◕	●	◕		

Shape	Order Number	(ISO) Number	RE (inch)																																								
MP NEW	**WCMT1.210.5MP**	WCMT020102-MP	.008	●	●																																					
	WCMT1.211MP	WCMT020104-MP	.016	●	●																																					
	WCMT1.51.50.5MP	WCMTL30202-MP	.008	●	●																																				
	WCMT1.51.51MP	WCMTL30204-MP	.016	●	●																																				
	WCMT21.50.5MP	WCMT040202-MP	.008	●	●																																				
	WCMT21.51MP	WCMT040204-MP	.016	●	●																																				
	WCMT21.52MP	WCMT040208-MP	.031		●																																				
	WCMT32.51MP	WCMT06T304-MP	.016	●	●																																				
Medium Cutting	**WCMT32.52MP**	WCMT06T308-MP	.031	●	●																																				
Standard	**WCMT1.210.5**	WCMT020102	.008									●																	●	●		★	●	●			●				
	WCMT1.211	WCMT020104	.016									●																	●	●		★	●	●			●				
	WCMT1.51.50.5	WCMTL30202	.008									●																	●	●		★	●	●			●				
	WCMT1.51.51	WCMTL30204	.016									●																	●	●		★	●	●			●				
	WCMT21.50.5	WCMT040202	.008									●																	●	●		★	●	●			●				
	WCMT21.51	WCMT040204	.016									●																	●	●		★	●	●			●				
Medium Cutting	**WCMT32.51**	WCMT06T304	.016									●																	●	●		★	●	●			●				
	WCMT32.52	WCMT06T308	.031									●																	●	●		★	●	●			●				

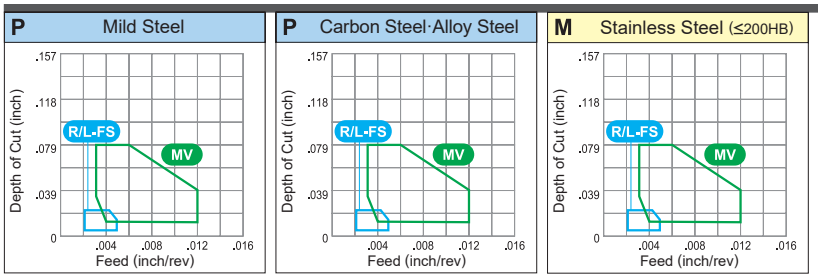
EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A064
GRADES ➤ A034
IDENTIFICATION ➤ A002

80° WP TYPE INSERTS WITH HOLE

WPGT 2 1.5 1 R FS
Size Thickness Corner Radius R/L Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting Medium Cutting



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁● ●◕✠✠● ○◕❁❁ ◕○○◔○◔❁ ○
M	Stainless Steel	●◕✠✠● ◕○ ◕❁❁ ○○ ○ ❁
K	Cast Iron	●◕✠◔❁ ◕❁ ○○ ○ ❁○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◕✠○◕○◔❁ ◔●◕●●

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet				Cermet		Carbide									
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	NEW MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
R/L-FS	**WPGT21.51RFS**	WPGT040204R-FS	.016																							★						★									
	**WPGT21.51LFS**	WPGT040204L-FS	.016																							★						★									
	WPGT321RFS	WPGT060304R-FS	.016																							★						★									
	WPGT321LFS	WPGT060304L-FS	.016																							★						★									
Finish Cutting																																											
MV	**WPMT21.50.5MV**	WPMT040202-MV	.008		★	●							●													★			●				★●									
	**WPMT21.51MV**	WPMT040204-MV	.016		●	●							●						●							★			●			★	★●								
	WPMT321MV	WPMT060304-MV	.016		★	●							●						●							●			●				★●								
	WPMT322MV	WPMT060308-MV	.031		●	●							●						●							●			●			★	★●								
Medium Cutting																																											

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

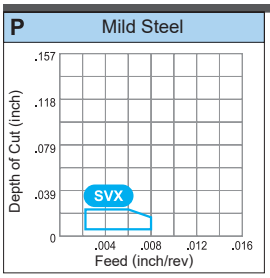
CHIP BREAKER ➤ A072

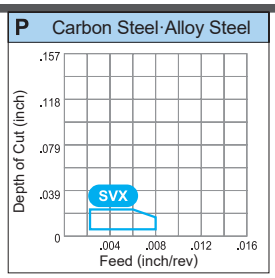
25° XC TYPE INSERTS WITH HOLE

XCMT 2 2 0.5 SVX
Size Thickness Corner Radius Chip Breaker
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting





● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁●◕◕✠✠●◕◕✠◔❁ ✠❁◕✠✠❁○○○◔○◔✠ ○
M	Stainless Steel	◕◕✠✠●◕✠✠❁ ◔✠✠❁○○○✠✠
K	Cast Iron	●◕✠◔❁◔✠✠❁ ◔✠✠❁○○○✠✠○◔ ○
N	Non-ferrous Metal	◔● ○
S	Heat resistant Alloy, Titanium Alloy	●◕✠○◕○◔✠ ◔●◕◕●◕

Shape	Order Number	(ISO) Number	RE (inch)	Coated																												Coated Cermet				Cermet		Carbide								
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
SVX	XCMT220.5SVX	XCMT150302-SVX	.008																							●																	
	XCMT221SVX	XCMT150304-SVX	.016		★																					●																	
	XCMT222SVX	XCMT150308-SVX	.031		●																					●																	
Finish Cutting																																													

EXTERNAL TURNING ➤ C002
BORING ➤ E002
CHIP BREAKER ➤ A064
GRADES ➤ A034
IDENTIFICATION ➤ A002

RTG TYPE INSERTS WITHOUT HOLE

● : Stable Cutting (1st recommendation)　◐ : General Cutting (1st recommendation)　✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation)　◔ : General Cutting (2nd recommendation)　❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		MC6115 NEW	MC6125 NEW	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025 NEW	MC5105 NEW	MC5115 NEW	MC5125 NEW	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025 NEW	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
		Coated																										Coated Cermet				Cermet		Carbide							
P	Steel	●	✣	○	◔	❁	❁	●															❁			❁	◐	○	○	◔	○	◔	❁							○
M	Stainless Steel								●	◐	✣	✣	●									◐		◔	❁	❁		○	○		○		❁							
K	Cast Iron													●	◐	✣	◔	❁						◔	❁			○	○		○		❁	○	◔					○
N	Non-ferrous Metal																																		◔	●				○
S	Heat resistant Alloy, Titanium Alloy																		●	◐	✣	○	◐	○	◔	❁									◔	●	◐	●	◐		

Shape	Order Number	(ISO) Number	IC (inch)	MC6115 NEW	MC6125 NEW	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025 NEW	MC5105 NEW	MC5115 NEW	MC5125 NEW	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025 NEW	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
 For Special Use (For TL Holder)	**RTG05A**	RTG05A	.197																															●		●					
	RTG06A	RTG06A	.236																															●		●					
	RTG07A	RTG07A	.276																															●							
	RTG08A	RTG08A	.315																															●		●					
	RTG10A	RTG10A	.394																															●		●					

● : USA Stock　★ : Stocked in Japan
<10 inserts in one case>

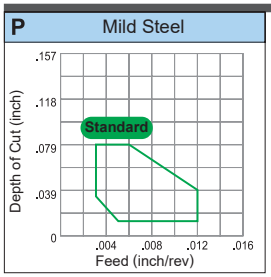
CHIP BREAKER ➤ A079

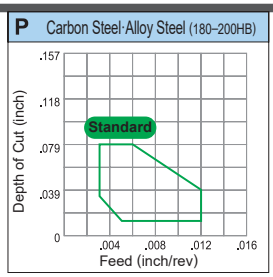
90° SP TYPE INSERTS WITHOUT HOLE

SPGR 3 2 1 R
Size Thickness Corner Radius R/L
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting---





● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	●✠○◔❁❁●◐●✠✠●◐●✠✠●○◐○◔○◔❁❁○
M	Stainless Steel	●◐●✠✠●◐○❁❁❁○○○❁
K	Cast Iron	●◐●✠◔❁❁❁○○○❁○◔○
N	Non-ferrous Metal	◔●○
S	Heat resistant Alloy, Titanium Alloy	●◐●✠○◐○◔❁❁◔●◐●◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated																								Coated Cermet			Cermet		Carbide								
				NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
R	**SPGR321R**	SPGR090304R	.016																															★							
Finish Cutting																																									
Standard	**SPMR321**	SPMR090304	.016	★	★																							●			★	●									
	SPMR322	SPMR090308	.031	★	★																							●			★	●									
	SPMR421	SPMR120304	.016	★	●																							●			★	★									
	SPMR422	SPMR120308	.031	●	●																							●			●	★									
Medium Cutting																																									
Flat Top	**SPMN321**	SPMN090304	.016																												★		★	★							
	SPMN322	SPMN090308	.031	●																											★		★	●							
	SPMN421	SPMN120304	.016	★																						★							★	★							
	SPMN422	SPMN120308	.031	●																						●★								●							
	SPMN423	SPMN120312	.047	★																						★								★							
	SPMN432	SPMN120408	.031																															★							
	SPMN433	SPMN120412	.047																															●							
	SPMN532	SPMN150408	.031																															★							
	SPMN533	SPMN150412	.047																															●							
	SPMN631	SPMN190404	.016																															●							
	SPMN632	SPMN190408	.031																															★							
	SPMN633	SPMN190412	.047																															●							
Flat Top	**SPG321**	SPGN090304	.016																												★			●	★						
	SPG322	SPGN090308	.031																																★						
	SPG421	SPGN120304	.016																												●			●	●						
	SPG422	SPGN120308	.031																									●			●			●	●						
	SPG423	SPGN120312	.047																																★						
	SPG431	SPGN120404	.016																																●						
	SPG432	SPGN120408	.031																															●	★						
	SPG531	SPGN150404	.016																															★							
	SPG532	SPGN150408	.031																																★						

