GUIDE TO TURNING INSERTS

●Section organization

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

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

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

GRADE APPLICATION RECOMMENDED FOR EACH WORK MATERIAL
cutting conditions suitable for each work materials are shown as a general guide to select grade.
● Stable Cutting ◕ General Cutting ✠ Unstable Cutting

SHAPE & ANGLE MARK

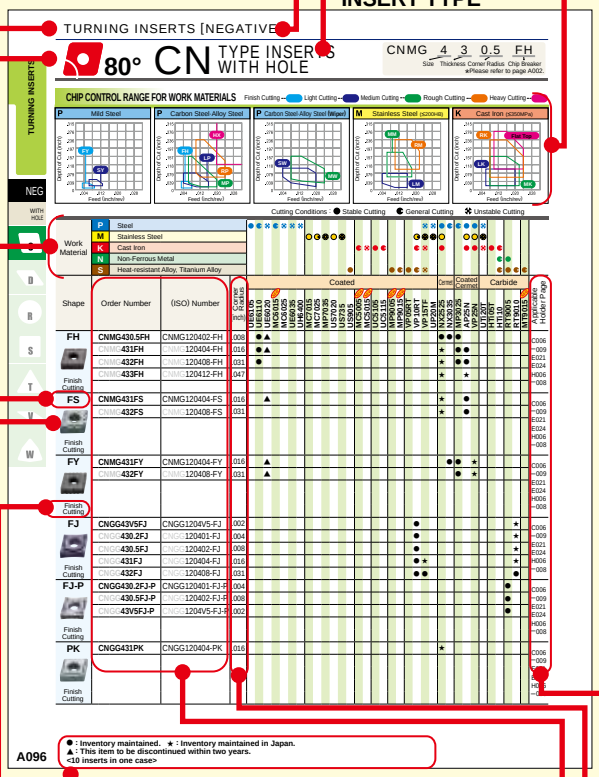
INDICATION OF NEGATIVE/POSITIVE TYPE

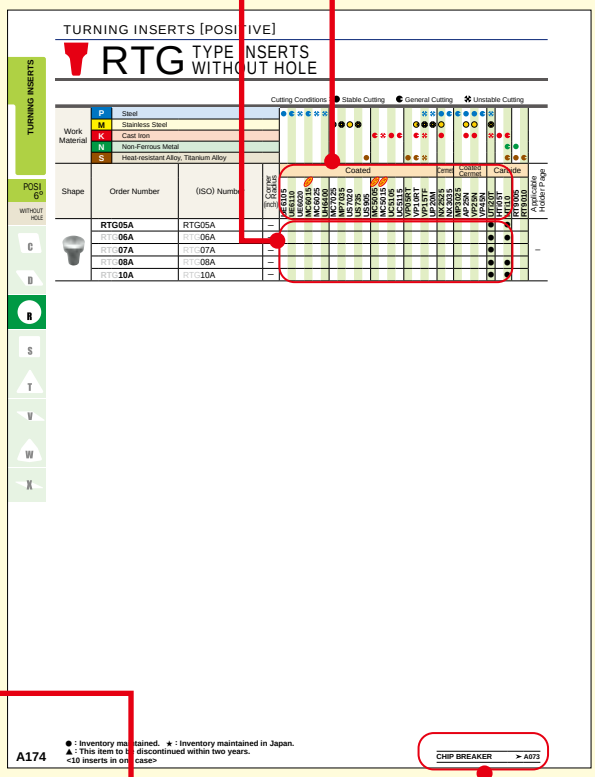
TITLE OF PRODUCT ACCORDING TO THE INSERT TYPE

PRODUCT SECTION

INSERT GRADES

STOCK STATUS





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

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

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

PAGE REFERENCE ·IDENTIFICATION
indicates reference pages, on the right hand page of each double-page spread.

PHOTO OF INSERT

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

INSERT CORNER RADIUS (RE)

INSERT NUMBER

●To Order: Please specify insert number and grade.

TURNING

INSERT STANDARDS
INSERT GRADES

IDENTIFICATION A002
HOLE GEOMETRY A004
PRECISION BREAKER STANDARD A008
TOOL NAVI A013
CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING A014
BREAKER SYSTEMS FOR SMALL SIZE INSERTS A030
PRECISION BREAKER SYSTEM (NEGATIVE INSERTS) A031
WIPER INSERT A032
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
CLASSIFICATION A046
RECOMMENDED CUTTING CONDITIONS A074

STANDARD OF TURNING INSERTS

● NEGATIVE INSERTS WITH HOLE
- CN○○TYPE ··· RHOMBIC 80° A096
- DN○○TYPE ··· RHOMBIC 55° A103
- RN○○TYPE ··· ROUND A110
- SN○○TYPE ··· SQUARE 90° A111
- TN○○TYPE ··· TRIANGULAR 60° A117
- VN○○TYPE ··· RHOMBIC 35° A124
- WN○○TYPE ··· TRIGON 80° A128

● NEGATIVE INSERTS WITHOUT HOLE
- KN○○TYPE ··· PARALLELOGRAM 55° ··· A133
- SN○○TYPE ··· SQUARE 90° A134
- TN○○TYPE ··· TRIANGULAR 60° A135

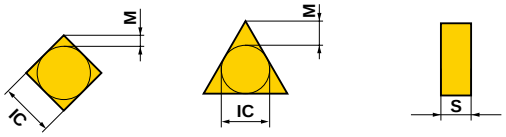
● POSITIVE INSERTS WITH HOLE
- CC○○TYPE ··· RHOMBIC 80° A136
- CP○○TYPE ··· RHOMBIC 80° A142
- DC○○TYPE ··· RHOMBIC 55° A144
- DE○○TYPE ··· RHOMBIC 55° A150
- RC○○TYPE ··· ROUND A151
- SC○○TYPE ··· SQUARE 90° A152
- SP○○TYPE ··· SQUARE 90° A154
- TC○○TYPE ··· TRIANGULAR 60° A155
- TE○○TYPE ··· TRIANGULAR 60° A158
- TP○○TYPE ··· TRIANGULAR 60° A159
- VB○○TYPE ··· RHOMBIC 35° A162
- VC○○TYPE ··· RHOMBIC 35° A166
- VD○○TYPE ··· RHOMBIC 35° A168
- VP○○TYPE ··· RHOMBIC 35° A169
- WB○○TYPE ··· TRIGON 80° A170
- WC○○TYPE ··· TRIGON 80° A171
- WP○○TYPE ··· TRIGON 80° A172
- XC○○TYPE ··· RHOMBIC 25° A173

● POSITIVE INSERTS WITHOUT HOLE
- RTG TYPE A174
- SP○○TYPE ··· SQUARE 90° A175
- TC○○TYPE ··· TRIANGULAR 60° A176
- TP○○TYPE ··· TRIANGULAR 60° A177

IDENTIFICATION

① Symbol for Insert Shape

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



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

① Symbol for Insert Shape | **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

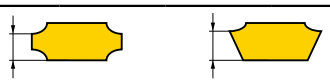
④ Symbol for Chipbreaker and Clamping System

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						

Note: Dimension symbols conforming to ISO13399. See pages PR3-PR6 for details.

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 (5)	.156		**02**		**04**	**03**	**03**	**06**
	1.5 (6)	.187		**L3**	**08**	**05**	**04**	**04**	**08**
	1.8 (7)	.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 (3)**	.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				⑩
4	**3**	**2**	**(E)**	**(N)** -	**MP**
22	**04**	**08**	**(E)**	**(N)** -	**MP**
		⑦	⑧	⑨	

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**

Mitsubishi Materials omit the honing symbol.

⑨ Symbol for Cutting Direction

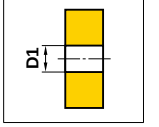
Figure	Hand	Symbol
	Right	**R**
	Left	**L**
	Neutral	**N**

⑩ Symbol for Chip Breaker

LP	**MP**	**RP**
		
LM	**MM**	**RM**
		
LK	**MK**	**RK**
		
LS	**MS**	**RS**
		
FP	**LP**	**MP**
		
MA	**SW**	**MW**
		
HZ	**HX**	**HV**
		

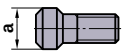
HOLE GEOMETRY

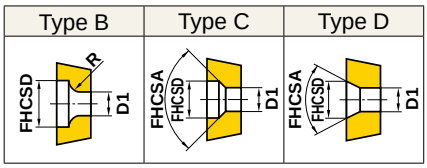
Type A



NEGATIVE

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

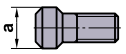


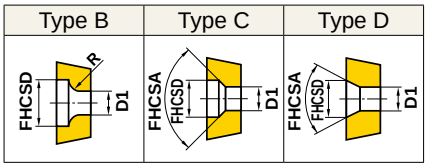


POSITIVE

Insert Number		(ISO) Number		Dimension (inch)			Applicable Screw	Hole Type
				D1	FHCSD	FHCSA (°)		
CCET CCGT CCGW	21.5○	CCET CCGT CCGW	0602○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	32.5○		09T3○○	.173	.236	R	TS (M4) with **a** = .213″	B
	43○		1204○○	.217	.295	R	TS (M5) with **a** = .268″	B
CCGH CCMH	21.5○	CCGH CCMH	0602○○	.110	.154	R	TS (M2.5) with **a** = .130″	B
CCGT	03S1○○	CCGT	03S1○○	.079	.114	R	TS (M1.6) with **a** = .098″	B
	04T0○○		04T0○○	.094	.138	R	TS (M2) with **a** = .106″	B
CCMT	21.5○	CCMT	0602○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	2.52○		0803○○	.134	.177	R	TS (M3) with **a** = .154″	B
	32.5○		09T3○○	.173	.236	R	TS (M4) with **a** = .213″	B
	43○		1204○○	.217	.295	R	TS (M5) with **a** = .268″	B
CCMW	21.5○	CCMW	0602○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	32.5○		09T3○○	.173	.236	R	TS (M4) with **a** = .213″	B
	43○		1204○○	.217	.295	R	TS (M5) with **a** = .268″	B
CPGT	2.51.5○	CPGT	0802○○	.134	.177	R	TS (M3) with **a** = .154″	B
	32○		0903○○	.173	.236	R	TS (M4) with **a** = .213″	B
CPMH	2.51.5○	CPMH	0802○○	.138	.209	78°	TS (M3) with **a** = .197″	D
	32○		0903○○	.177	.248	78°	TS (M4) with **a** = .220″	D
CPMT	21.5○	CPMT	0602○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	32.5○		09T3○○	.173	.236	R	TS (M4) with **a** = .213″	B
CPMX	2.51.5○	CPMX	0802○○	.138	.220	78°	TS (M3) with **a** = .197″	D
	32○		0903○○	.181	.260	80°	TS (M4) with **a** = .220″	D
DCET DCGT DCGW	21.5○	DCET DCGT DCGW	0702○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	32.5○		11T3○○	.173	.236	R	TS (M4) with **a** = .213″	B
DCMT DCMW	21.5○	DCMT DCMW	0702○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	32.5○		11T3○○	.173	.236	R	TS (M4) with **a** = .213″	B
	43○		1504○○	.217	.295	R	TS (M5) with **a** = .268″	B
DEGX	43○	DEGX	1504○○	.201	.276	85°	CS (M4.5) with **a** = .248″	C
RCMX	1003M0	RCMX	1003M0	.142	.177	21°		D
	1204M0		1204M0	.165	.209	21°		D
	1606M0		1606M0	.205	.260	21°	for lever lock holder	D
	2006M0		2006M0	.256	.311	21°		D
	2507M0		2507M0	.283	.354	21°		D
	3209M0		3209M0	.374	.457	21°		D

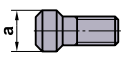
HOLE GEOMETRY

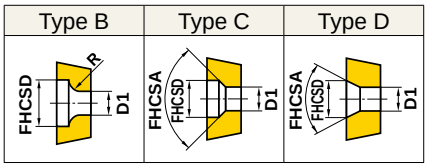




POSITIVE

Insert Number		(ISO) Number		Dimension (inch)			Applicable Screw	Hole Type
				D1	FHCSD	FHCSA (°)		
RCMX	1606M0-○○	RCMX	1606M0-○○	.205	.260	21°		D
	2006M0-○○		2006M0-○○	.256	.311	21°	for lever lock holder	D
	2507M0-○○		2507M0-○○	.283	.354	21°		D
	3209M0-○○		3209M0-○○	.374	.457	21°		D
RCGT RCMT	0602M0	RCGT RCMT	0602M0	.110	.148	R	TS (M2.5) with **a** = .130″	B
	0803M0		0803M0	.134	.177	R	TS (M3) with **a** = .154″	B
	10T3M0		10T3M0	.173	.236	R	TS (M4) with **a** = .213″	B
SCMT SCMW	32.5○	SCMT SCMW	09T3○○	.173	.236	R	TS (M4) with **a** = .213″	B
	43○		1204○○	.217	.295	R	TS (M5) with **a** = .268″	B
SPGX	32○	SPGX	0903○○	.189	.250	58°	TS (M4) with **a** = .213″	C
	42○		1203○○	.232	.303	58°	TS (M5) with **a** = .268″	C
SPMT	32○	SPMT	0903○○	.173	.236	R	TS (M4) with **a** = .213″	B
	42○		1203○○	.217	.295	R	TS (M5) with **a** = .268″	B
SPMW	32○	SPMW	0903○○	.181	.236	R	TS (M4) with **a** = .213″	B
	42○		1203○○	.224	.295	R	TS (M5) with **a** = .268″	B
TCGT	1.21○	TCGT	0601○○	.091	.126	R	TS (M2) with **a** = .106″	B
	21.5○		1102○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	32.5○		16T3○○	.173	.236	R	TS (M4) with **a** = .213″	B
TCMT	1.51.5○	TCMT	0802○○	.091	.118	R	TS (M2) with **a** = .106″	B
	1.81.5○		0902○○	.098	.130	R	TS (M2.2) with **a** = .118″	B
	21.5○		1102○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	2.52○		1303○○	.134	.177	R	TS (M3) with **a** = .154″	B
	32.5○		16T3○○	.173	.236	R	TS (M4) with **a** = .213″	B
TCMW	21.5○	TCMW	1102○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	2.52○		1303○○	.134	.177	R	TS (M3) with **a** = .154″	B
	32.5○		16T3○○	.173	.236	R	TS (M4) with **a** = .213″	B
TEGX	32○	TEGX	1603○○	.169	.238	88°	FC (M4) with **a** = .220″	D
TPGH	1.51.5○	TPGH	0802○○	.094	.157	78°	TS (M2) with **a** = .150″	D
	1.81.5○		0902○○	.114	.169	78°	TS (M2.5) with **a** = .173″	D
	22○		1103○○	.134	.188	78°	TS (M3) with **a** = .189″	D
	32○		1603○○	.173	.254	78°	TS (M4) with **a** = .220″	D
TPGX	1.51.5○	TPGX	0802○○	.098	.150	88°	TS (M2) with **a** = .126″	C
	1.81.5○		0902○○	.118	.169	88°	TS (M2.5) with **a** = .146″	C
	22○		1103○○	.138	.189	88°	TS (M3) with **a** = .161″	C
	32○		1603○○	.189	.250	58°	TS (M4) with **a** = .213″	D





POSITIVE

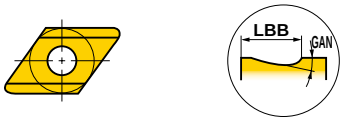
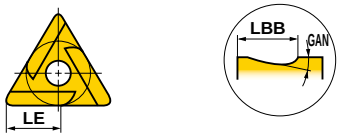
Insert Number		(ISO) Number		Dimension (inch)			Applicable Screw	Hole Type
				D1	FHCSD	FHCSA (°)		
TPMH	1.51.5○	TPMH	0802○○	.098	.157	78°	TS (M2) with **a** = .150″	D
	1.81.5○		0902○○	.114	.169	78°	TS (M2.5) with **a** = .173″	D
	22○		1103○○	.134	.189	78°	TS (M3) with **a** = .189″	D
	32○		1603○○	.173	.254	78°	TS (M4) with **a** = .220″	B
TPMT	1.81.5○	TPMT	0902○○	.098	.130	R	TS (M2.2) with **a** = .118″	B
	21.5○		1102○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	32.5○		16T3○○	.173	.236	R	TS (M4) with **a** = .213″	B
TPMX	1.81.5○L	TPMX	0902○○L	.126	.169	88°	TS (M2.5) with **a** = .146″	C
	22○L		1103○○L	.146	.189	88°	TS (M3) with **a** = .161″	C
	22○		1103○○	.138	.189	88°	TS (M3) with **a** = .161″	C
VBET	22○	VBET	1103○○	.115	.148	R	TS (M2.5) with **a** = .130″	B
VBGT	22○	VBGT	1103○○	.115	.148	R	TS (M2.5) with **a** = .130″	B
	33○		1604○○	.178	.236	R	TS (M4) with **a** = .213″	B
VBMT	22○	VBMT	1103○○	.115	.149	R	TS (M2.5) with **a** = .130″	B
	33○		1604○○	.178	.238	R	TS (M4) with **a** = .213″	B
VCGT	1.51.5○	VCGT	0802○○	.097	.126	R	TS (M2) with **a** = .106″	B
	33○		1604○○	.173	.236	R	TS (M4) with **a** = .213″	B
	43.57.5		220530	.217	.295	R	TS (M5) with **a** = .268″	B
VCMT	1.51.5○	VCMT	0802○○	.097	.126	R	TS (M2) with **a** = .106″	B
	22○		1103○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	33○		1604○○	.173	.236	R	TS (M4) with **a** = .213″	B
VCMW	22○	VCMW	1103○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	33○		1604○○	.173	.236	R	TS (M4) with **a** = .213″	B
VDGX	32○	VDGX	1603○○	.177	.238	88°	FC (M4) with **a** = .220″	D
WBGT	1.21○○	WBGT	0201○○	.091	.126	R	TS (M2) with **a** = .106″	B
	1.51.5○○		L302○○	.091	.126	R	TS (M2) with **a** = .106″	B
WCGT	1.21○○	WCGT	0201○○	.091	.118	R	TS (M2) with **a** = .106″	B
	1.51.5○○		L302○○	.091	.118	R	TS (M2) with **a** = .106″	B
	21.5○		0402○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	32.5○		06T3○○	.173	.236	R	TS (M4) with **a** = .213″	B
WCMT	1.21○○	WCMT	0201○○	.091	.118	R	TS (M2) with **a** = .106″	B
	1.51.5○○		L302○○	.091	.118	R	TS (M2) with **a** = .106″	B
	21.5○○		0402○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	32.5○○		06T3○○	.173	.236	R	TS (M4) with **a** = .213″	B
WPGT **WPMT**	21.5○	WPGT WPMT	0402○○	.110	.148	R	TS (M2.5) with **a** = .130″	B
	32○		0603○○	.173	.236	R	TS (M4) with **a** = .213″	B
XCMT	22○	XCMT	1503○○	.110	.148	R	TS (M2.5) with **a** = .138″	B

PRECISION BREAKER STANDARD

STANDARD FOR LEFT AND RIGHT HAND INSERTS

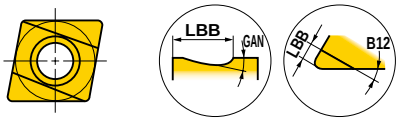
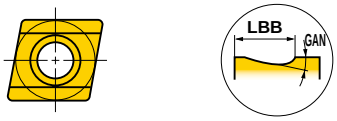
NEGATIVE INSERTS

Unit : inch

Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 Right hand insert shown.	**DNGG431R/L**	DNGG150404R/L	.110	–	15°	–
	DNGG432R/L	DNGG150408R/L	.110	–	15°	–
 Right hand insert shown.	**SNGG321L**	SNGG090304L	.071	.063	15°	–
	SNGG432R	SNGG120408R	.091	.146	15°	–
 Right hand insert shown.	**TNGG321L**	TNGG160304L	.091	.213	15°	–
	TNGG331L	TNGG160404L	.091	.213	15°	–
	TNGG431R/L	TNGG220404R/L	.110	.370	15°	–

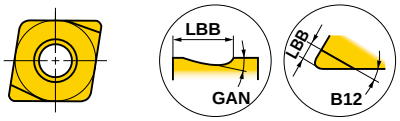
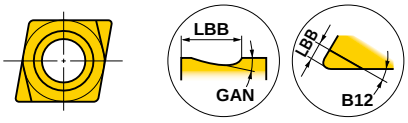
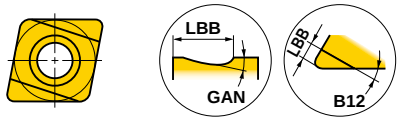
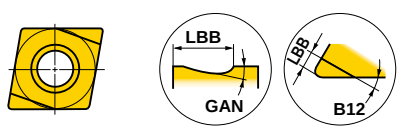
POSITIVE INSERTS

Unit : inch

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

POSITIVE INSERTS

Unit : inch

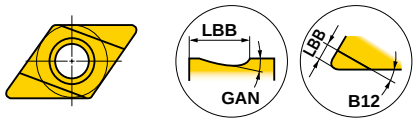
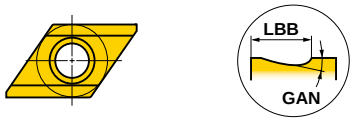
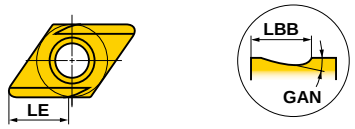
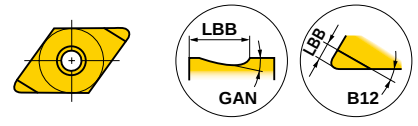
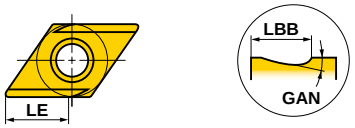
Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 Right hand insert shown.	**CCGH21.50.5R/LF**	CCGH060202R/L-F	.047	–	15°	20°
	CCGH21.51R/LF	CCGH060204R/L-F	.055	–	15°	20°
 Right hand insert shown.	**CCGT21.5V3RSN**	CCGT0602V3R-SN	.039	.118	20°	–
	CCGT21.50.2R/LSN	CCGT060201R/L-SN	.039	.118	20°	–
	CCGT21.50.5R/LSN	CCGT060202R/L-SN	.039	.118	20°	–
	CCGT32.5V3R/LSN	CCGT09T3V3R/L-SN	.059	.197	20°	–
	CCGT32.50.2R/LSN	CCGT09T301R/L-SN	.059	.197	20°	–
	CCGT32.50.5R/LSN	CCGT09T302R/L-SN	.059	.197	20°	–
	CCGT32.51R/LSN	CCGT09T304R/L-SN	.059	.197	20°	–
 Left hand insert only.	**CCGT03S1V3L-F**	CCGT03S1V3L-F	.031	–	17°	35°
	CCGT03S101L-F	CCGT03S101L-F	.031	–	17°	35°
	CCGT03S102L-F	CCGT03S102L-F	.031	–	17°	35°
	CCGT03S104L-F	CCGT03S104L-F	.031	–	17°	35°
	CCGT04T0V3L-F	CCGT04T0V3L-F	.039	–	17°	35°
	CCGT04T001L-F	CCGT04T001L-F	.039	–	17°	35°
	CCGT04T002L-F	CCGT04T002L-F	.039	–	17°	35°
	CCGT04T004L-F	CCGT04T004L-F	.039	–	17°	35°
 Right hand insert shown.	**CCGT21.5V3R/LSS**	CCGT0602V3R/L-SS	.039	.118	14°	–
	CCGT21.50.2R/LSS	CCGT060201R/L-SS	.039	.118	14°	–
	CCGT21.50.5R/LSS	CCGT060202R/L-SS	.039	.118	14°	–
	CCGT32.5V3R/LSS	CCGT09T3V3R/L-SS	.039	.197	14°	–
	CCGT32.50.2R/LSS	CCGT09T301R/L-SS	.039	.197	14°	–
	CCGT32.50.5R/LSS	CCGT09T302R/L-SS	.039	.197	14°	–
 Right hand insert shown.	**CPGT2.51.51R/LF**	CPGT080204R/L-F	.071	–	15°	20°
	CPGT320.5R/LF	CPGT090302R/L-F	.071	–	15°	20°
	CPGT321R/LF	CPGT090304R/L-F	.071	–	15°	20°
 Right hand insert shown.	**CPMH2.51.51R/LF**	CPMH080204R/L-F	.039	–	15°	20°
	CPMH321R/LF	CPMH090304R/L-F	.055	–	15°	20°

PRECISION BREAKER STANDARD

STANDARD FOR LEFT AND RIGHT HAND INSERTS

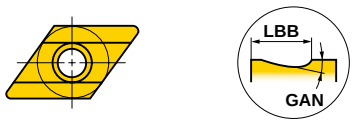
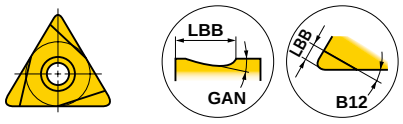
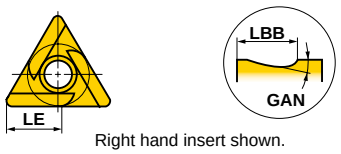
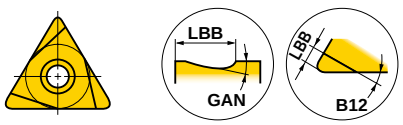
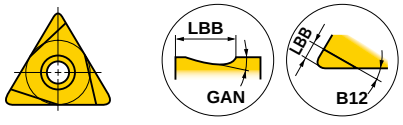
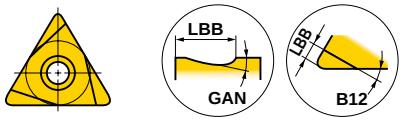
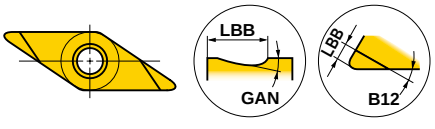
POSITIVE INSERTS

Unit : inch

Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 Right hand insert shown.	**DCET21.5V3R/LSR**	DCET0702V3R/L-SR	.098	–	30°	20°
	DCET**21.50.2R/LSR**	DCET070201R/L-SR	.098	–	30°	20°
	DCET**21.50.5R/LSR**	DCET070202R/L-SR	.098	–	30°	20°
	DCET**21.51R/LSR**	DCET070204R/L-SR	.098	–	30°	20°
	DCET**32.5V3R/LSR**	DCET11T3V3R/L-SR	.146	–	30°	20°
	DCET**32.50.2R/LSR**	DCET11T301R/L-SR	.146	–	30°	20°
	DCET**32.50.5R/LSR**	DCET11T302R/L-SR	.146	–	30°	20°
	DCET**32.51R/LSR**	DCET11T304R/L-SR	.146	–	30°	20°
 Right hand insert shown.	**DCET21.5V0R/LSN**	DCET070200R/L-SN	.039	–	20°	–
	DCET**21.5V3R/LSN**	DCET0702V3R/L-SN	.039	–	20°	–
	DCET**21.50.2R/LSN**	DCET070201R/L-SN	.039	–	20°	–
	DCET**21.50.5R/LSN**	DCET070202R/L-SN	.039	–	20°	–
	DCET**21.51R/LSN**	DCET070204R/L-SN	.039	–	20°	–
	DCET**32.5V0R/LSN**	DCET11T300R/L-SN	.059	–	20°	–
	DCET**32.5V3R/LSN**	DCET11T3V3R/L-SN	.059	–	20°	–
	DCET**32.50.2R/LSN**	DCET11T301R/L-SN	.059	–	20°	–
	DCET**32.50.5R/LSN**	DCET11T302R/L-SN	.059	–	20°	–
	DCET**32.51R/LSN**	DCET11T304RL-SN	.059	–	20°	–
 Right hand insert shown.	**DCET21.5V3R/LWSN**	DCET0702V3R/LW-SN	.039	–	20°	–
	DCET**32.5V3R/LWSN**	DCET11T3V3R/LW-SN	.059	–	20°	–
 Right hand insert shown.	**DCGT21.5V3RSN**	DCGT0702V3R-SN	.039	.138	20°	–
	DCGT**21.50.2RSN**	DCGT070201R-SN	.039	.138	20°	–
	DCGT**21.50.5R/LSN**	DCGT070202R/L-SN	.039	.138	20°	–
	DCGT**32.5V3R/LSN**	DCGT11T3V3R/L-SN	.059	.256	20°	–
	DCGT**32.50.2R/LSN**	DCGT11T301R/L-SN	.059	.256	20°	–
	DCGT**32.50.5R/LSN**	DCGT11T302R/L-SN	.059	.256	20°	–
	DCGT**32.51R/LSN**	DCGT11T304R/L-SN	.059	.256	20°	–
 Right hand insert shown.	**DCGT21.50.5R/LF**	DCGT070202R/L-F	.039	–	17°	20°
	DCGT**21.51R/LF**	DCGT070204R/L-F	.039	–	17°	20°
	DCGT**32.50.5R/LF**	DCGT11T302R/L-F	.039	–	14°	20°
	DCGT**32.51R/LF**	DCGT11T304R/L-F	.039	–	14°	20°
 Right hand insert shown.	**DCGT21.5V3R/LSS**	DCGT0702V3R/L-SS	.039	.138	14°	–
	DCGT**21.50.2R/LSS**	DCGT070201R/L-SS	.039	.138	14°	–
	DCGT**21.50.5R/LSS**	DCGT070202R/L-SS	.039	.138	14°	–
	DCGT**32.5V3RSS**	DCGT11T3V3R-SS	.039	.256	14°	–
	DCGT**32.50.2RSS**	DCGT11T301R-SS	.039	.256	14°	–
	DCGT**32.50.5RSS**	DCGT11T302R-SS	.039	.256	14°	–

POSITIVE INSERTS

Unit : inch

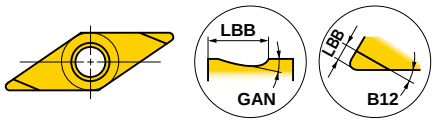
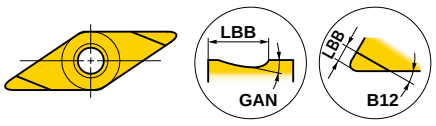
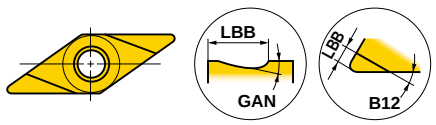
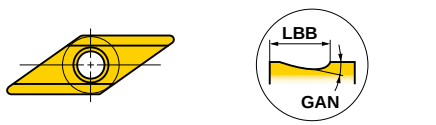
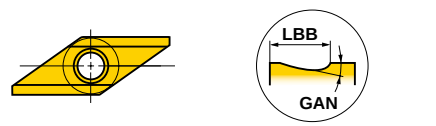
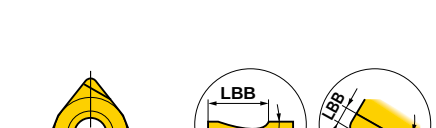
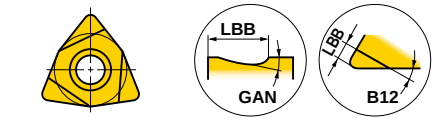
Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 Right hand insert shown.	**DEGX430.5R/L**	DEGX150402R/L	.110	–	20°	–
	DEGX431R/L	DEGX150404R/L	.110	–	20°	–
	DEGX432R/L	DEGX150408R/L	.110	–	20°	–
 Left hand insert only.	**TCGT1.21V3LF**	TCGT0601V3L-F	.039	–	14°	20°
	TCGT1.210.2LF	TCGT060101L-F	.039	–	14°	20°
	TCGT1.210.5LF	TCGT060102L-F	.039	–	14°	20°
	TCGT1.211LF	TCGT060104L-F	.039	–	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	–	15°	20°
	TPGH1.51.51R/LFS	TPGH080204R/L-FS	.035	–	15°	20°
	TPGH1.81.50.5R/LFS	TPGH090202R/L-FS	.039	–	15°	20°
	TPGH1.81.51R/LFS	TPGH090204R/L-FS	.039	–	15°	20°
	TPGH220.5R/LFS	TPGH110302R/L-FS	.055	–	15°	20°
	TPGH221R/LFS	TPGH110304R/L-FS	.055	–	15°	20°
 Right hand insert shown.	**TPGX1.51.50.5R/L**	TPGX080202R/L	.051	–	10°	20°
	TPGX1.51.51R/L	TPGX080204R/L	.051	–	10°	20°
	TPGX1.81.50.5R/L	TPGX090202R/L	.063	–	10°	20°
	TPGX1.81.51R/L	TPGX090204R/L	.063	–	10°	20°
	TPGX1.81.52R/L	TPGX090208R/L	.055	–	10°	20°
	TPGX220.5L	TPGX110302L	.071	–	10°	20°
	TPGX221R/L	TPGX110304R/L	.071	–	10°	20°
	TPGX222R/L	TPGX110308R/L	.071	–	10°	20°
 Right hand insert shown.	**TPGV1.81.50.5LF**	TPGV090202L-F	.063	–	10°	20°
	TPGV1.81.51R/LF	TPGV090204R/L-F	.063	–	10°	20°
	TPGV220.5LF	TPGV110302L-F	.071	–	10°	20°
	TPGV221R/LF	TPGV110304R/L-F	.071	–	10°	20°
 Right hand insert shown.	**VCGT1.51.50.5R/LF**	VCGT080202R/L-F	.031	–	13°	20°
	VCGT1.51.51R/LF	VCGT080204R/L-F	.031	–	13°	20°

PRECISION BREAKER STANDARD

STANDARD FOR LEFT AND RIGHT HAND INSERTS

POSITIVE INSERTS

Unit : inch

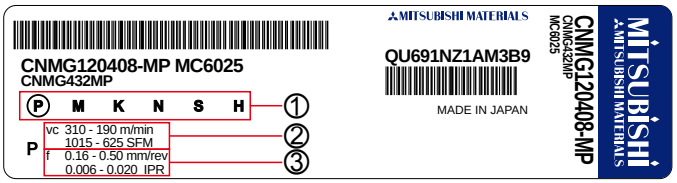
Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 Right hand insert shown.	**VDGX320.5R/L**	VDGX160302R/L	.079	–	25°	20°
	VDGX321R/L	VDGX160304R/L	.079	–	25°	20°
 Right hand insert shown.	**VBGT220.5R/LF**	VBGT110302R/L-F	.039	–	13°	20°
	VBGT221R/LF	VBGT110304R/L-F	.039	–	13°	20°
	VBGT330.5R/LF	VBGT160402R/L-F	.059	–	13°	20°
	VBGT331R/LF	VBGT160404R/L-F	.059	–	13°	20°
 Right hand insert shown.	**VBET22V3R/LSR**	VBET1103V3R/L-SR	.098	–	30°	20°
	VBET220.2R/LSR	VBET110301R/L-SR	.098	–	30°	20°
	VBET220.5R/LSR	VBET110302R/L-SR	.098	–	30°	20°
	VBET221R/LSR	VBET110304R/L-SR	.098	–	30°	20°
 Right hand insert shown.	**VBET22V0R/LSN**	VBET110300R/L-SN	.039	–	20°	–
	VBET22V3R/LSN	VBET1103V3R/L-SN	.039	–	20°	–
	VBET220.2R/LSN	VBET110301R/L-SN	.039	–	20°	–
	VBET220.5R/LSN	VBET110302R/L-SN	.039	–	20°	–
	VBET221R/LSN	VBET110304R/L-SN	.039	–	20°	–
 Right hand insert shown.	**VBET22V3R/LWSN**	VBET1103V3R/LW-SN	.039	–	20°	–
 Left hand insert shown.	**WBGT1.21V3LF**	WBGT0201V3L-F	.039	–	13°	30°
	WBGT1.210.2LF	WBGT020101L-F	.039	–	13°	30°
	WBGT1.210.5LF	WBGT020102L-F	.039	–	13°	30°
	WBGT1.211LF	WBGT020104L-F	.039	–	13°	30°
	WBGT1.51.5V3LF	WBGTL302V3L-F	.039	–	13°	30°
	WBGT1.51.50.2LF	WBGTL30201L-F	.039	–	13°	30°
	WBGT1.51.50.5R/LF	WBGTL30202R/L-F	.039	–	13°	30°
	WBGT1.51.51R/LF	WBGTL30204R/L-F	.039	–	13°	30°
 Right hand insert shown.	**WCGT1.210.5R/L**	WCGT020102R/L	.039	–	15°	30°
	WCGT1.211R/L	WCGT020104R/L	.039	–	15°	30°
	WCGT1.51.50.5R	WCGTL30202R	.039	–	15°	30°
	WCGT1.51.51L	WCGTL30204L	.039	–	15°	30°

TOOL NAVI

OUTLINE

TOOL NAVI supports our customers with information and supplies suitable cutting conditions for each workpiece 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.

①Workpiece 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	HRC60

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=0.3mm
H • • • VB=0.1mm

TOOL LIFE

Cutting speed has a large affect on tool life. TOOL NAVI is based on Taylor's equation (relationship vc 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
UE6105	1.00	0.79	0.69	0.63	0.55
MC6015	1.00	0.82	0.72	0.67	0.59
MC6025	1.00	0.83	0.75	0.69	0.62
UE6035	1.00	0.88	0.82	0.78	0.73
MP3025	1.00	0.85	0.77	0.72	0.65
NX2525	1.00	0.87	0.80	0.76	0.70

M Grade (Stainless Steel) cutting speed coefficient values.

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

K Grade (Cast Iron) cutting speed coefficient values.

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

(ex.) Medium cutting of steel
The 1st recommendation : MC6025
Indexable inserts : CNMG432MA
Recommended cutting speed : vc = 1017SFM
(Tool life : 15min.)

↓

Tool life required by the customer : 30min.
1017×0.83≒843SFM

HARDNESS OF WORKPIECE

Hardness of the workpiece also affects tool life. Mitsubishi's TOOL NAVI suggests cutting speed variations when hardness of the workpiece differs. Obtain the suitable coefficient value for each workpiece 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 workpiece) → Hard											
	120HB	140HB	160HB	180HB	200HB	220HB	240HB	260HB	280HB	300HB	320HB	340HB
P	1.34	1.19	1.08	1.00	0.92	0.85	0.80	0.75	0.71	0.68	0.64	0.61
M	1.41	1.23	1.10	1.00	0.91	0.85	0.78	0.72	0.68	0.64	0.61	0.58
K	1.27	1.19	1.09	1.00	0.97	0.91	0.88	0.85	0.81	0.78	0.75	0.72

CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING

● Selection of optimum inserts for turning

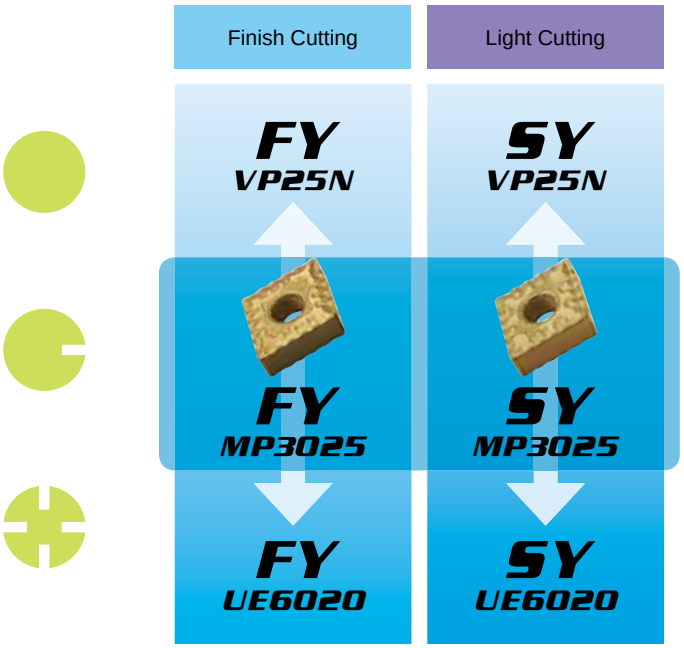
The following diagrams show for each work material, the optimal combination of suitable grades and chip breakers for each application area in turning.

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



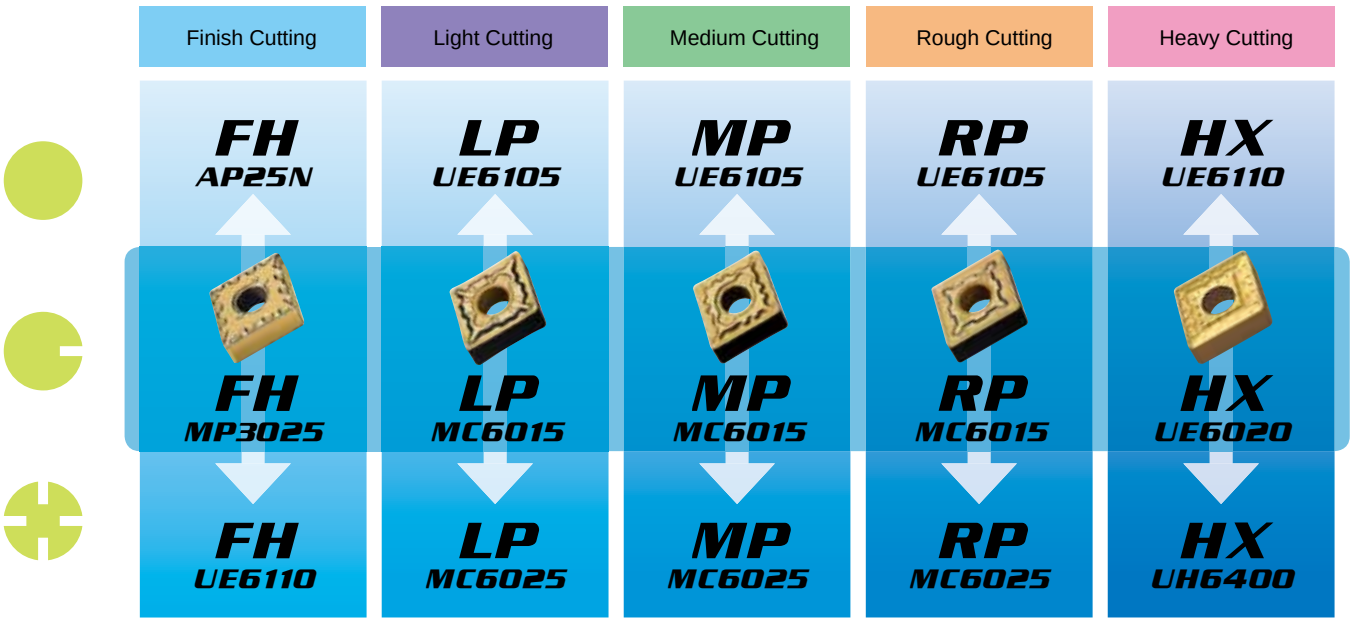
P Mild Steel (EX. : ASTM A283, AISI 1010)

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—1460	.004—.010	.008—.032
	L	SY	VP25N	850—1330	.007—.013	.020—.048
General Cutting	F	FY	MP3025	900—1380	.004—.010	.008—.032
	L	SY	MP3025	820—1260	.007—.013	.020—.048
Unstable Cutting	F	FY	UE6020	935—1510	.004—.010	.008—.032
	L	SY	UE6020	850—1380	.007—.013	.020—.048

Stable Cutting	F Finish Cutting
General Cutting	L Light Cutting
Unstable Cutting	M Medium Cutting
	R Rough Cutting
	H Heavy Cutting