EXTERNAL TURNING ➤ –
BORING ➤ –
CHIP BREAKER ➤ A078
GRADES ➤ A034
IDENTIFICATION ➤ A002

60° TC TYPE INSERTS WITHOUT HOLE

TCG 1.2 1 1
Size Thickness Corner Radius
*Please refer to page A002.

●: Stable Cutting (1st recommendation) ◐: General Cutting (1st recommendation) ✣: Unstable Cutting (1st recommendation)
○: Stable Cutting (2nd recommendation) ◔: General Cutting (2nd recommendation) ❁: Unstable Cutting (2nd recommendation)

Workpiece Material			Coated																										Coated Cermet				Cermet		Carbide							
			NEW									NEW		NEW							NEW																					
			MC6115	MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
P	Steel		●	✣	○	◔	❁	❁	●																		❁	❁	◐	○	○	◔	○	◔	❁							○
M	Stainless Steel									●	◐	✣	✣	●									◐		◔	❁	❁		○	○		○		❁							
K	Cast Iron														●	◐	✣	◔	❁						◔	❁			○	○		○		❁	○	◔					○
N	Non-ferrous Metal																																			◔	●					○
S	Heat resistant Alloy, Titanium Alloy																			●	◐	✣	○	◐	○	◔	❁									◔	●	◐	●	◐		
Shape	Order Number	(ISO) Number	RE (inch)																																							
Flat Top	TCGN1.211	TCGN060104	.016																																	★						
	TCGN1.81.51	TCGN090204	.016																																	★						

●: USA Stock ★: Stocked in Japan
<10 inserts in one case>

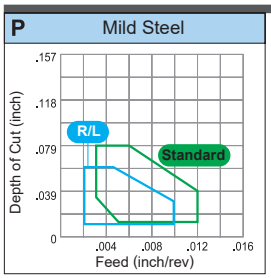
CHIP BREAKER ➤ A078

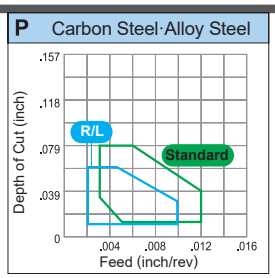
60° TP TYPE INSERTS WITHOUT HOLE

TPGR 2 2 1 R
Size Thickness Corner Radius R/L
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting Medium Cutting





● : Stable Cutting (1st recommendation) ◐ : General Cutting (1st recommendation) ✣ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material		
P	Steel	● ✣ ○ ◔ ❁ ❁ ● ◐ ◐ ✣ ✣ ● ◐ ◐ ✣ ◔ ❁ ● ◐ ✣ ○ ◐ ○ ◔ ❁ ❁ ◐ ○ ○ ○ ◔ ○ ◔ ❁ ○
M	Stainless Steel	◐ ◐ ✣ ✣ ● ◐ ◔ ❁ ❁ ◐ ○ ○ ○ ❁
K	Cast Iron	● ◐ ✣ ◔ ❁ ◔ ❁ ❁ ◐ ○ ○ ○ ❁ ○ ◔ ○
N	Non-ferrous Metal	◔ ● ○
S	Heat resistant Alloy, Titanium Alloy	● ◐ ✣ ○ ◐ ○ ◔ ❁ ◔ ● ◐ ● ◐