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

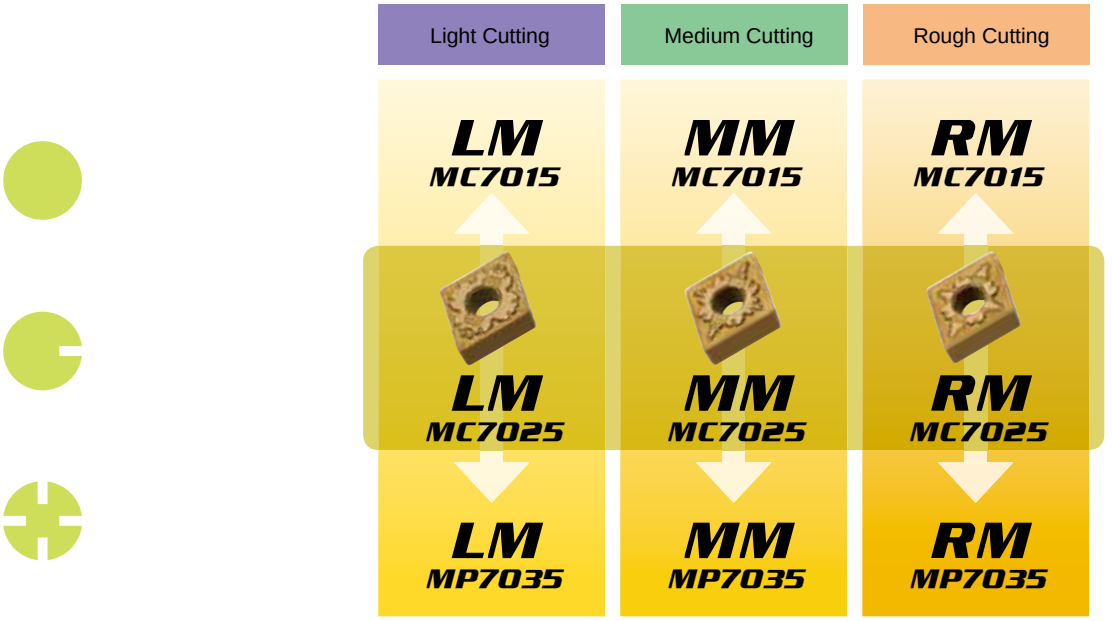
NEGATIVE INSERTS

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	FH	AP25N	705—1115	.004—.008	.008—.040
	L	LP	UE6105	720—1330	.004—.016	.012—.079
	M	MP	UE6105	655—1215	.007—.020	.012—.158
	R	RP	UE6105	620—1150	.010—.024	.060—.237
	H	HX	UE6110	525—900	.020—.050	.119—.434
General Cutting	F	FH	MP3025	690—1065	.004—.008	.008—.040
	L	LP	MC6015	690—1165	.004—.016	.012—.079
	M	MP	MC6015	620—1065	.007—.020	.012—.158
	R	RP	MC6015	590—1015	.010—.024	.060—.237
	H	HX	UE6020	510—820	.020—.050	.119—.434
Unstable Cutting	F	FH	UE6110	755—1280	.004—.008	.008—.040
	L	LP	MC6025	690—1115	.004—.016	.012—.079
	M	MP	MC6025	620—1015	.007—.020	.012—.158
	R	RP	MC6025	590—970	.010—.024	.060—.237
	H	HX	UH6400	440—640	.020—.050	.119—.434

CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING

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



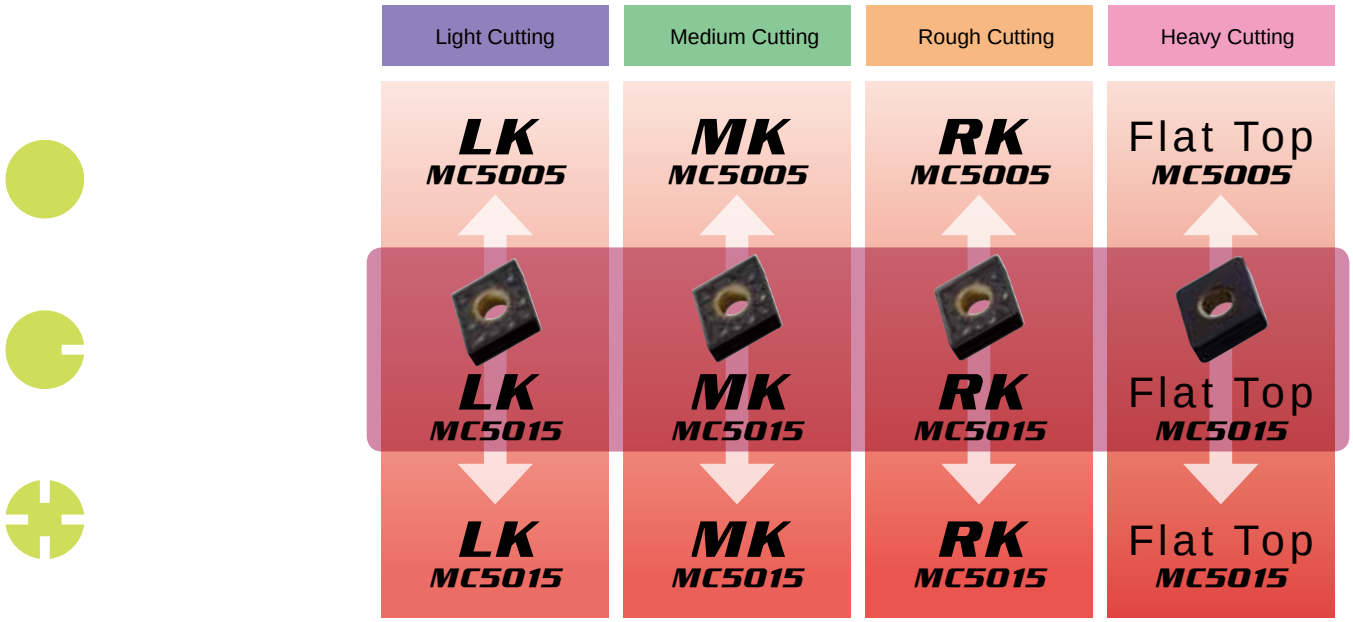
M Stainless Steel (EX. : AISI 304, AISI 306)

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—.012	.012—.079
	M	MM	MC7015	525—835	.006—.018	.028—.197
	R	RM	MC7015	510—805	.010—.022	.060—.237
General Cutting	L	LM	MC7025	525—705	.004—.012	.012—.079
	M	MM	MC7025	475—640	.006—.018	.028—.197
	R	RM	MC7025	460—605	.010—.022	.060—.237
Unstable Cutting	L	LM	MP7035	310—510	.004—.012	.012—.079
	M	MM	MP7035	280—460	.006—.018	.028—.197
	R	RM	MP7035	280—440	.010—.022	.060—.237

Stable Cutting	L Light Cutting
General Cutting	M Medium Cutting
Unstable 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	715—1100	.004—.016	.012—.079
	M	MK	MC5005	640—1000	.008—.022	.036—.158
	R	RK	MC5005	600—950	.010—.024	.060—.237
	H	Flat Top	MC5005	600—950	.008—.024	.099—.237
General Cutting	L	LK	MC5015	625—1000	.004—.016	.012—.079
	M	MK	MC5015	580—930	.008—.022	.036—.158
	R	RK	MC5015	540—860	.010—.024	.060—.237
	H	Flat Top	MC5015	540—860	.008—.024	.099—.237
Unstable Cutting	L	LK	MC5015	625—1000	.004—.016	.012—.079
	M	MK	MC5015	580—930	.008—.022	.036—.158
	R	RK	MC5015	540—860	.010—.024	.060—.237
	H	Flat Top	MC5015	540—860	.008—.024	.099—.237

CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING

Stable Cutting	F Finish Cutting
General Cutting	L Light Cutting
Unstable 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	FJ	RT9010	150—310	.003—.008	.004—.040
	L	LS	MT9015	115—260	.004—.010	.008—.030
	M	MS	MT9015	130—260	.004—.010	.020—.158
	R	RS	MT9015	100—220	.008—.013	.036—.158
General Cutting	F	FJ	RT9010	150—310	.003—.008	.004—.040
	L	LS	MT9015	115—260	.004—.010	.008—.030
	M	MS	MT9015	130—260	.004—.010	.020—.158
	R	RS	MT9015	100—220	.008—.013	.036—.158
Unstable Cutting	F	FJ	RT9010	150—310	.003—.008	.004—.040
	L	MJ	RT9010	130—260	.003—.010	.016—.060
	M	MS	RT9010	130—260	.004—.010	.020—.158
	R	GJ	RT9010	115—245	.007—.014	.040—.119

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

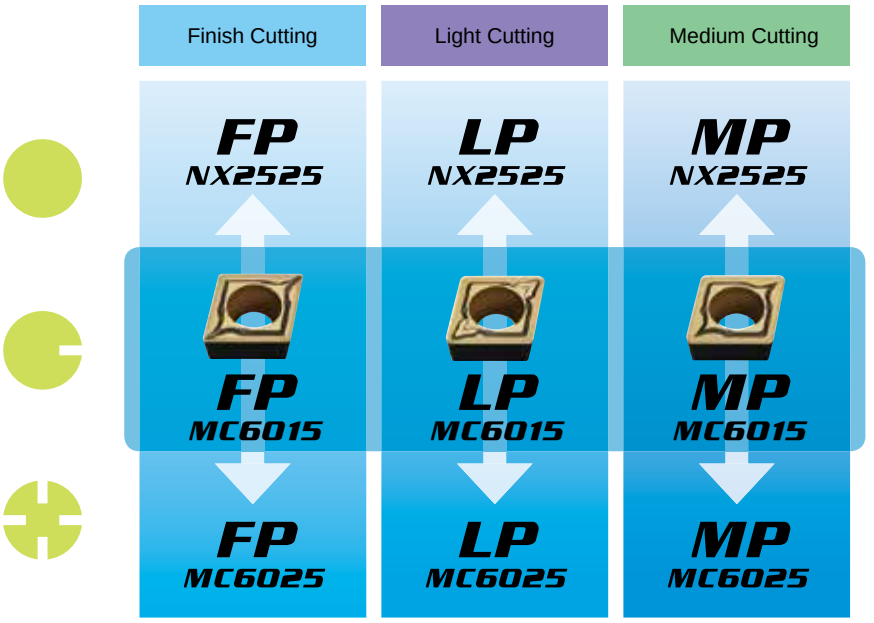
S Ni, Co-Based Alloy (EX. : Inconel®718)

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	FJ	VP10RT	100—195	.003—.008	.004—.040
	L	LS	MP9005	90—330	.004—.010	.008—.030
	M	MS	MP9005	90—300	.004—.010	.020—.158
	R	RS	MP9015	60—220	.008—.013	.036—.158
General Cutting	F	FJ	VP10RT	100—195	.003—.008	.004—.040
	L	LS	MP9015	75—260	.004—.010	.008—.030
	M	MS	MP9015	75—245	.004—.010	.020—.158
	R	RS	MP9015	60—220	.008—.013	.036—.158
Unstable Cutting	F	FJ	VP15TF	65—130	.003—.008	.004—.040
	L	MJ	VP15TF	65—115	.003—.010	.016—.060
	M	MS	VP15TF	65—115	.004—.010	.020—.158
	R	GJ	VP15TF	50—100	.007—.014	.040—.119

CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING



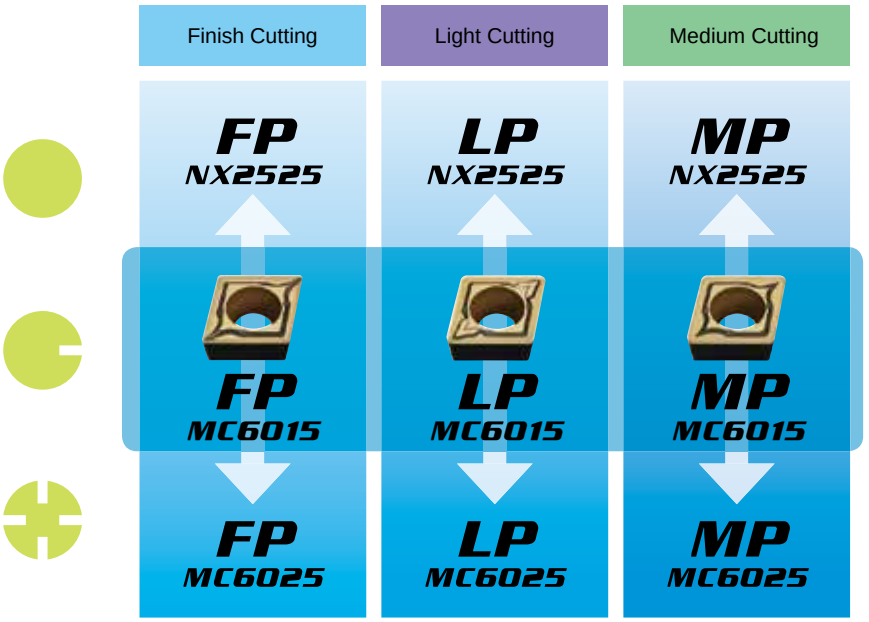
- Stable Cutting
- General Cutting
- Unstable Cutting
- F Finish Cutting
- L Light Cutting
- M Medium Cutting

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—.036
	L	LP	NX2525	740—1050	.003—.010	.008—.040
	M	MP	NX2525	605—870	.004—.012	.012—.079
General Cutting	F	FP	MC6015	820—1395	.002—.008	.008—.036
	L	LP	MC6015	820—1395	.003—.010	.008—.040
	M	MP	MC6015	670—1150	.004—.012	.012—.079
Unstable Cutting	F	FP	MC6025	820—1330	.002—.008	.008—.036
	L	LP	MC6025	820—1330	.003—.010	.008—.040
	M	MP	MC6025	670—1100	.004—.012	.012—.079



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

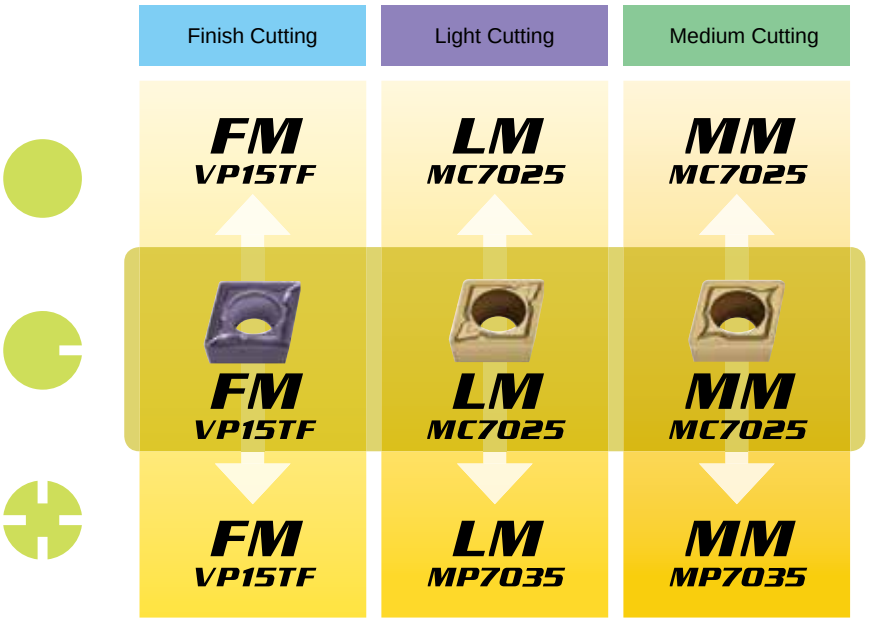
P Carbon Steel • Alloy Steel (EX. : AISI 1045, AISI 4140)

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—770	.002—.008	.008—.036
	L	LP	NX2525	540—770	.003—.010	.008—.040
	M	MP	NX2525	440—640	.004—.012	.012—.079
General Cutting	F	FP	MC6015	605—1015	.002—.008	.008—.036
	L	LP	MC6015	605—1015	.003—.010	.008—.040
	M	MP	MC6015	490—850	.004—.012	.012—.079
Unstable Cutting	F	FP	MC6025	605—970	.002—.008	.008—.036
	L	LP	MC6025	605—970	.003—.010	.008—.040
	M	MP	MC6025	490—805	.004—.012	.012—.079

CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING



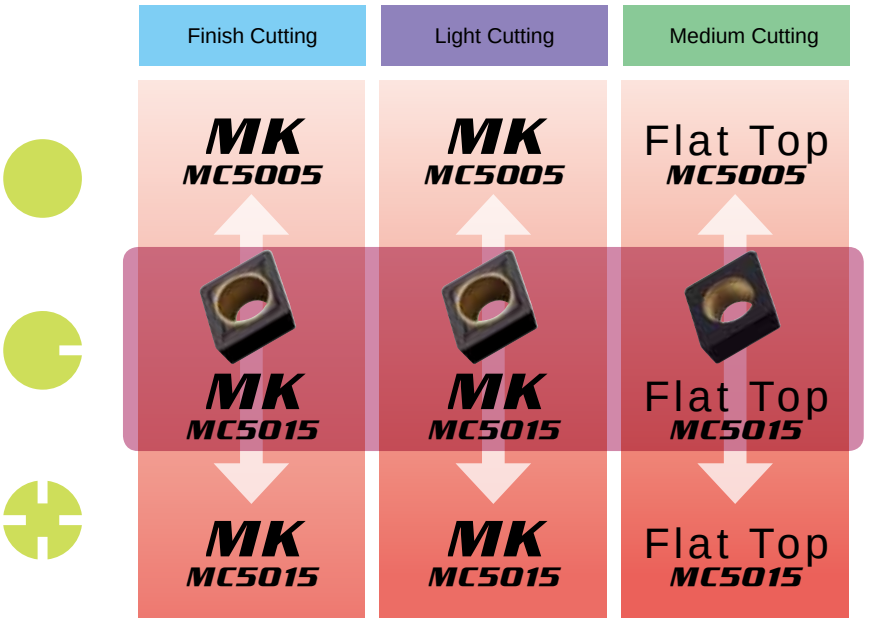
- Stable Cutting
- General Cutting
- Unstable Cutting
- F Finish Cutting
- L Light Cutting
- M Medium Cutting

M Stainless Steel (EX. : AISI 304, AISI 306)

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—.036
	L	LM	MC7025	460—620	.003—.010	.008—.040
	M	MM	MC7025	375—510	.004—.012	.012—.079
General Cutting	F	FM	VP15TF	245—410	.002—.008	.008—.036
	L	LM	MC7025	460—620	.003—.010	.008—.040
	M	MM	MC7025	375—510	.004—.012	.012—.079
Unstable Cutting	F	FM	VP15TF	245—410	.002—.008	.008—.036
	L	LM	MP7035	280—440	.003—.010	.008—.040
	M	MM	MP7035	230—375	.004—.012	.012—.079



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

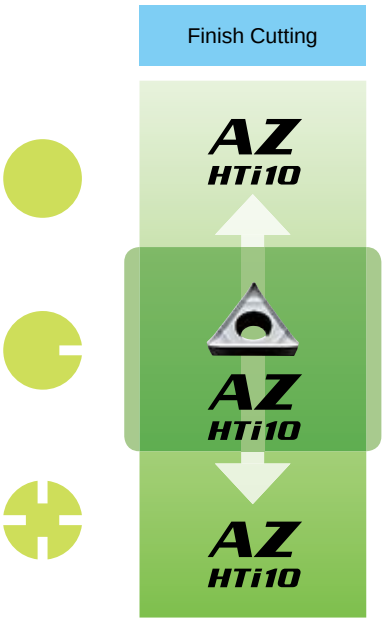
K Cast Iron • Ductile Cast Iron (EX. : AISI No 45 B)

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	515—820	.004—.012	.012—.079
	L	MK	MC5005	515—820	.004—.012	.012—.079
	M	Flat Top	MC5005	515—820	.004—.012	.012—.079
General Cutting	F	MK	MC5015	470—745	.004—.012	.012—.079
	L	MK	MC5015	470—745	.004—.012	.012—.079
	M	Flat Top	MC5015	470—745	.004—.012	.012—.079
Unstable Cutting	F	MK	MC5015	470—745	.004—.012	.012—.079
	L	MK	MC5015	470—745	.004—.012	.012—.079
	M	Flat Top	MC5015	470—745	.004—.012	.012—.079

CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING



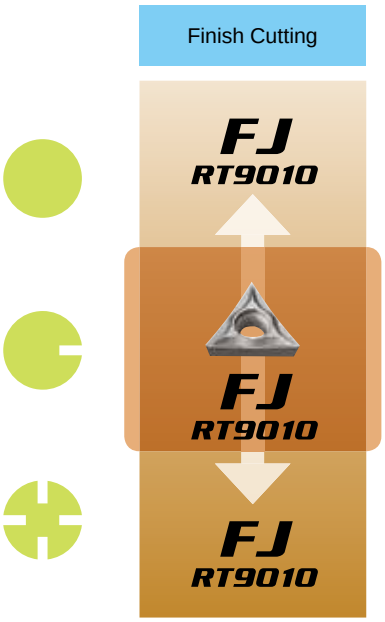
- Stable Cutting
- General Cutting
- Unstable Cutting
- F Finish Cutting

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—.119
General Cutting	F	AZ	HTi10	985—2295	.004—.016	.008—.119
Unstable Cutting	F	AZ	HTi10	985—2295	.004—.016	.008—.119



Stable Cutting
General Cutting
Unstable Cutting
F Finish Cutting

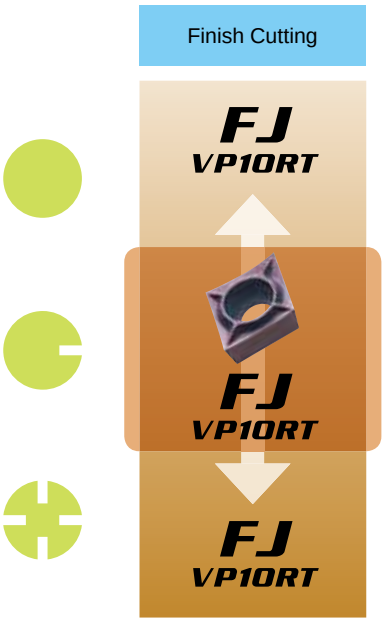
S Titanium Alloy (EX. : Ti-6Al-4V)

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	FJ	RT9010	115—245	.002—.005	.008—.056
General Cutting	F	FJ	RT9010	115—245	.002—.005	.008—.056
Unstable Cutting	F	FJ	RT9010	115—245	.002—.005	.008—.056

CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING



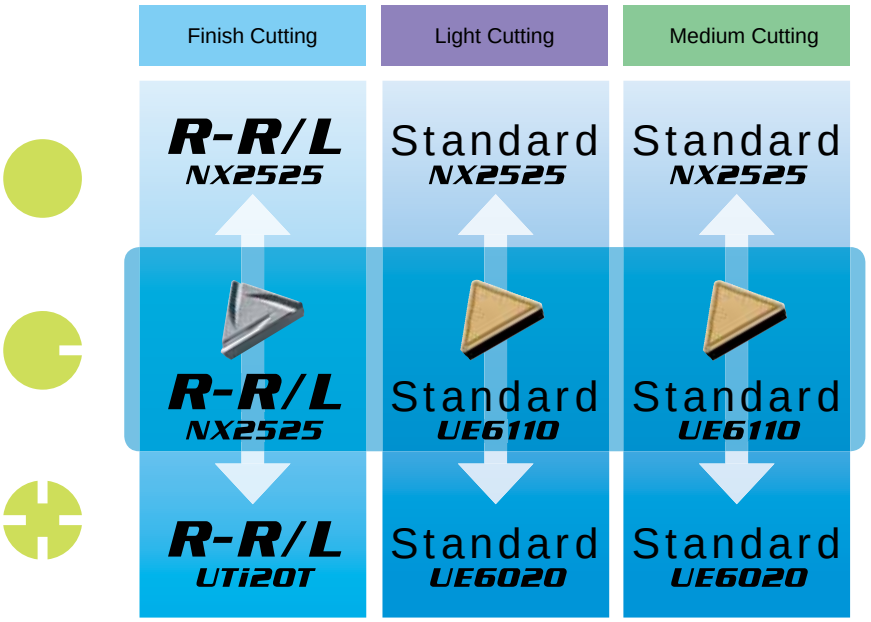
- Stable Cutting
- General Cutting
- Unstable Cutting
- F Finish Cutting

S Ni, Co-Based Alloy (EX. : Inconel®718)

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	FJ	VP10RT	65—150	.002—.005	.008—.056
General Cutting	F	FJ	VP10RT	65—150	.002—.005	.008—.056
Unstable Cutting	F	FJ	VP10RT	65—150	.002—.005	.008—.056



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

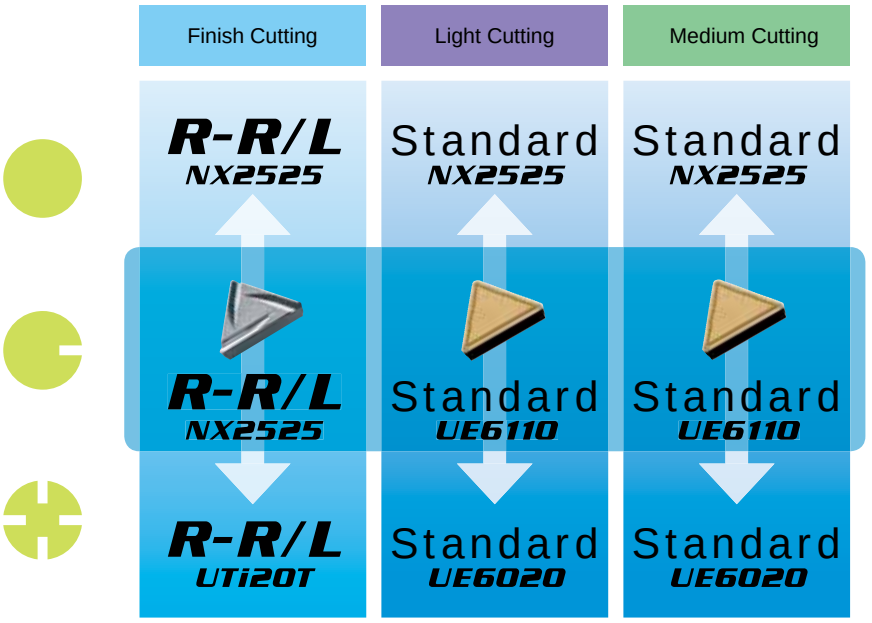
P Mild Steel (EX. : AISI ASTM A283, AISI 1010)

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—.005	.008—.024
	L	Standard	NX2525	605—870	.004—.012	.012—.079
	M	Standard	NX2525	605—870	.004—.012	.012—.079
General Cutting	F	R-R/L	NX2525	740—1050	.002—.005	.008—.024
	L	Standard	UE6110	670—1150	.004—.012	.012—.079
	M	Standard	UE6110	670—1150	.004—.012	.012—.079
Unstable Cutting	F	R-R/L	UTi20T	375—540	.002—.005	.008—.024
	L	Standard	UE6020	640—1050	.004—.012	.012—.079
	M	Standard	UE6020	640—1050	.004—.012	.012—.079

CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING



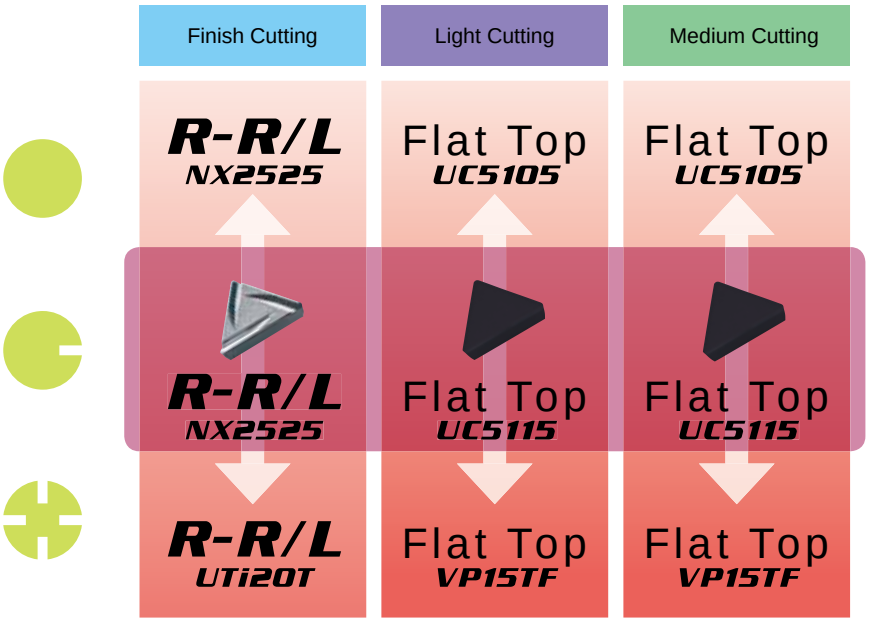
- Stable Cutting
- General Cutting
- Unstable Cutting
- F Finish Cutting
- L Light Cutting
- M Medium Cutting

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

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—770	.002—.005	.008—.024
	L	Standard	NX2525	440—640	.004—.012	.012—.079
	M	Standard	NX2525	440—640	.004—.012	.012—.079
General Cutting	F	R-R/L	NX2525	540—770	.002—.005	.008—.024
	L	Standard	UE6110	490—850	.004—.012	.012—.079
	M	Standard	UE6110	490—850	.004—.012	.012—.079
Unstable Cutting	F	R-R/L	UTi20T	280—395	.002—.005	.008—.024
	L	Standard	UE6020	475—770	.004—.012	.012—.079
	M	Standard	UE6020	475—770	.004—.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

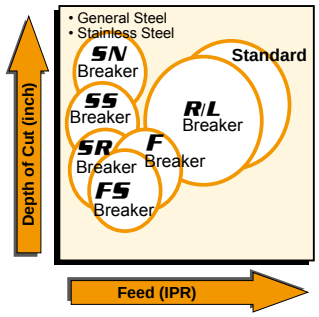
vc : Cutting speed
f : Feed
ap : Depth of cut.

	Cutting Area	Chip Breaker	Grade	1st Recommendation vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	R-R/L	NX2525	490—670	.002—.005	.008—.024
	L	Flat Top	UC5105	440—820	.004—.012	.012—.079
	M	Flat Top	UC5105	440—820	.004—.012	.012—.079
General Cutting	F	R-R/L	NX2525	490—670	.002—.005	.008—.024
	L	Flat Top	UC5105	425—805	.004—.012	.012—.079
	M	Flat Top	UC5105	425—805	.004—.012	.012—.079
Unstable Cutting	F	R-R/L	UTi20T	260—375	.002—.005	.008—.024
	L	Flat Top	VP15TF	375—525	.004—.012	.012—.079
	M	Flat Top	VP15TF	375—525	.004—.012	.012—.079

BREAKER SYSTEMS FOR SMALL SIZE INSERTS

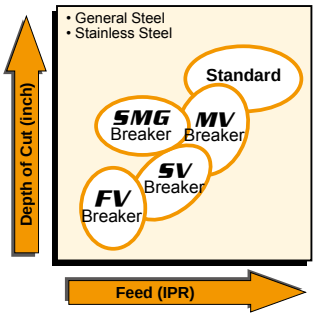
ANGULAR AND PARALLEL CHIP BREAKER

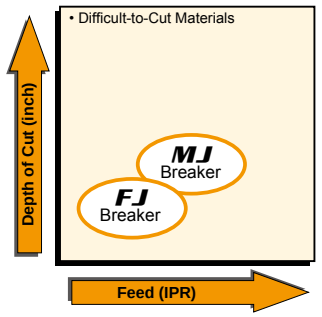
CHIP CONTROL RANGES



3-DIMENSIONAL CHIP BREAKER

CHIP CONTROL RANGES

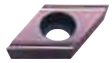




FEATURES OF CHIP BREAKER

Breaker	Features	CCGH/CCGT Type	CCMH/CCMT CPMH/CPMT Type	DCMT Type	DCGT Type	TCGT/TCMT Type	TPMH Type	VBGT/VBMT Type	VCMT Type	WBMT/WCGT Type
SMG (G class)	● For medium cutting. ● 3D molded chipbreaker provides good chip control.Breaker geometry appropriate for copying and back turning.		—	—		—	—	—	—	—
FV (M class)	● Sharp cutting edge and low resistance design dots achieve excellent cutting performance. ● Suitable for low depth of cut and low feed rates.	—			—					—
SV (M class)	● For light cutting. ● The double design dots promote chip discharge for mild steel machining and at low depth of cut machining.	—			—	—				—
MV (M class)	● A positive insert and the large rake angle achieve sharp cutting edge performance. ● The double breakers and round-shaped dots in the rake face achieve a wide range of chip discharge.	—			—	—				
Standard (M class)	● For medium cutting. ● Balance of edge strength and sharpness due to a combination of a flat land and large rake angle.	—			—		—			—
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.		—	—			—	—	—	
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.		—	—			—	—	—	

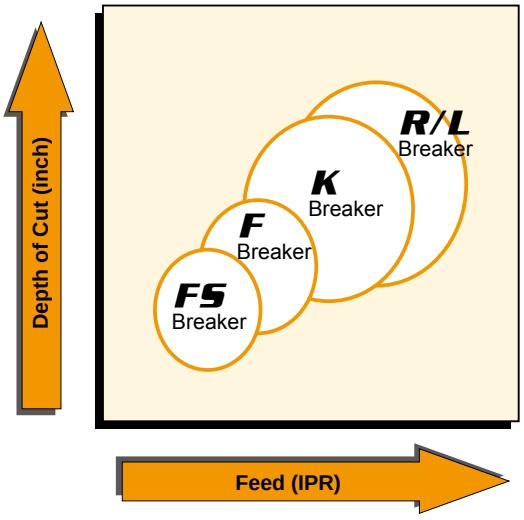
Breaker	Features	CCGH/CCGT Type	CPGT Type	DCGT Type	TPGH Type	TPGV/TPGT Type	TCGT Type	VBGT/VCGT Type	WBGT Type	WCGT Type	WPGT Type
FS	● For precision finishing. ● Narrow angled breaker provides optimal chip control. ● Sharp cutting edge generates excellent surface finish.	—	—	—		—	—	—	—	—	
F	● For finish cutting. ● Angled breaker controls chip flow. ● Sharp cutting edge generates excellent surface finish.				—					—	—
R/L	● Angled breaker for light cutting. ● Good chip control at low to medium feed rates.	—	—	—	—	—	—	—	—		—
Standard	● For light cutting. ● Good chip control at low to medium feed rates.	—		—	—	—	—	—	—	—	

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

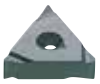
PRECISION BREAKER SYSTEM (NEGATIVE INSERTS)

ANGULAR AND PARALLEL CHIP BREAKERS (NEGATIVE INSERTS)

CHIP CONTROL RANGES



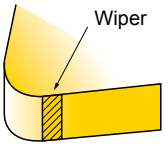
FEATURES OF CHIP BREAKER

Breaker	Features	DNGG Type	SNGG Type	TNGG Type	VNGG Type
FS	● For precision finishing. ● Narrow width angled breaker for good chip control. ● Sharp cutting edge produces excellent surface finish.	—	—		—
F	● Finish cutting. ● Angled breaker controls chip flow. ● Sharp cutting edge produces excellent surface finish.	—	—		—
K	● Parallel breaker for light cutting. ● Excellent chip control at low to medium feed rates.	—	—		—
R/L	● Parallel breaker for medium cutting. ● Good chip control at medium feed rates				

WIPER INSERT

What is a Wiper Insert?

- The wiper insert is designed with a short, flat edge that is located where the straight edge meets the corner radius.
- In comparison to conventional breakers, the surface finish is maintained even if the feed rate is doubled.
- Machining at high feed rates improves cutting efficiency.



• Right hand wiper shown.

●Improving Surface Finish Roughness
Under the same machining conditions against conventional breakers, but with the feed rate increased, the surface finish of the workpiece can be maintained.

●Improving Efficiency
High feed rates not only shorten machining times but employing a wiper also makes it possible to combine roughing and finishing operations.

●Increased Tool life
When wiper inserts are employed, the high feed rate possible reduces the time in cut therefore, delaying the progression of wear and increasing insert tool life.

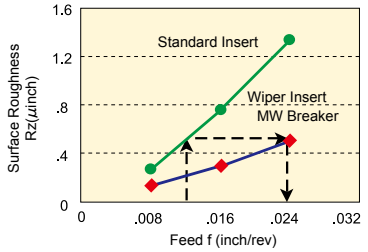
●Improving Chip Control
Under high feed conditions, the chips generated become thicker and are more easily broken, thus, chip control is improved.

Wiper insert with **High feed (The feed rate is doubled.)**

Finished surface: Same surface roughness

Standard insert with **The conventional feed condition**

*Wiper inserts allow high feed rates.



<Cutting Condition>
Workpiece : AISI1045
Insert : CNMG432◌◌
Cutting Speed=655SFM
Depth of Cut=.059inch
Feed rate=.008—.024inch/rev
with flood coolant

The surface roughness does not deteriorate even when the feed rate is doubled (.012→.024) !

■Wiper insert + machining at high feed rates
- Reduced machining time
- Increased production rate
- Improved chip control

■Wiper insert + machining at conventional feed rates
- Eliminating the finishing step
  (Combine roughing and finishing into single pass.)

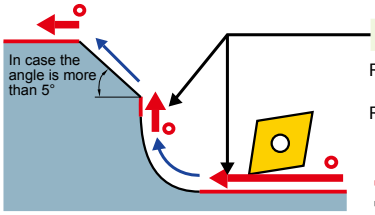
- Reducing cost
- Increased productivity
- Reduced machine down time

<Real cost reduction!!>

The Estimation of finished surface roughness when using a wiper insert

Wipers are effective when external machining, boring and facing.

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



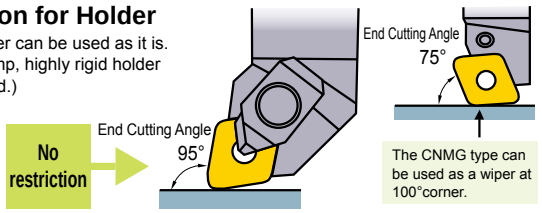
Rz(W)=Rz×0.5

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

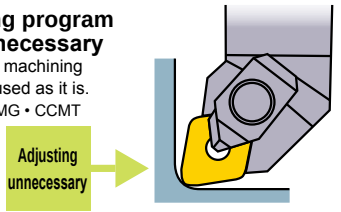
Effective uses of a wiper insert
Non effective uses of a wiper insert

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

No Restriction for Holder
The standard holder can be used as it is.
(*The double clamp, highly rigid holder is recommended.)



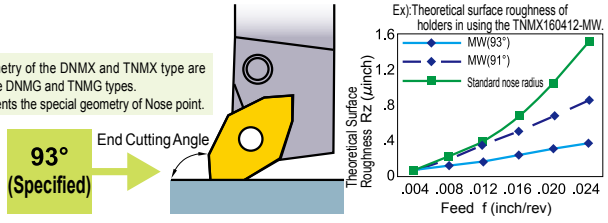
No machining program adjustment necessary
The conventional machining program can be used as it is.
(The CNMG • WNMG • CCMT types are based on ISO/ANSI standards.)



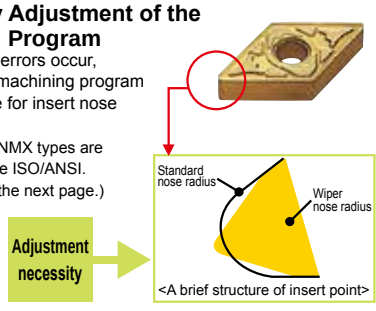
Special attention is necessary when using DNMX • TNMX types due to the special top face geometry

Restriction for Holder
Use a holder with an end cutting angle of 93°to improve wiper efficiency. A holder with a cutting edge angle of 91°can marginally improve wiper efficiency (see the figure below), 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 Nose point.



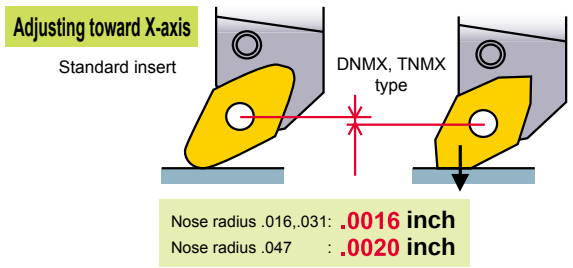
Necessary Adjustment of the Machining Program
If dimensional errors occur, please adjust machining program to compensate for insert nose configuration.
(The DNMX • TNMX types are not based on the ISO/ANSI. Please refer to the next page.)

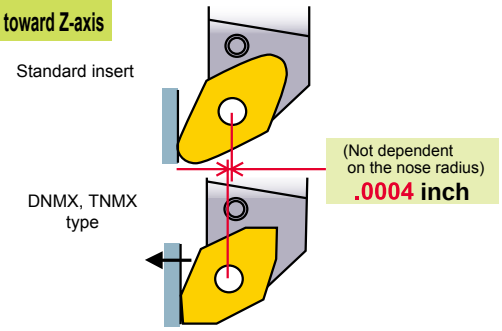


MACHINING PROGRAM ADJUSTMENTS FOR DNMX AND TNMX INSERTS

A) Turning and facing

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

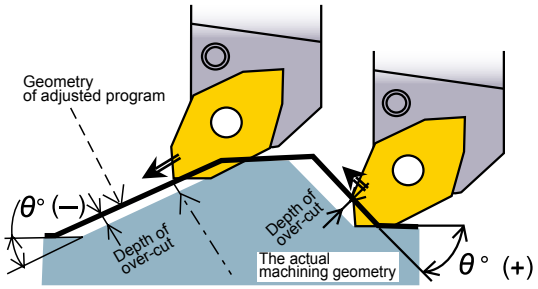




B) Machining a form or taper

Required to machine an accurate form or taper.
Move the tool perpendicular to the machined surface.

(Note) Adjust the drive-in angle toward the normal line when the part where the adjust number in minus (θ=60°−70°) 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)

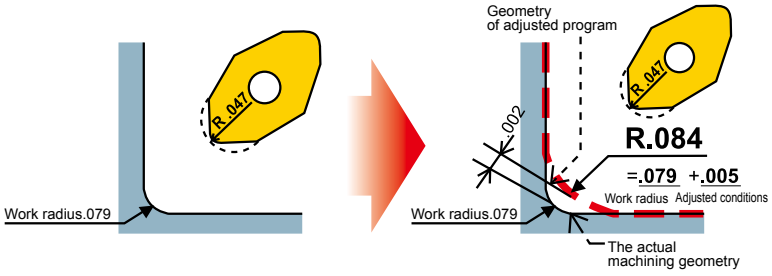
C) Compensation when machining a corner radius

1) Tool path adjustment method

Machine the correct form by altering the tool path corner radius.
Programmed corner radius = Part print (P/P) corner radius + compensation factor.

Nose radius	Programmed corner radius
.016	P/P **+ .0020"**
.031	P/P **+ .0043"**
.047	P/P **+ .0055"**

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

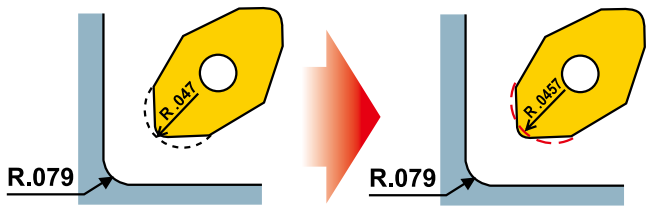


2) Nose radius adjustment method

Machine the correct form by altering the insert nose radius value in the machine program.
It is not necessary to alter the tool path when using this method however, a dimensional error of up to +/− .0012" may occur.