Shape	Order Number	(ISO) Number	RE (inch)	Coated: NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
R/L	**TPGR221R**	TPGR110304R	.016																														★			★							
	TPGR221L	TPGR110304L	.016																														★		★	★						
	TPGR321R	TPGR160304R	.016																														★		★	★						
	TPGR321L	TPGR160304L	.016																														★		★	★						
Finish Cutting	**TPGR322R**	TPGR160308R	.031																														★									
	TPGR322L	TPGR160308L	.031																														★		★	★						
Standard	**TPMR1.81.50.5**	TPMR090202	.008																											●				●								
	TPMR1.81.51	TPMR090204	.016																											●				★ ●								
	TPMR1.81.52	TPMR090208	.031																											●												
	TPMR220.5	TPMR110302	.008																											●				★ ●								
	TPMR221	TPMR110304	.016	●	●																									●				★ ●								
	TPMR222	TPMR110308	.031	●	★																									●				★ ●								
	TPMR321	TPMR160304	.016	●	●																									●				★ ●								
	TPMR322	TPMR160308	.031	●	●																									●				★ ●								
Medium Cutting	**TPMR323**	TPMR160312	.047	★	●																									●				●								
Flat Top	**TPMN221**	TPMN110304	.016	★														●	●									★					★		●	★						
	TPMN222	TPMN110308	.031	★														●	●									★					★		●	★						
	TPMN321	TPMN160304	.016	★														●	●								●	★					★		●	●						
	TPMN322	TPMN160308	.031	●														●	●								●	★					★		●	★	●					
	TPMN323	TPMN160312	.047	★														●	●									★								●						
	TPMN325	TPMN160320	.079																																★								
	TPMN431	TPMN220404	.016	●																															●								
	TPMN432	TPMN220408	.031	●																							●	★							●	★						
	TPMN433	TPMN220412	.047	●																								★							●	●						

EXTERNAL TURNING ➤ –
BORING ➤ –

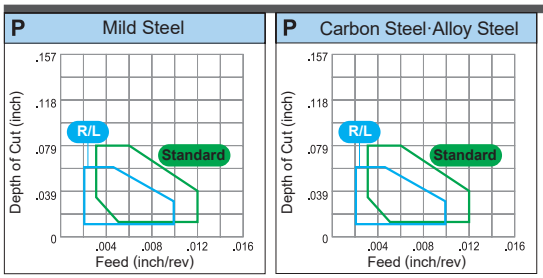
CHIP BREAKER ➤ A078
GRADES ➤ A034
IDENTIFICATION ➤ A002

60° TP TYPE INSERTS WITHOUT HOLE

TPG 2 2 0.5
Size Thickness Corner Radius
*Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting··· Medium Cutting···



● : Stable Cutting (1st recommendation) ◕ : General Cutting (1st recommendation) ✠ : Unstable Cutting (1st recommendation)
○ : Stable Cutting (2nd recommendation) ◔ : General Cutting (2nd recommendation) ❁ : Unstable Cutting (2nd recommendation)

Workpiece Material			Shape	Order Number	(ISO) Number	RE (inch)	Coated																										Coated Cermet				Cermet		Carbide									
							NEW MC6115	NEW MC6125	MC6015	MC6025	MC6035	UH6400	MS6015	MC7015	MC7025	MP7035	US735	NEW MS7025	NEW MC5105	MC5115	MC5125	MC5005	MC5015	MP9005	MP9015	MP9025	US905	NEW MS9025	VP05RT	VP10RT	VP15TF	UP20M	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9005	MT9015	TF15
	P	Steel					●✠○◔❁❁●																							❁❁◕○○○◔○◔❁																○
	M	Stainless Steel												●◕✠✠●												◕		◔❁❁			○○		○		❁										
	K	Cast Iron																	●◕✠◔❁											◔❁❁			○○		○		❁	○	◔							○
	N	Non-ferrous Metal																																							◔●					○
	S	Heat resistant Alloy, Titanium Alloy																						●◕✠○◕○◔❁																	◔●◕●◕				
			Flat Top	TPG220.5	TPGN110302	.008																								●																	
				TPG221	TPGN110304	.016																								●						★			★★●								
				TPG222	TPGN110308	.031																								●									●								
				TPG320.5	TPGN160302	.008																								★																	
				TPG321	TPGN160304	.016																								●						★			★★●								
				TPG322	TPGN160308	.031																								●						★			●★●								
				TPG323	TPGN160312	.047																								●									●								
				TPG324	TPGN160316	.063																								●									●								
				TPG332	TPGN160408	.031																																	★								
				TPG431	TPGN220404	.016																								●									●								
				TPG432	TPGN220408	.031																								●									●								

● : USA Stock ★ : Stocked in Japan
<10 inserts in one case>

EXTERNAL TURNING ➤ –
BORING ➤ –
CHIP BREAKER ➤ A078
GRADES ➤ A034
IDENTIFICATION ➤ A002

Memo