Nose radius	Adjusted nose radius value
.016"	**.0142"**
.031"	**.0229"**
.047"	**.0457"**

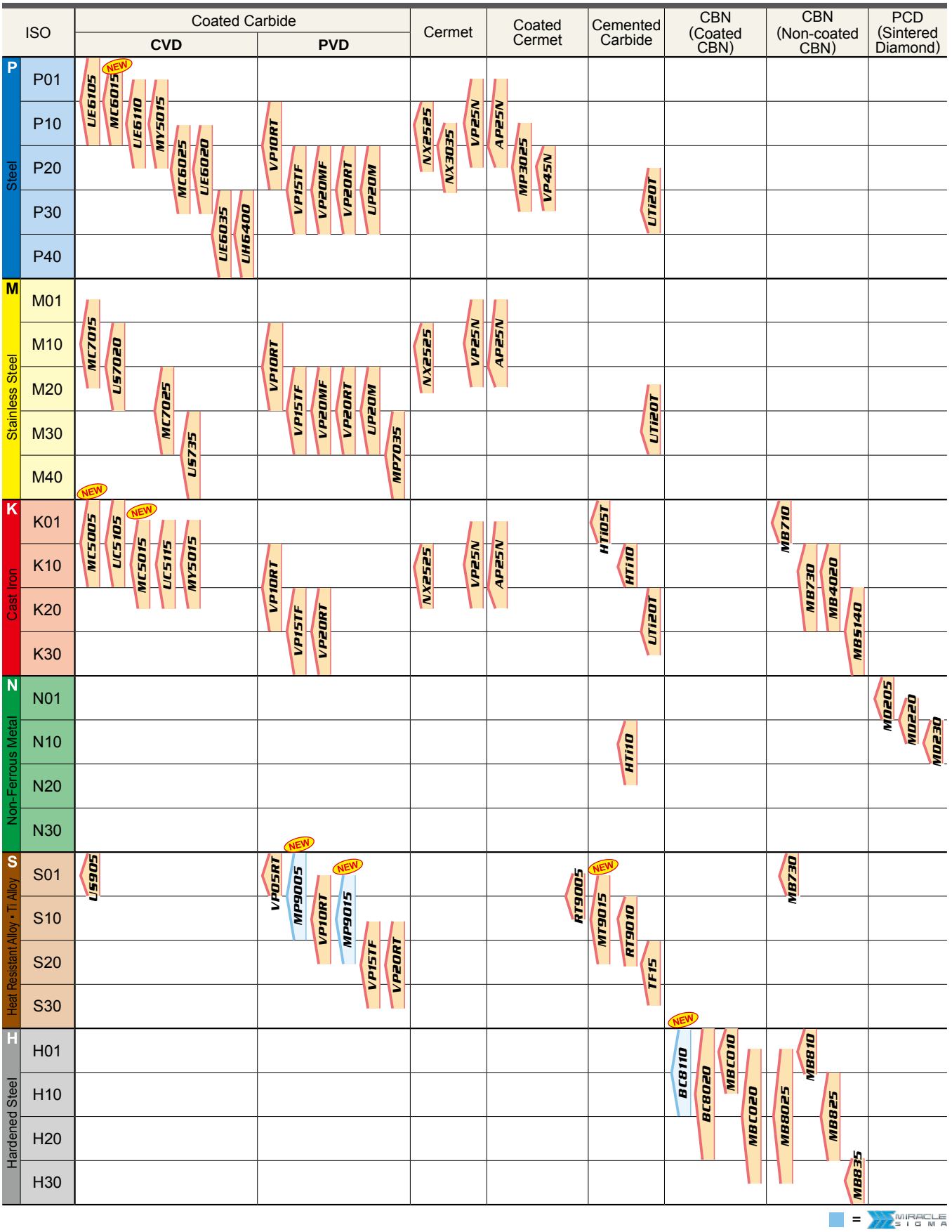
Ex): In the case of machining a corner with a radius R .079 when using an insert with a nose radius R .047.



(Note) The correction value is the same for both DNMX and TNMX inserts. Discriminate between them only by the different nose radius.

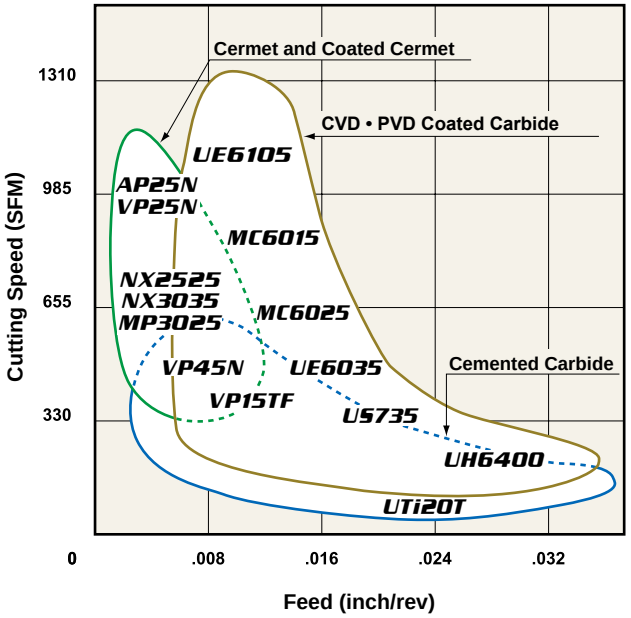
GRADES FOR TURNING

● INDEXABLE INSERT GRADES FOR TURNING

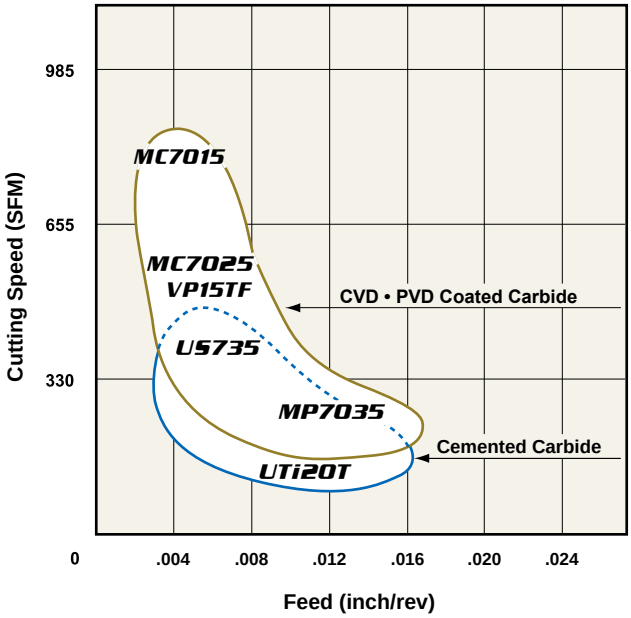


TURNING APPLICATION RANGE

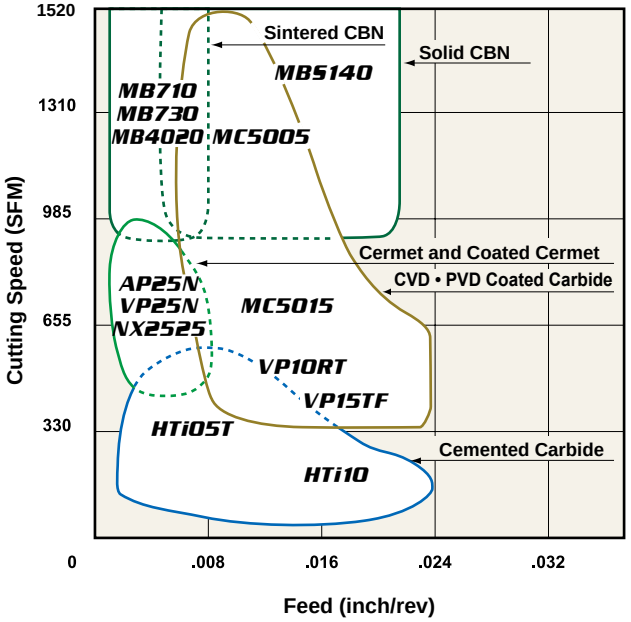
P STEEL



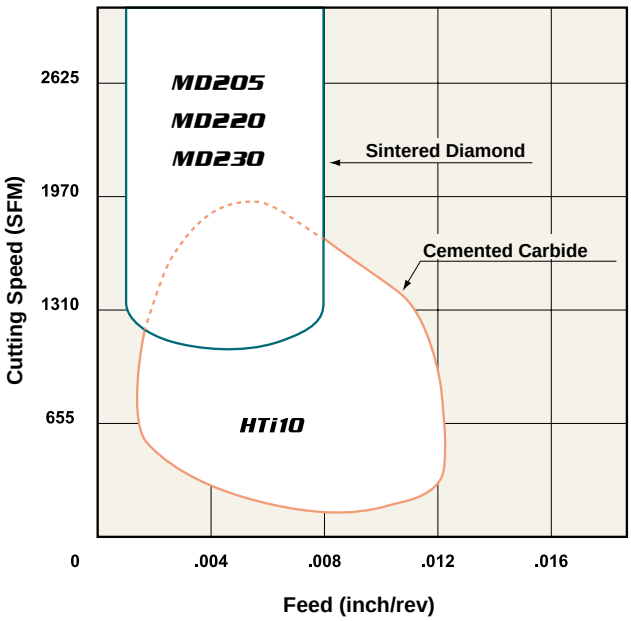
M STAINLESS STEEL



K CAST IRON



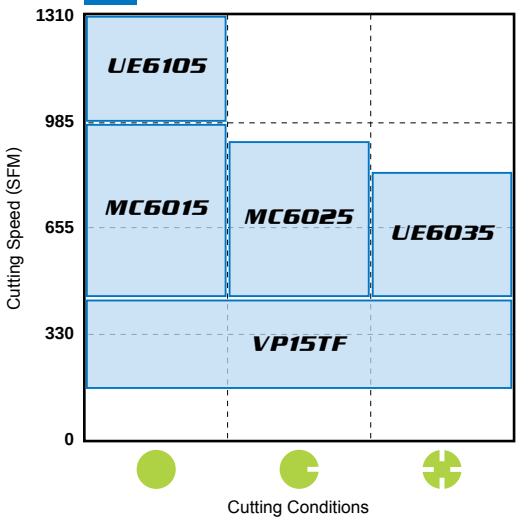
N NON-FERROUS METAL



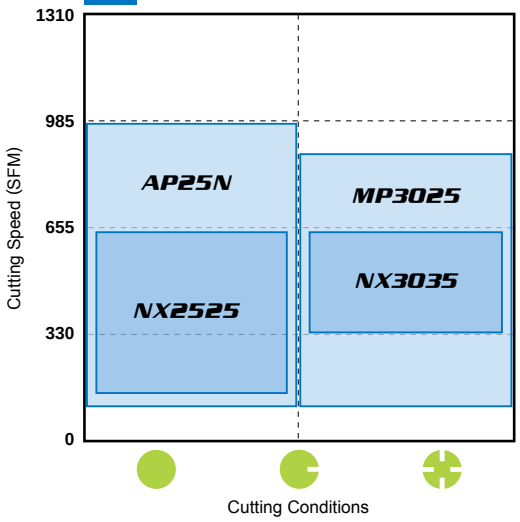
TURNING APPLICATION RANGE

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

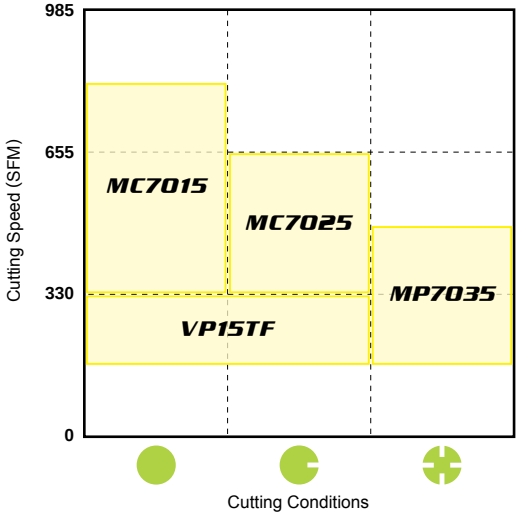
P STEEL (Medium-Rough Cutting)



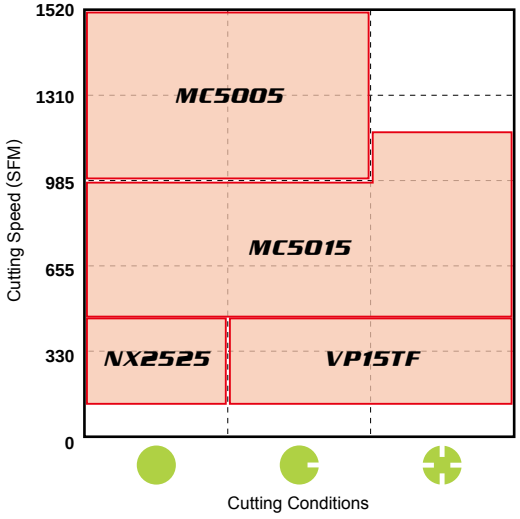
P STEEL (Finish Cutting)



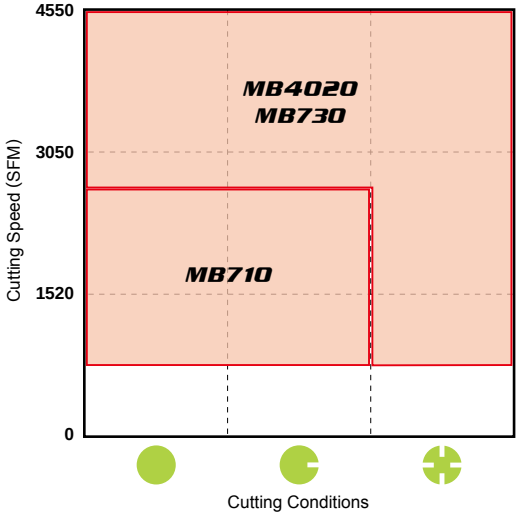
M STAINLESS STEEL



K CAST IRON



K CAST IRON (CBN)



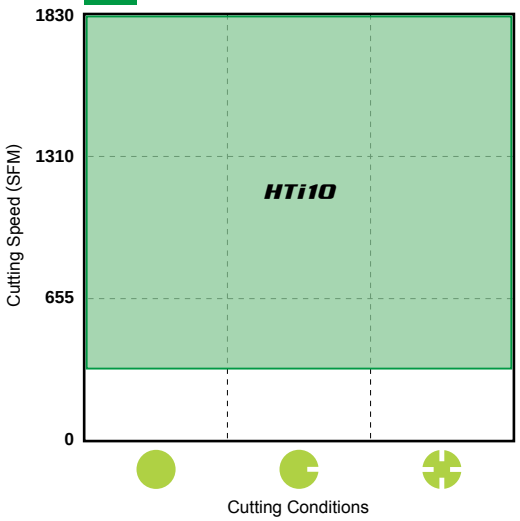
CUTTING CONDITIONS

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

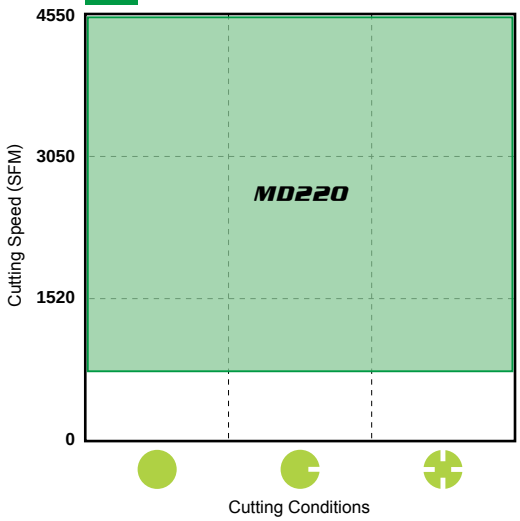
Unstable Cutting — Heavy Interrupted Cutting, Irregular Depth of Cut, Low Clamping Rigidity

General Cutting

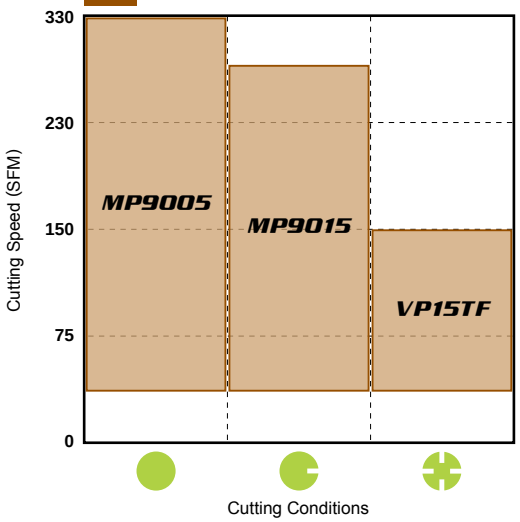
N NON-FERROUS METAL



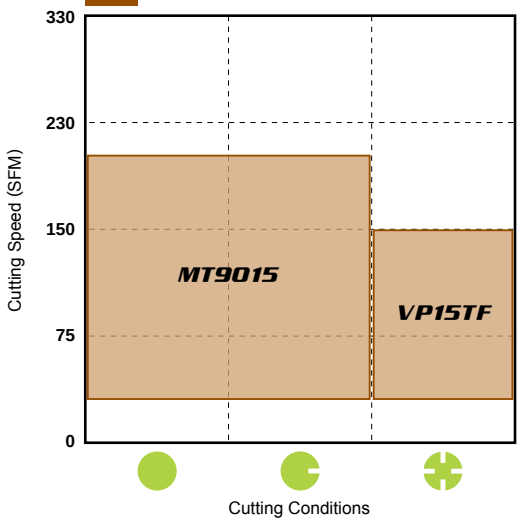
N NON-FERROUS METAL (PCD)



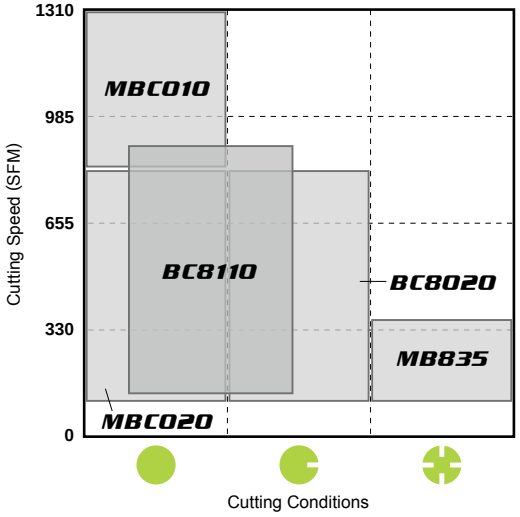
S HEAT RESISTANT ALLOY



S TITANIUM ALLOY



H HARDENED MATERIALS (CBN)



COATED CARBIDE (CVD)

- Special tough fibrous structure improves wear and fracture resistance.
- Cover 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	UE6105	1150 (655 – 1800)	P01	UE6105, NEW MC6015, UE6110, MY5015, MC6025, UE6020, UE6035, UH6400
			MC6015	820 (495 – 1315)	P10	
			MC6025	655 (330 – 920)	P20	
		Interrupted Cutting	UE6035	490 (260 – 655)	P30	
					P40	
M	Stainless Steel	Continuous Cutting	MC7015	655 (525 – 820)	M01	MC7015, US7020, MC7025, US735
			MC7025	490 (390 – 655)	M10	
		Continuous and Interrupted Cutting	US735	330 (260 – 390)	M20	
					M30	
					M40	
K	Cast Iron Ductile Cast Iron	Continuous Cutting	MC5005	985 (655 – 1315)	K01	NEW MC5005, UC5105, NEW MC5015, UC5115, MY5015
			MC5015	820 (490 – 985)	K10	
		Interrupted Cutting			K20	
					K30	
S	Heat Resistant Alloys	Continuous and Interrupted	US905	260 (165 – 330)	S01	US905

High reliability for a wide range of steel machining.

NEW

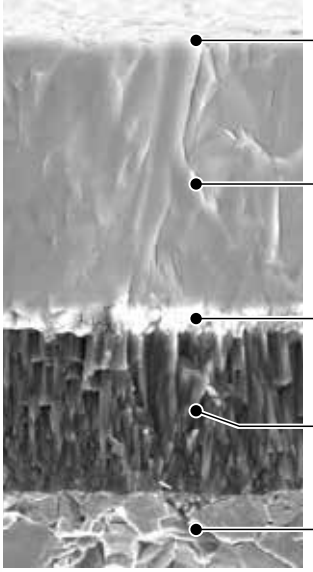
MC6015

Nano-Texture Technology

The optimized crystal growth, Nano-Texture coating technology provides outstanding wear and chipping resistance.

TOUGH-Grip Technology

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



Smooth coating surface

Prevents abnormal damage, welding and chipping

Ultra thick layer Nano-texture Al_2O_3

Delivers outstanding wear resistance even at high temperature

TOUGH-Grip

Prevents delamination of a coating

Nano-texture TiCN

Provides superior wear resistance and chipping resistance

Special carbide substrate

Prevents crack development
Stable tool life

GRADE CHARACTERISTICS

Grade	Substrate			Coating Layer	
	Hardness (HRA)	T.R.S (GPa)	Surface	Composition	Thickness
UC5105	92.2	2.0	–	TiCN-Al_2O_3	Thick
NEW MC5005	91.0	2.2	–	TiCN-Al_2O_3	Thick
UC5115	91.0	2.2	–	TiCN-Al_2O_3	Thick
NEW MC5015	91.0	2.2	–	TiCN-Al_2O_3	Thick
UE6105	90.8	1.8	Tough	TiCN-Al_2O_3-Ti Compound	Thick
UE6110	90.3	2.0	Tough	TiCN-Al_2O_3-Ti Compound	Thick
UE6020	90.0	2.2	Tough	TiCN-Al_2O_3-Ti Compound	Thick
NEW MC6015	90.2	2.2	Tough	TiCN-Al_2O_3-Ti Compound	Thick
MC6025	90.2	2.2	Tough	TiCN-Al_2O_3-Ti Compound	Thick
UE6035	89.5	2.3	Tough	TiCN-Al_2O_3-TiN	Thick
UH6400	89.5	2.3	Tough	TiCN-Al_2O_3-Ti Compound	Thick
MC7015	90.7	2.0	Tough	TiCN-Al_2O_3-TiN	Thin
US7020	90.5	2.0	Tough	TiCN-Al_2O_3-TiN	Thin
MC7025	89.4	2.4	–	TiCN-Al_2O_3-TiN	Thin
US735	89.0	2.6	–	Ti Compound	Thin
US905	92.2	2.0	–	TiCN-Al_2O_3	Thin
MY5015	91.2	2.4	–	TiCN-Al_2O_3-TiN	Thin

★1GPa=102kg/mm^2

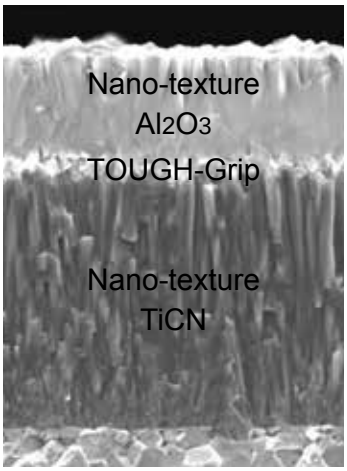
ISO Insert Series for Cast Iron Turning

NEW

MC5005/MC5015

The high strength CVD nano-coated layer is formed by the synergistic effects between “Nano-texture coating technology” and “TOUGH-GRIP Technology”, thereby achieving superior wear resistance when turning cast iron.

MC5005



MC5015

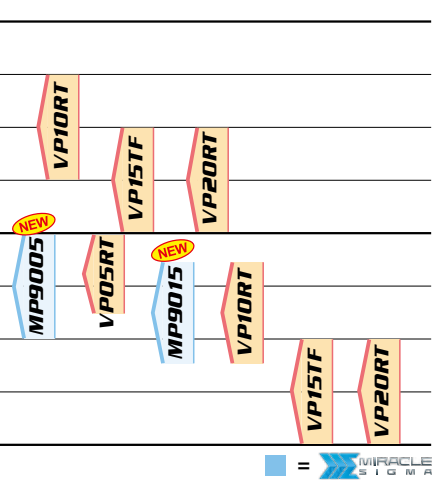
COATED CARBIDE (PVD)

- PVD coating prolongs tool life.
- Coating of tools with sharp edges is possible without softening or changing the quality of the substrate.

SELECTION STANDARD

TURNING

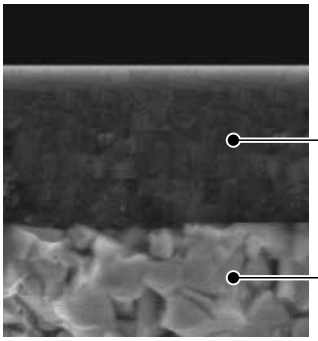
	Work Material	Recommended Grade	Recommended Cutting Speed (SFM)	ISO	Application Range
P	Steel	**VP10RT**	390 (330 – 490)	P01	
		VP15TF	390 (330 – 490)	P10	
		VP20MF	390 (330 – 490)	P20	
		VP20RT	390 (330 – 490)	P30	
		UP20M	390 (330 – 490)	P40	
M	Stainless Steel	**VP10RT**	390 (330 – 490)	M01	
		VP15TF	390 (330 – 490)	M10	
		VP20MF	390 (330 – 490)	M20	
		VP20RT	390 (330 – 490)	M30	
		UP20M	390 (330 – 490)	M40	
K	Cast Iron	**VP10RT**	390 (330 – 490)	K01	
		VP15TF	390 (330 – 490)	K10	
				K20	
		VP20RT	390 (330 – 490)	K30	
S	Heat Resistant Alloy	**MP9005**	180 (90 – 260)	S01	
		MP9015	150 (75 – 245)	S10	
		VP15TF	130 (65 – 165)	S20	
		VP20RT	130 (65 – 165)	S30	



■ = MIRACLE SIGMA

ISO Turning Inserts for Difficult to Cut Materials

NEW **MP9005/MP9015**



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

Special carbide substrate

MIRACLE SIGMA

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

CERMET

- The optimized alloy structure and special alloy binder improves both wear and fracture resistance.
- Cermet grades cover a wide application range and reduce 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**	820 (655 – 920)	P01	NX2525
					P10	
		Interrupted Cutting	**NX3035**	590 (330 – 820)	P20	NX3035
K	Cast Iron Ductile Cast Iron	Finishing	**NX2525**	690 (555 – 755)	K01	NX2525
					K10	
					K20	

GRADE CHARACTERISTICS

Grade	Hardness (HRA)	T.R.S(GPa)	Thermal Conductivity (W/m·K)*	Thermal Expansion (x 10^{-6}/K)
NX2525	92.2	2.0	33	7.8
NX3035	91.5	2.1	35	7.8

* 1GPa=102kg/mm^2, 1W/m · K=2.39 x 10^{-3}cal/cm · sec · ℃

COATED CERMET

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

SELECTION STANDARD

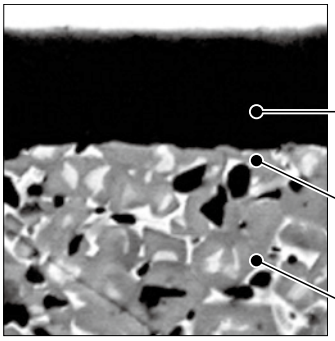
TURNING

	Work Material	Cutting Mode	Recommended Grade	Recommended Cutting Speed (SFM)	ISO	Application Range
P	Steel	Continuous Cutting	**VP25N AP25N**	920 (655 – 1050)	P01	VP25N, AP25N
					P10	MP3025, VP45N
		Interrupted Cutting	**MP3025**	590 (460 – 655)	P20	
					P30	
K	Cast Iron Ductile Cast Iron	Finishing	**VP25N AP25N**	720 (555 – 820)	K01	VP25N, AP25N
					K10	
					K20	

Effective for production of small parts.

MP3025

MP3025 features improved adhesion of the PVD coating to a newly-developed cermet substrate. Uniform flank wear allows prolonged machining while maintaining 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

- Available in this range are UTi20T grades suitable for steel and cast iron, HTi grades for cast iron, non ferrous metal and nonmetals, and RT grades for heat-resistant alloys and titanium alloy.

SELECTION STANDARD

TURNING

Work Material	Recommended Grade	Recommended Cutting Speed (SFM)	ISO	Application Range
P Steel	**UTi20T**	330 (195 – 425)	P10, P20, P30	UTi20T
M Stainless Steel	**UTi20T**	330 (195 – 425)	M10, M20, M30	UTi20T
K Cast Iron	**HTi05T**	390 (260 – 490)	K01	HTi05T
	HTi10	330 (165 – 490)	K10	HTi10
	UTi20T	330 (165 – 490)	K20, K30	UTi20T
N Non-Ferrous Metal	**HTi10**	1970 (1210 – 2630)	N01, N10, N20, N30	HTi10
S Heat-resistant Alloy Ti Alloy	**RT9005**	230 (165 – 330)	S01	RT9005
	MT9015	195 (130 – 260)	S10, S20	NEW MT9015, RT9010
	TF15	165 (130 – 230)	S30	TF15

MAIN COMPONENT AND APPLICATION

ISO	Main Component	Characteristics	Application
P M	WC-TiC-TaC-Co	High heat resistance and rigidity.	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 and Ti alloy

GRADE CHARACTERISTICS

ISO	Grade	Hardness (HRA)	Thermal Conductivity (W/m·K)*	Thermal Expansion ($x10^{-6}$/K)	Young's Modulus (GPa)*	T.R.S (GPa)*
P M	**UTi20T**	90.5	38	5.5	520	2.0
K N	**HTi05T**	92.5	79	4.5	600	1.5
	HTi10	92.0	79	4.6	630	2.0
S	**RT9005**	92.2	79	4.5	600	2.0
	MT9015/RT9010	92.0	79	4.6	630	2.2
	TF15	91.5	71	5.3	580	2.5

* 1GPa = 102kg/mm^2, 1W/m · K=2.39 x 10^{-3}cal/cm · sec · ℃

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	**TF15**	Steel · Cast Iron Heat-resistant Alloy Ti Alloy

GRADE CHARACTERISTICS

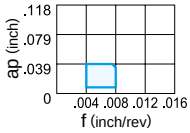
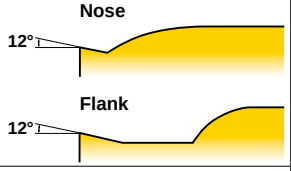
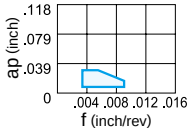
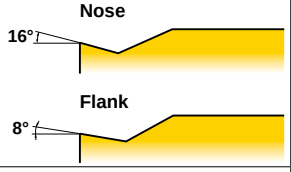
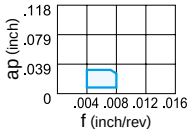
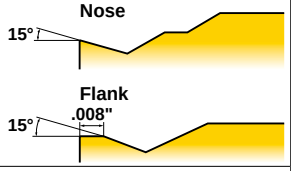
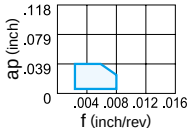
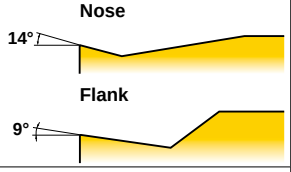
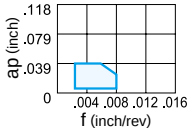
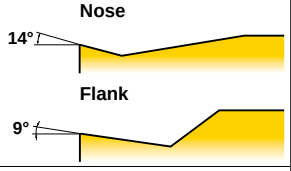
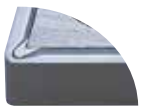
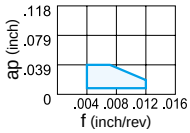
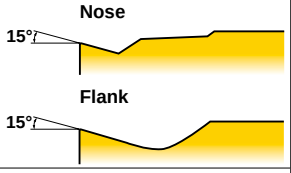
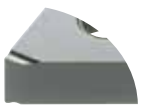
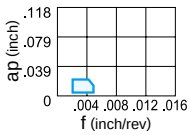
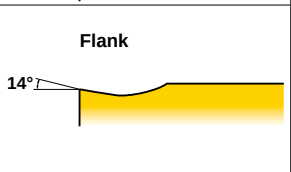
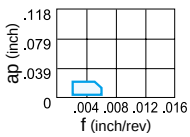
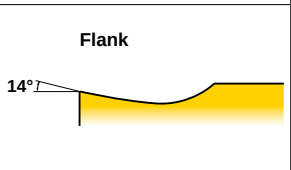
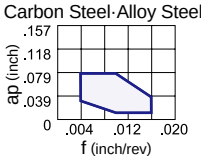
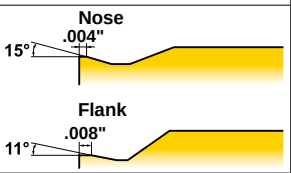
Grade	Grade Characteristics			ISO	Wear Resistance	Fracture Resistance	Corrosion Resistance
	Specific Gravity	Hardness (HRA)	T.R.S (Gpa)*				
TF15	**14.5**	91.5	2.5	K20	◎	○	◎

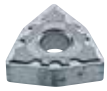
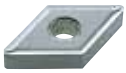
* 1GPa=102kg/mm^2

Memo

CLASSIFICATION

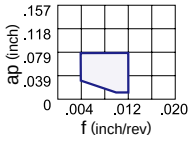
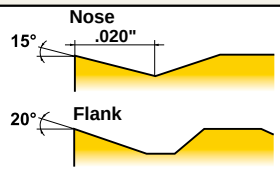
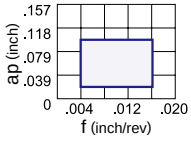
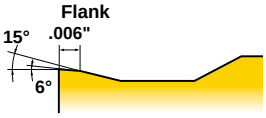
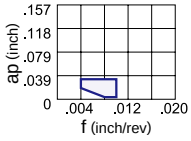
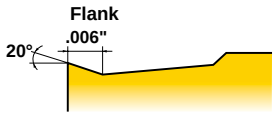
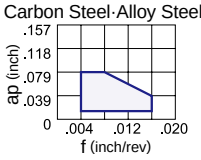
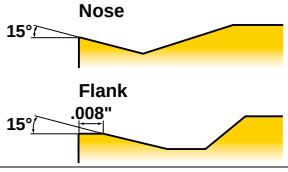
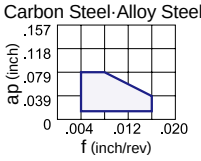
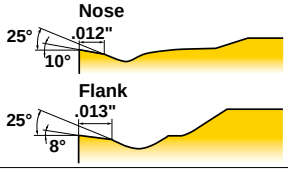
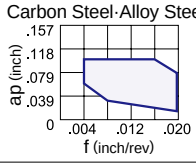
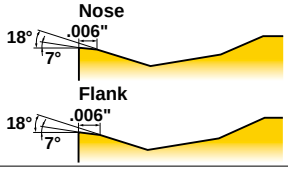
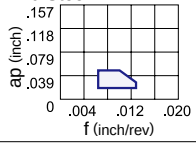
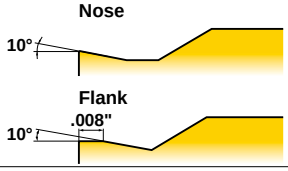
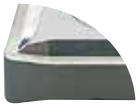
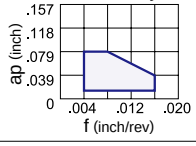
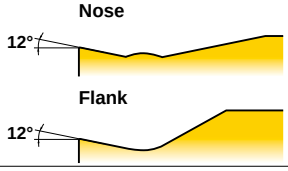
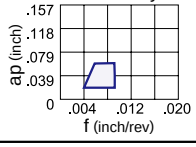
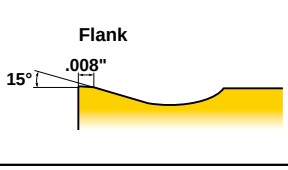
NEGATIVE INSERTS WITH HOLE

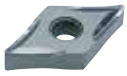
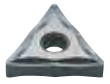
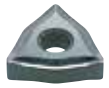
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M Class	**FH** 	**First recommendation for finishing carbon steel, alloy steel and stainless steel** Double sided chipbreaker. Stable chip control even at small depth of cut.	Carbon Steel·Alloy Steel  
		FS 	**Alternative breaker for finishing mild steel** Double sided chipbreaker. Stable chip control even at small depth of cut. Sharp edge gives best performance.	Mild Steel  
		FY 	**First recommendation for finishing mild steel** Double sided chipbreaker. Effectively controls chips. Suitable for mild steel finishing.	Mild Steel  
	G Class	**FJ** 	**First recommendation for finishing difficult-to-cut materials** Double sided chipbreaker. Ideal for heat-resistant alloy. The sharp edge produces good cutting surface. The curved edge allows smooth chip discharge.	Difficult-to-Cut Materials  
		FJ-P 	**First 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.	Titanium alloy  
		PK 	**Alternative breaker for finishing carbon steel and alloy steel** Double sided chipbreaker. G class insert tolerance is suitable for workpieces requiring close dimensional tolerances. Stable chip control even at small depth of cut.	Carbon Steel·Alloy Steel  
		R/L FS 	**Precise finishing** Double sided chipbreaker. A narrow angled chipbreaker for good control. The sharp edge produces a good surface finish.	Carbon Steel·Alloy Steel  
		R/L F 	**Finishing** Double sided chipbreaker. Angled chipbreaker controls chip flow. The sharp edge produces a good chip discharge.	Carbon Steel·Alloy Steel  
Light Cutting	M Class	**LP** 	**First recommendation for light cutting of carbon steel and alloy steel** Double sided chipbreaker. Stable chip control in light cutting range. The curved edge allows smooth chip discharge.	Carbon Steel·Alloy Steel  

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CNMG_FH  A096	DNMG_FH  A103	SNMG_FH  A111	TNMG_FH  A117	VNMG_FH  A124	WNMG_FH  A128	
	CNMG_FS  A096	DNMG_FS  A103	SNMG_FS  A111	TNMG_FS  A117	VNMG_FS  A124	WNMG_FS  A128	
	CNMG_FY  A096	DNMG_FY  A103		TNMG_FY  A117		WNMG_FY  A128	
	CNGG_FJ  A096	DNGG_FJ  A103			VNGG_FJ  A124		
	CNGG_FJ-P  A096						
	CNGG_PK  A096	DNGG_PK  A103		TNGG_PK  A117			
				TNGG_R/L FS  A117			
				TNGG_R/L F  A117	VNGG_R/L-F  A124		
	CNMG_LP  A097	DNMG_LP  A104	SNMG_LP  A111	TNMG_LP  A118	VNMG_LP  A124	WNMG_LP  A128	

CLASSIFICATION

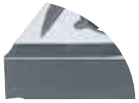
NEGATIVE INSERTS WITH HOLE

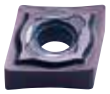
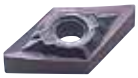
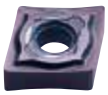
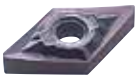
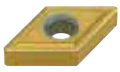
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Light Cutting	M Class	**LM** 	**First recommendation for light cutting of stainless steel** Double sided chipbreaker. Stable chip control in light cutting range. Breaker with high rake angle provides excellent burr control.	Stainless Steel  
		LK NEW 	**First recommendation for light cutting of cast iron** Narrow positive land provides low cutting resistance and excellent finish.	Cast Iron  
		LS NEW 	**First recommendation for light cutting of difficult-to-cut materials** Enhanced chip disposal for depth of cut smaller than the corner R.	 
		SH 	**First recommendation for light cutting of carbon steel, alloy steel and stainless steel** Double sided chipbreaker. Can be used at low depth of cuts and high feed rates. The curved edge allows smooth chip discharge. Recommended for workpieces in the 160—250HB range.	Carbon Steel·Alloy Steel  
		SA 	**Alternative breaker for light cutting of carbon steel and alloy steel** Double sided chipbreaker. Superior chip control at small depth of cuts. Covers copying and back turning with wavy edge. Recommended for workpieces in the 200—300HB range.	Carbon Steel·Alloy Steel  
		SW 	**Wiper insert for light cutting of carbon steel and alloy steel** Double sided chipbreaker. The wiper allows up to two times higher feed. Wiper design for increased productivity and improved surface finish.	Carbon Steel·Alloy Steel  
		SY 	**First recommendation for light cutting of mild steel** Double sided chipbreaker. Effectively controls chips. Recommended for workpieces in the 200—300HB range.	Mild Steel  
		C 	**Alternative breaker for light cutting of carbon steel and alloy steel** Double sided chipbreaker. Can be used at small depth of cuts. The curved edge allows smooth chip discharge.	Carbon Steel·Alloy Steel  
		R/L 1G 	**Alternative chipbreaker for light cutting of carbon steel and alloy steel** Double sided chipbreaker. Angled chipbreaker controls chip flow. Excellent chip control at low to medium feed rates.	Carbon Steel·Alloy Steel  

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CNMG_LM  A097	DNMG_LM  A104	SNMG_LM  A111	TNMG_LM  A118	VNMG_LM  A124	WNMG_LM  A128	
	CNMG_LK NEW  A097	DNMG_LK NEW  A104	SNMG_LK NEW  A111	TNMG_LK NEW  A118	VNMG_LK NEW  A125	WNMG_LK NEW  A128	
	CNMG_LS NEW  A097	DNMG_LS NEW  A104		TNMG_LS NEW  A118	VNMG_LK NEW  A125	WNMG_LS NEW  A129	
	CNMG_SH  A097	DNMG_SH  A105	SNMG_SH  A111	TNMG_SH  A118	VNMG_SH  A125	WNMG_SH  A129	
	CNMG_SA  A097	DNMG_SA  A105	SNMG_SA  A112	TNMG_SA  A118	VNMG_SA NEW  A125	WNMG_SA  A129	
	CNMG_SW  A097	DNMX_SW  A105		TNMX_SW  A119		WNMG_SW  A129	
	CNMG_SY  A097	DNMG_SY  A105	SNMG_SY  A112	TNMG_SY  A119		WNMG_SY  A129	
	CNMG_C  A098	DNMG_C  A105	SNMG_C  A112	TNMG_C  A119		WNMG_C  A129	
			SNMG_R/L 1G  A112	TNMG_R/L 1G  A119			

CLASSIFICATION

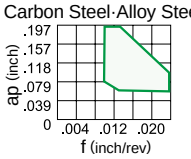
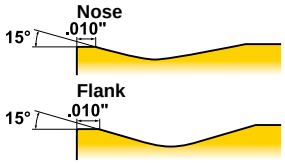
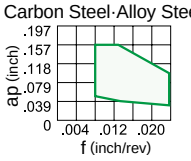
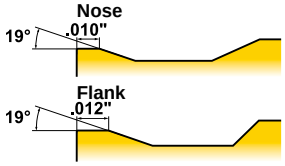
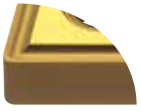
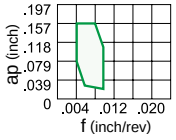
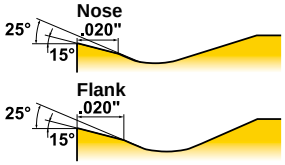
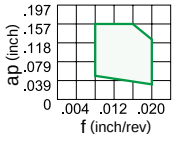
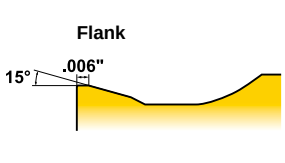
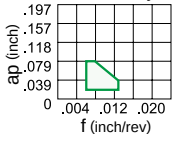
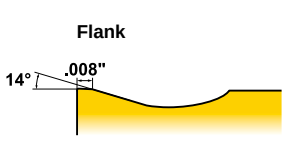
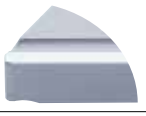
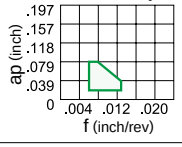
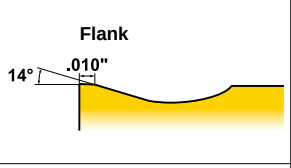
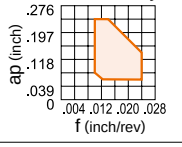
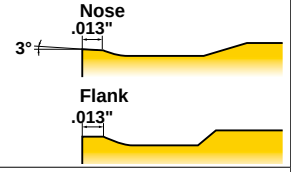
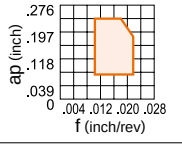
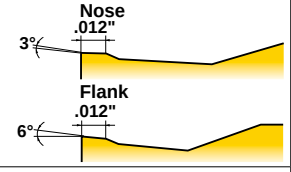
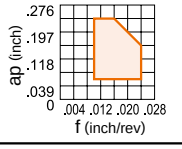
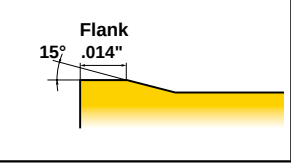
NEGATIVE INSERTS WITH HOLE

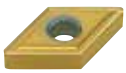
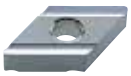
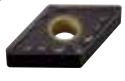
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Light Cutting	G Class	**R/L K** 	**Light cutting** Double sided chipbreaker. Parallel chipbreaker. Excellent chip control at low to medium feed rates.	Carbon Steel·Alloy Steel ap (inch) .157 .118 .079 .039 0 .004 .012 .020 f (inch/rev) Flank .010" 14°
Light Cutting	M Class	**MJ** 	**First recommendation for light cutting of difficult-to-cut materials** Double sided chipbreaker. Ideal for heat-resistant alloy and titanium alloy. The sharp edge produces excellent surface finishes. The curved edge allows smooth chip discharge.	Difficult-to-Cut Materials ap (inch) .157 .118 .079 .039 0 .004 .012 .020 f (inch/rev) Nose 13° Flank 9°
Light Cutting	G Class	**MJ** 	**First recommendation for light cutting of difficult-to-cut materials** Double sided chipbreaker, Single sided chipbreaker. G class insert tolerance is suitable for workpieces requiring close dimensional tolerances. Ideal for heat-resistant alloy and titanium alloy. The sharp edge produces excellent surface finishes.	Difficult-to-Cut Materials ap (inch) .157 .118 .079 .039 0 .004 .012 .020 f (inch/rev) Nose 13° Flank 9°
Medium Cutting	M Class	**MP** 	**Alternative breaker for medium cutting of carbon steel and alloy steel** Double sided chipbreaker. Suitable for medium to light cutting. Breaker geometry appropriate for copying and back turning. Good balance of sharpness and strength.	Carbon Steel·Alloy Steel ap (inch) .197 .157 .118 .079 .039 0 .004 .012 .020 f (inch/rev) Nose .006" 15° Flank .008" 11°
Medium Cutting	M Class	**MM** 	**Breaker with high rake angle reduces burr formation** Double sided chipbreaker. Simulation analysis technology assisted in the development of an optimized cutting edge land geometry, preventing plastic deformation and extending tool life.	Stainless Steel ap (inch) .197 .157 .118 .079 .039 0 .004 .012 .020 f (inch/rev) Nose .012" 6° Flank .012" 10°
Medium Cutting	M Class	NEW **MK** 	**First recommendation for medium cutting of cast iron** Optimum balance between sharpness and high edge strength for general use.	Cast Iron ap (inch) .197 .157 .118 .079 .039 0 .004 .012 .020 f (inch/rev) Flank .010" 15° 3°
Medium Cutting	M Class	**GM** 	**Alternative chip breaker for light to medium cutting of stainless steel** Double sided chipbreaker. Alternate chip breaker to main chip breakers LM and MM. Excellent notch wear resistance for light to medium cutting.	Stainless Steel ap (inch) .197 .157 .118 .079 .039 0 .004 .012 .020 f (inch/rev) Nose .020" 25° 15° Flank .020" 25° 15°
Medium Cutting	M Class	**MA** 	**First recommendation for medium cutting of carbon steel and alloy steel** **First recommendation for finish to light cutting of cast iron** Double sided chipbreaker. Positive land provides sharp cutting action.	Carbon Steel·Alloy Steel ap (inch) .197 .157 .118 .079 .039 0 .004 .012 .020 f (inch/rev) Nose .008" 22° 6° Flank .008" 22° 6°
Medium Cutting	M Class	**MH** 	**First recommendation for medium-heavy cutting of mild steel** **Alternative breaker for medium cutting of carbon steel and alloy steel** Double sided chipbreaker. Flat land offers high edge strength. A wide chip pocket prevents chip jamming at large depth of cut.	Carbon Steel·Alloy Steel ap (inch) .197 .157 .118 .079 .039 0 .004 .012 .020 f (inch/rev) Nose .010" 16° Flank .014" 16°

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
				TNGG_R/L K  A119			
	CNMG_MJ  A098	DNMG_MJ  A105		TNMG_MJ  A119	VNMG_MJ  A125	WNMG_MJ  A129	
	CNGG_MJ  A098	DNGM_MJ  A106			VNGM_MJ  A125		
	CNMG_MP  A098	DNMG_MP  A106	SNMG_MP  A112	TNMG_MP  A119	VNMG_MP  A125	WNMG_MP  A130	
	CNMG_MM  A098	DNMG_MM  A106	SNMG_MM  A113	TNMG_MM  A119	VNMG_MM  A125	WNMG_MM  A130	
	CNMG_MK NEW  A099	DNMG_MK NEW  A106	SNMG_MK NEW  A113	TNMG_MK NEW  A120	VNMG_MK NEW  A126	WNMG_MK NEW  A130	
	CNMG_GM  A099	DNMG_GM  A107	SNMG_GM  A113	TNMG_GM  A120	VNMG_GM  A126	WNMG_GM  A130	
	CNMG_MA  A099	DNMG_MA  A107	SNMG_MA  A113	TNMG_MA  A120	VNMG_MA  A126	WNMG_MA  A131	
	CNMG_MH  A099	DNMG_MH  A107	SNMG_MH  A113	TNMG_MH  A120	VNMG_MH  A126	WNMG_MH  A131	

CLASSIFICATION

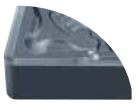
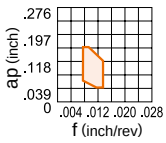
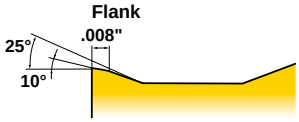
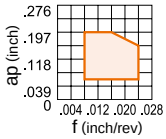
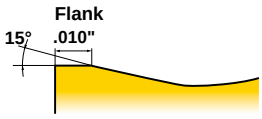
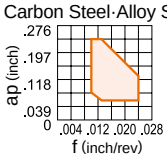
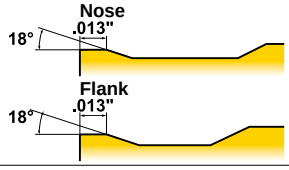
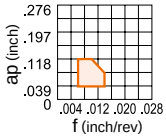
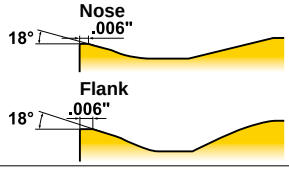
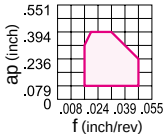
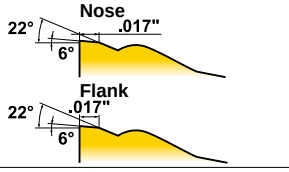
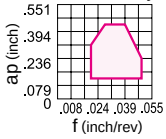
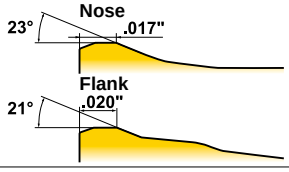
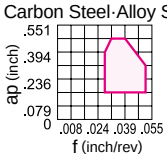
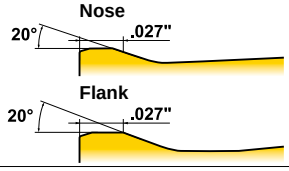
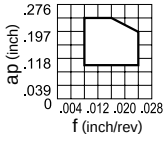
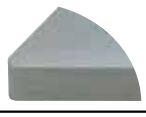
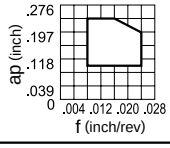
NEGATIVE INSERTS WITH HOLE

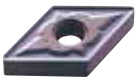
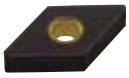
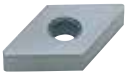
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M Class	**Standard** 	**First recommendation for medium cutting of cast iron Alternative breaker for medium cutting of carbon steel and alloy steel** Double sided chipbreaker. Flat land offers high edge strength.	Carbon Steel·Alloy Steel  
		MW 	**Wiper insert for medium cutting carbon steel and alloy steel** Double sided chipbreaker. The wiper allows up to two times higher feed. A wide chip pocket prevents chip jamming.	Carbon Steel·Alloy Steel  
		MS 	**First recommendation for medium cutting of stainless steel, mild steel and difficult-to-cut materials** Double sided chipbreaker. The sharp edge gives best performance.	Stainless Steel  
		R/L ES 	**Alternative chipbreaker for medium cutting of stainless steel** Double sided chipbreaker. Good balance of edge strength and sharpness. Right- or left-hand breaker for unidirectional chip control.	Stainless Steel  
		R/L 2G 	**Alternative chipbreaker for medium cutting of carbon steel and alloy steel** Double sided chipbreaker. Parallel chipbreaker controls chip flow. Good chip control for medium feed rates.	Carbon Steel·Alloy Steel  
	G Class	**R/L** 	**Medium cutting** Double sided chipbreaker. Parallel chipbreaker. Good chip control for medium feed rate.	Carbon Steel·Alloy Steel  
Rough Cutting	M Class	**RP** 	**First recommendation for rough cutting of carbon and alloy steel** Double sided chipbreaker. For interrupted cutting and cutting through scale. Good balance of cutting edge strength and low cutting resistance.	Carbon Steel·Alloy Steel  
		RM 	**First recommendation for rough cutting of stainless steel** Double sided chipbreaker. Excellent fracture resistance during interrupted cutting due to the optimum cutting edge land angle and honing geometry.	Stainless Steel  
		NEW **RK** 	**First recommendation for rough cutting of cast iron** Seating surface and wide land 3 or more times that of conventional products provides high cutting stability for interrupted machining and scale removal.	Cast Iron  

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CNMG	DNMG	SNMG	TNMG	VNMG	WNMG	RNMG
							
	A099, A100	A107	A114	A121	A126	A131	A110
	CNMG_MW	DNMX_MW		TNMX_MW		WNMG_MW	
							
	A100	A107		A121		A131	
	CNMG_MS	DNMG_MS	SNMG_MS	TNMG_MS	VNMG_MS	WNMG_MS	
							
	A100	A108	A114	A121	A127	A131	
				TNMG_R/L ES			
							
				A121			
				TNMG_R/L 2G			
							
				A121			
		DNGG_R/L	SNGG_R/L	TNGG_R/L	VNGG_R/L		
							
		A108	A114	A122	A127		
	CNMG_RP	DNMG_RP	SNMG_RP	TNMG_RP		WNMG_RP	
							
	A101	A108	A115	A122		A131	
	CNMG_RM	DNMG_RM	SNMG_RM	TNMG_RM		WNMG_RM	
							
	A101	A108	A115	A122		A132	
	CNMG_RK	DNMG_RK	SNMG_RK	TNMG_RK		WNMG_RK	
							
	A101	A109	A115	A123		A132	

CLASSIFICATION

NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Rough Cutting	M Class	NEW **RS** 	**First recommendation for rough cutting of difficult-to-cut materials** Seating surface and land width 3 or more times that of conventional products and provides high cutting stability for interrupted machining and scale removal.	 
		NEW **GK** 	**First recommendation for rough cutting of cast iron** Positive land increases welding resistance and suppresses chip welding and abrasion at low speed cutting.	Cast Iron  
		GH 	**First recommendation for rough cutting of carbon steel, alloy steel and stainless steel** Double sided chipbreaker. For interrupted cut and removing scale. A combination of wide land and large chip pocket allows high feeds.	Carbon Steel·Alloy Steel  
		GJ 	**First recommendation for rough cutting of difficult-to-cut materials** Double sided chipbreaker. Excellent balance of edge sharpness and strength. Edge geometry with high face wear resistance.	Difficult-to-Cut Materials  
Heavy Cutting	M Class	**HZ** 	**First recommendation for heavy cutting of mild steel and stainless steel** Single sided chipbreaker. Appropriate for 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  
		HX 	**First recommendation for heavy cutting of carbon steel and alloy steel** Single sided chipbreaker. Appropriate for the medium range of the heavy cutting region. The flat edge and chamfer provide a balance of sharpness and strength. Variable land and a wavy chipbreaker for good chip control.	Carbon Steel·Alloy Steel  
		HV 	**Alternative chipbreaker for heavy cutting of carbon steel and alloy steel** Single sided chipbreaker. Appropriate for the upper end of the heavy cutting region. Wide land and large chamfer offer high edge strength. A wide chipbreaker prevents chip jamming.	Carbon Steel·Alloy Steel  
For Cast Iron	M Class	**Flat Top** 	**First recommendation for rough cutting of cast iron** Double sided flat insert. Most effective in unstable machining i.e. interrupted cuts due to high edge strength and stable fitting on the shim.	Cast Iron  
	G Class	**Flat Top** 	**For cast iron** Double sided flat insert. Most effective in unstable machining i.e. interrupted cuts due to high edge strength and stable fitting on the shim. G class tolerance for use on workpieces requiring close tolerances.	Cast Iron  

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CNMG_RS NEW  A101	DNMG_RS NEW  A109	SNMG_RS NEW  A115	TNMG_RS NEW  A123		WNMG_RS NEW  A132	
	CNMG_GK NEW  A099	DNMG_GK NEW  A106	SNMG_GK NEW  A113	TNMG_GK NEW  A120	VNMG_GK NEW  A126	WNMG_GK NEW  A130	
	CNMG_GH  A101	DNMG_GH  A109	SNMG_GH  A115	TNMG_GH  A123		WNMG_GH  A132	
	CNMG_GJ  A101	DNMG_GJ  A109				WNMG_GJ  A132	
	CNMM_HZ  A102	DNMM_HZ  A109	SNMM_HZ  A115	TNMM_HZ  A123			
	CNMM_HX  A102		SNMM_HX  A115				
	CNMM_HV  A102		SNMM_HV  A116				
	CNMA  A102	DNMA  A109	SNMA  A116	TNMA  A123		WNMA  A132	
		DNGA  A109	SNGA  A116	TNGA  A123	VNGA  A127		

CLASSIFICATION

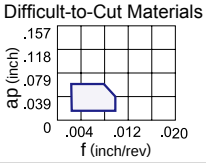
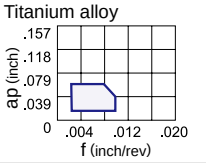
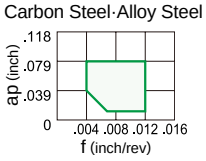
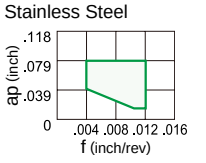
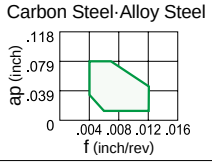
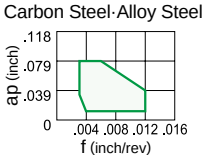
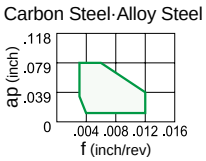
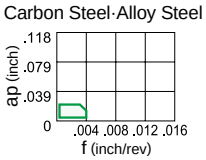
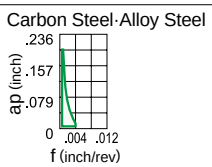
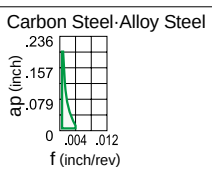
5° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M Class	FP	**First recommendation for finishing carbon steel and alloy steel** Chip breaker peninsula 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 (inch/rev) Nose 6° Flank 6°
		FM	**First recommendation for finishing stainless steel** Chip breaker peninsula 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 (inch/rev) Nose 6° Flank 6°
		FV	**First recommendation for finishing carbon steel, alloy steel, mild steel and stainless steel** Suitable for low depth of cut and feed rate applications. Sharp cutting edge and low resistance design provide excellent cutting performance.	Carbon Steel·Alloy Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (inch/rev) Nose 18° Flank 8°
	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 diffcult-to-cut materials.	Difficult-to-Cut Materials ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (inch/rev) Nose 14° Flank 14°
		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 (inch/rev) Nose 14° Flank 14°
		R/L F	**Finishing carbon steel and alloy steel** Angled chipbreaker controls chip flow. Sharp cutting edge produces excellent surface finishes.	Carbon Steel·Alloy Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (inch/rev) Flank 13°
Light Cutting	M Class	LP	**First recommendation for light cutting of carbon and alloy steel** Sharp cutting edge due to a high rake angle. Prevents chip welding on cutting edge and controls cloudiness of surface finish. Chip breaker peninsula matched to depth of cut capability provides excellent chip control.	Carbon Steel·Alloy Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (inch/rev) Nose 18° Flank 8°
		LM	**First recommendation for light cutting of stainless steel** Sharp cutting edge due to a high rake angle. Prevents chip welding on cutting edge and controls cloudiness of surface finish. Chip breaker peninsula matched to depth of cut capability provides excellent chip control.	Stainless Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (inch/rev) Nose 18° Flank 8°
		SV	**Light cutting of carbon steel, alloy steel, mild steel and stainless steel** The double breaker design promotes chip discharge for mild steel low depth of cut a applications.	Carbon Steel·Alloy Steel ap (inch) .118 .079 .039 0 .004 .008 .012 .016 f (inch/rev) Nose 18° Flank 8°

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
					VBMT_FP  A162		
					VBMT_FM  A162		
					VBMT_FV  A162		
					VBGT_FJ  A162		
					VBGT_FJ-P  A162		
					VBGT_R/L F  A163	**WBGT_R/L F**  A170	
					VBMT_LP  A163		
					VBMT_LM  A163		
					VBMT_SV  A163		

CLASSIFICATION

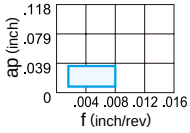
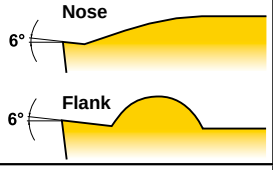
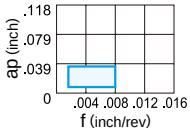
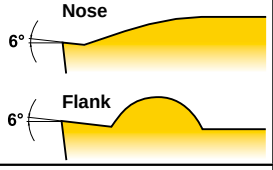
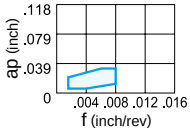
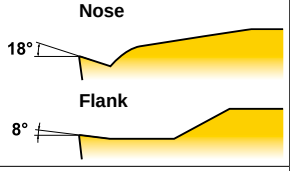
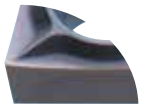
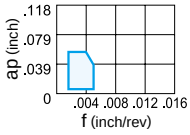
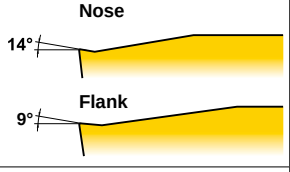
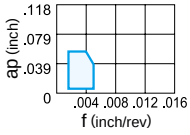
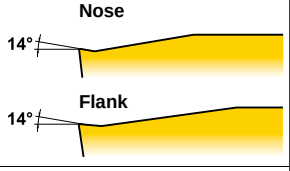
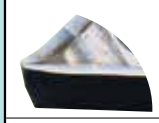
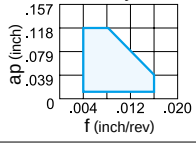
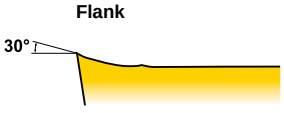
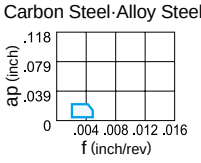
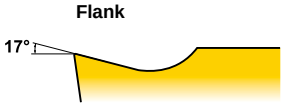
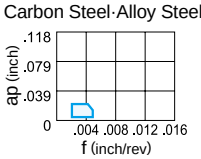
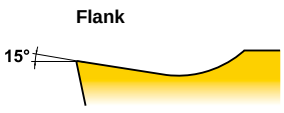
5° POSITIVE INSERTS WITH HOLE

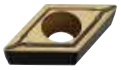
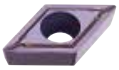
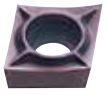
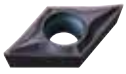
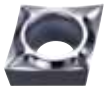
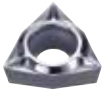
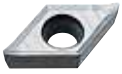
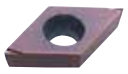
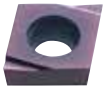
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Light Cutting	G Class	**MJ** 	**Light cutting of difficult-to-cut materials Ideal for heat-resistant alloy and titanium alloy** The curved cutting edges support changes in cutting depth, smooth chip discharge and disposal. The high rake angle is highly suitable for finish-light cutting difficult-to-cut materials.	Difficult-to-Cut Materials 
		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 
Medium Cutting	M Class	**MP** 	**First recommendation for light cutting of carbon and alloy steel** Small, flat, land at cutting edge provides an excellent balance of wear and fracture resistance. The wide chip gullet decreases cutting resistance, reduces vibration and chip jamming in elevated depth of cut applications.	Carbon Steel·Alloy Steel 
		MM 	**First recommendation for medium cutting of stainless steel** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depth of cut.	Stainless Steel 
		Standard 	**Medium cutting of carbon steel, alloy steel and stainless steel** The high rake angle combined with a small flat land provide a balance of strength and sharpness.	Carbon Steel·Alloy Steel 
		MV 	**Medium cutting of carbon steel, alloy steel, mild steel and stainless steel** A positive land and the high rake angle provides sharp cutting edge performance. The double breakers and round-shaped dots in the rake face provide a wide range of chip control.	Carbon Steel·Alloy Steel 
		R/L MV 	**Medium cutting of carbon steel, alloy steel, mild steel and stainless steel** A positive land and the high rake angle provides sharp cutting edge performance. The double breakers and round-shaped dots in the rake face provide a wide range of chip control.	Carbon Steel·Alloy Steel 
	E Class	**R/L SR** 	**Medium cutting for Swiss type lathe machining** Features a high angled chipbreaker. Low resistance insert design controls chip flow.	Carbon Steel·Alloy Steel 
		R/L SN 	**General purpose for Swiss type lathe machining** The parallel chipbreaker. Excellent chip control for low to midium feed rates.	Carbon Steel·Alloy Steel 
		R/LW SN 	**General purpose for Swiss type lathe machining** The parallel chipbreaker. Excellent chip control for low to medium feed rates. The wiper produces good surface finishes.	Carbon Steel·Alloy Steel 

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
					VBGT_MJ  A163		
					VBGT_MJ-P  A163		
					VBMT_MP  A163		
					VBMT_MM  A164		
					VBMT  A164		
					VBMT_MV  A164		
						WBMT_R/L MV  A170	
					VBET_R/L SR  A164		
					VBET_R/L SN  A165		
					VBET_R/LW SN  A165		

CLASSIFICATION

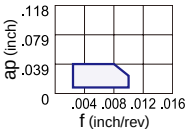
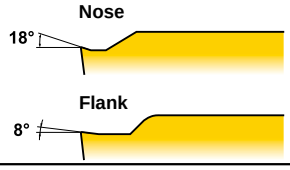
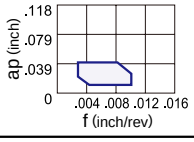
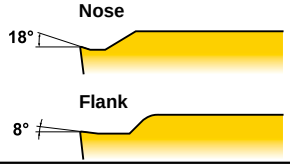
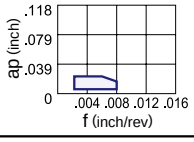
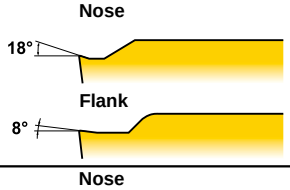
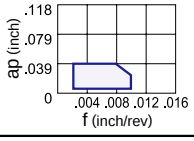
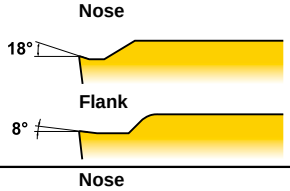
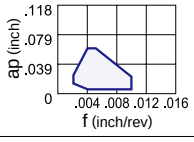
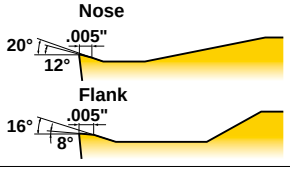
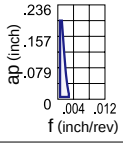
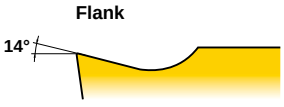
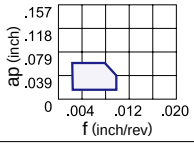
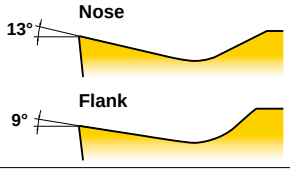
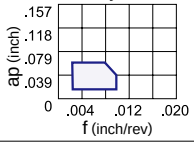
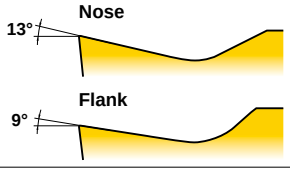
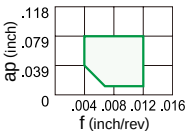
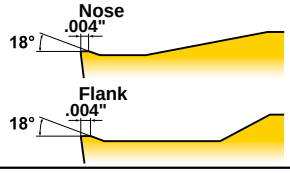
7° POSITIVE INSERTS WITH HOLE

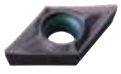
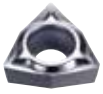
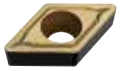
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M Class	FP 	**First recommendation for finishing carbon steel and alloy steel** Chip breaker peninsula controls chips even at small depth of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Carbon Steel·Alloy Steel  
		FM 	**First recommendation for finishing stainless steel** Chip breaker peninsula controls chips even at small depth of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Stainless Steel  
		FV 	**First recommendation for finishing carbon steel, alloy steel and mild steel** Sharp cutting edge and low resistance design provides excellent cutting performance. Suitable for low depth of cut and feed rate applications.	Carbon Steel·Alloy Steel  
	G Class	FJ 	**First recommendation for finishing difficult-to-cut materials** The curved cutting edges support changes in cutting depth and allow smooth chip discharge and disposal. The high rake angle is highly suitable for finishing diffcult-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  
		AZ 	**First recommendation 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. The polished insert face prevents built up edge.	Aluminum Alloy  
		R/L F 	**Finishing carbon steel and alloy steel** Angled chipbreaker controls chip flow. Sharp cutting edge provides excellent surface finishes.	Carbon Steel·Alloy Steel  
		R/L 	**Finishing** Angled chipbreaker. Excellent chip control at low feed rates.	Carbon Steel·Alloy Steel  

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Rhombic 25°	Round
	CCMT_FP  A136	DCMT_FP  A144	SCMT_FP  A152	TCMT_FP  A155	VCMT_FP  A166			
	CCMT_FM  A136	DCMT_FM  A144	SCMT_FM  A152	TCMT_FM  A155	VCMT_FM  A166			
	CCMT_FV  A136	DCMT_FV  A144	SCMT_FV  A152	TCMT_FV  A155	VCMT_FV  A166			
	CCGT_FJ  A136	DCMT_FJ  A144						
	CCGT_FJ-P  A136	DCMT_FJ-P  A144		TCGT_FJ-P  A155		WCGT_FJ-P  A171		
	CCGT_AZ  A137	DCGT_AZ  A145		TCGT_AZ  A155	VCGT_AZ  A166			RCGT-AZ  A151
	CCGT_L F  A137	DCGT_R/L F  A145		TCGT_R/L F  A156	VCGT_R/L F  A166			
	CCGH_R/L F  A137							
						WCGT_R/L  A171		

CLASSIFICATION

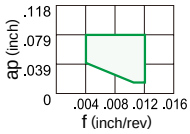
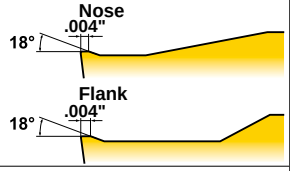
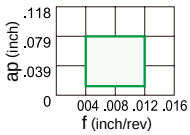
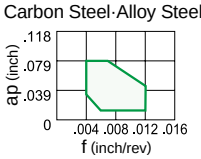
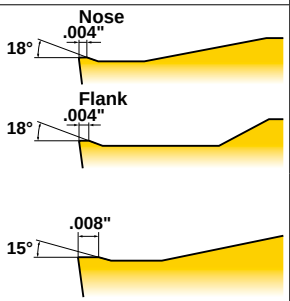
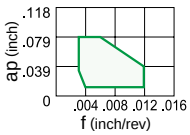
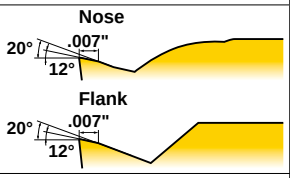
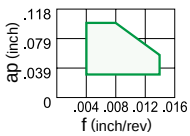
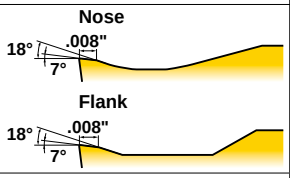
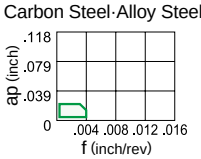
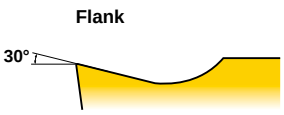
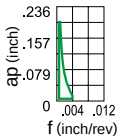
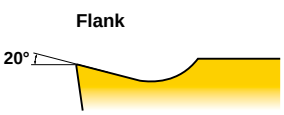
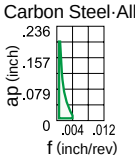
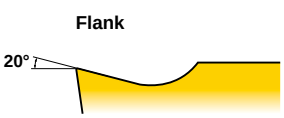
7° POSITIVE INSERTS WITH HOLE

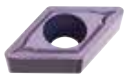
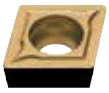
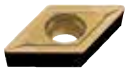
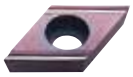
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Light Cutting	M Class	**LP** 	**First recommendation for light cutting of carbon and alloy steel** Sharp cutting edge due to a high rake angle. Prevents chip welding on cutting edge and controls cloudiness of surface finish. Chip breaker peninsula matched to depth of cut capability provides excellent chip control.	Carbon Steel·Alloy Steel  
		LM 	**First recommendation for light cutting of stainless steel** Sharp cutting edge due to a high rake angle. Prevents chip welding on cutting edge and controls cloudiness of surface finish. Chip breaker peninsula matched to depth of cut capability provides excellent chip control.	Stainless Steel  
		SVX 	**Light cutting of carbon steel and alloy steel** Breaker geometry appropriate for copying. Excellent chip control.	Carbon Steel·Alloy Steel  
		SV 	**Alternative chipbreaker for light cutting of carbon steel, alloy steel, mild steel and stainless steel** The double breaker design promotes chip control in mild steel and low depth of cut machining applications.	Carbon Steel·Alloy Steel  
		SW 	**Wiper insert for light cutting of carbon steel, alloy steel, mild steel and stainless steel** The wiper allows up to two times higher feed. Positive land improves sharpness.	Carbon Steel·Alloy Steel  
	G Class	**R/L SS** 	**Light cutting for Swiss type lathe machining** The parallel chipbreaker. Excellent chip control at low feed rate.	Carbon Steel·Alloy Steel  
		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  
		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  
Medium Cutting	M Class	**MP** 	**First recommendation for medium cutting of carbon and alloy steel** The small flat land at cutting edge provides an excellent balance of wear and fracture resistance. The wide chip gullet decreases cutting resistance, reduces vibration and chip jamming in elevated depth of cut applications.	Carbon Steel·Alloy Steel  

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Rhombic 25°	Round
	CCMT_LP  A137	DCMT_LP  A145	SCMT_LP  A152	TCMT_LP  A156	VCMT_LP  A166			
	CCMT_LM  A137	DCMT_LM  A145	SCMT_LM  A152	TCMT_LM  A156	VCMT_LM  A167			
							XCMT_SVX  A173	
	CCMH_SV  A137	DCMT_SV  A145			VCMT_SV  A167			
	CCMT_SW  A137							
	CCGT_R/L SS  A138	DCGT_R/L SS  A145						
	CCGT_MJ  A138	DCGT_MJ  A146		TCGT_MJ  A156		WCGT_MJ  A171		
	CCGT_MJ-P  A138	DCGT_MJ-P  A146		TCGT_MJ-P  A156		WCGT_MJ-P  A171		
	CCMT_MP  A138	DCMT_MP  A146	SCMT_MP  A152	TCMT_MP  A157	VCMT_MP  A167			

CLASSIFICATION

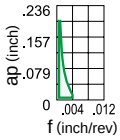
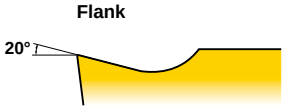
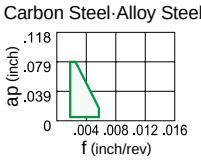
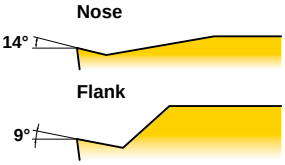
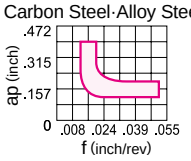
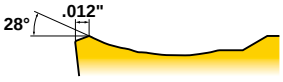
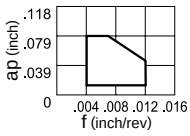
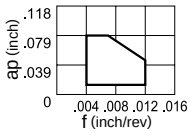
7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M Class	**MM** 	**First recommendation for medium cutting of stainless steel** The small flat land at cutting edge provides an excellent balance of wear and fracture resistance. The wide chip gullet decreases cutting resistance, reduces vibration and chip jamming in elevated depth of cut applications.	Stainless Steel  
		NEW **MK** 	**First recommendation for medium cutting of cast iron** Optimum balance between sharpness and high edge strength for general use.	Cast Iron  
		Standard  	**First recommendation for medium cutting of carbon steel, alloy steel, mild steel, stainless steel and cast iron** The high rake angle combined with a small, flat land provide a balance of strength and sharpness.	Carbon Steel·Alloy Steel  
		MV 	**Alternative chipbreaker for medium cutting of carbon steel, alloy steel, mild steel and stainless steel** A positive land and the high rake angle provides sharp cutting edge performance. The double breakers and round-shape in the rake face provide a wide range of chip control.	Carbon Steel·Alloy Steel  
		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  
	E Class	**R/L SR** 	**Medium cutting for Swiss style lathe machining** A wide angled chipbreaker. Low resistance insert design controls chip flow.	Carbon Steel·Alloy Steel  
		R/L SN 	**General purpose for Swiss style lathe machining** The parallel chipbreaker. Excellent chip control at low to medium feed rates.	Carbon Steel·Alloy Steel  
	G Class	**R/L SN** 	**General purpose for Swiss style lathe machining** The parallel chipbreaker. Excellent chip control for low to medium feed rates.	Carbon Steel·Alloy Steel  

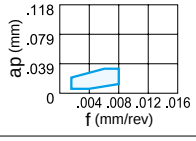
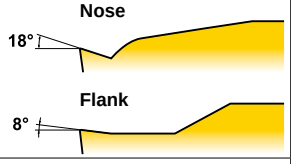
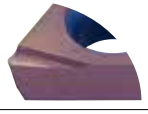
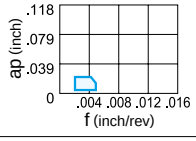
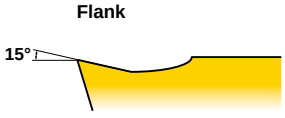
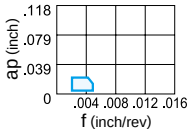
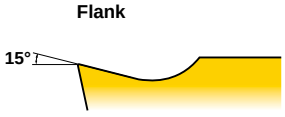
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CCMT_MM  A139	DCMT_MM  A146	SCMT_MM  A153	TCMT_MM  A157	VCMT_MM  A167		
	CCMT_MK NEW  A139	DCMT_MK NEW  A146	SCMT_MK NEW  A153	TCMT_MK NEW  A157	VCMT_MK NEW  A167		
	CCMT  A139	DCMT  A147	SCMT  A153	TCMT  A157	VCMT  A167	WCMT  A171	RCMT  A151
							RCMX  A151
	CCMH_MV  A139	DCMT_MV  A147			VCMT_MV  A167		
	CCMT_MW  A139						
	CCET_R/L SR  A140	DCET_R/L SR  A147					
	CCET_R/L SN  A140, A141	DCET_R/L SN  A147, A148					
	CCGT_R/L SN  A141	DCGT_R/L SN  A148					

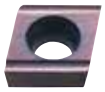
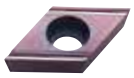
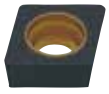
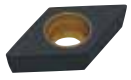
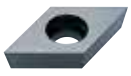
CLASSIFICATION

7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	E Class	**R/LW SN** 	**General purpose for Swiss style lathe machining** The parallel chipbreaker. Excellent chip control for low to medium feed rates. The wiper produces good surface finish.	Carbon Steel·Alloy Steel  
Medium Cutting	G Class	**MSMG** 	**Medium cutting for Swiss style lathes machining** 3D molded chipbreaker provides good chip control. G class insert gives sharp cutting action, allowing high precision machining. Breaker geometry appropriate for copying and back turning. M = minus radius tolerance	Carbon Steel·Alloy Steel  
Heavy Cutting	M Class	**RR** 	**Heavy cutting of carbon steel and alloy steel** A wide groove chipbreaker prevents chips from jamming at large depths of cut. Small dimples improve chip control at small depths of cut.	Carbon Steel·Alloy Steel  
For Cast Iron	M Class	**Flat Top** 	**For cast iron** Most effective in unstable machining due to high edge strength.	Cast Iron  
For Cast Iron	G Class	**Flat Top** 	**For cast iron** Most effective in unstable machining due to high edge strength. G class tolerance for use on workpieces requiring close tolerances.	Cast Iron  

11° POSITIVE INSERTS WITH HOLE

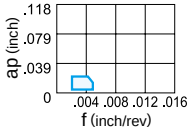
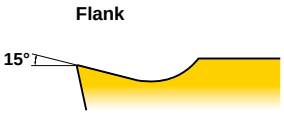
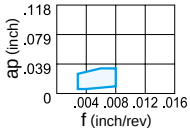
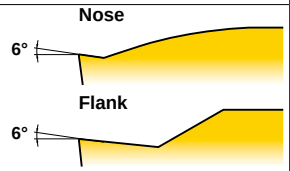
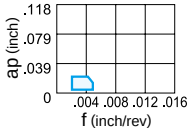
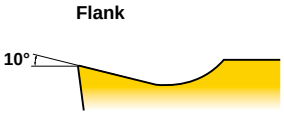
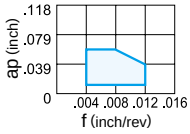
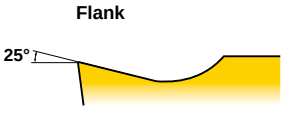
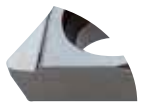
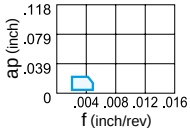
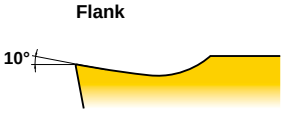
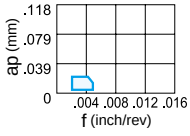
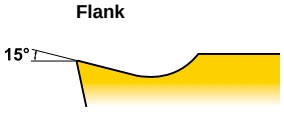
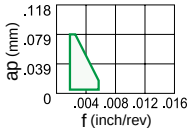
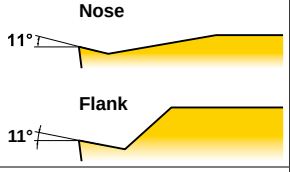
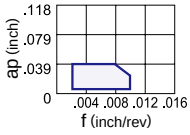
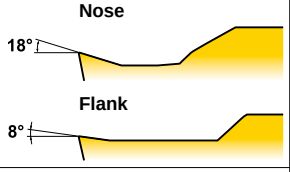
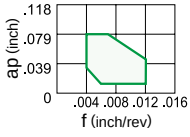
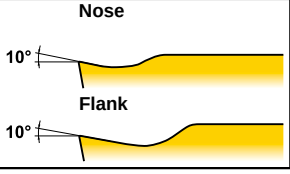
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M Class	**FV** 	**First recommendation for finishing carbon steel, alloy steel, mild steel and stainless steel** Suitable for low depth of cut and low feed rate applications. Sharp cutting edge and low resistance design achieves excellent cutting performance.	Carbon Steel·Alloy Steel  
Finish Cutting	G Class	**R/L FS** 	**First recommendation for finishing carbon steel, alloy steel, stainless steel, cast iron and aluminum alloy** Small angled chipbreaker. For precision finishing. Sharp cutting edge produces excellent surface finishes.	Carbon Steel·Alloy Steel  
Finish Cutting	M Class	**R/L F** 	**Finishing carbon steel and alloy steel** Angled chipbreaker controls chip flow. Sharp cutting edge produces excellent surface finishes.	Carbon Steel·Alloy Steel  

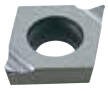
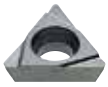
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CCET_R/LW SN  A141	**DCET_R/LW SN**  A148					
	CCGT_MSMG  A141	**DCGT_MSMG**  A149					
							RCMX-RR  A151
	CCMW  A141	**DCMW**  A149	**SCMW**  A153	**TCMW**  A157	**VCMW**  A167		
	CCGW  A141	**DCGW**  A149					

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CPMH_FV  A142			**TPMH_FV**  A159			
				TPGH_R/L FS  A159		**WPGT_R/L FS**  A172	
	CPMH_R/L F  A142						

CLASSIFICATION

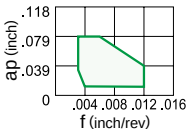
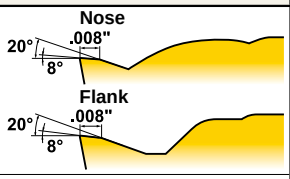
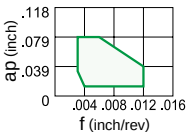
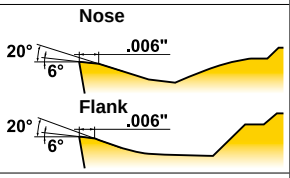
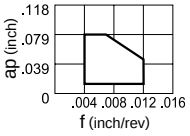
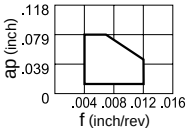
11° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	G Class	**R/L F** 	**Finishing carbon steel and alloy steel** Angled chipbreaker controls chip flow. Sharp cutting edge produces excellent surface finishes.	Carbon Steel·Alloy Steel  
	M Class	**SQ** 	**Finishing carbon steel, alloy steel and stainless steel** For small depth of cut and low feed.	Carbon Steel·Alloy Steel·Stainless Steel  
	G Class	**R/L** 	**Light (Finish) cutting of carbon steel and alloy steel** Angled chipbreaker. Good chip control for low to medium feed rates.	Carbon Steel·Alloy Steel  
		Standard 	**Finishing aluminum alloy** Lead chipbreaker controls chip flow. Good chip control for low to medium feed rates.	Aluminum Alloy  
	M Class	**L** 	**Finishing** Angled chipbreaker controls chip flow. Good chip control for low to medium feed rates.	Carbon Steel·Alloy Steel  
	E Class	**SRF** 	**Finishing** Lead chipbreaker controls chip flow. Sharp cutting edge produces excellent surface finishes.	Carbon Steel·Alloy Steel  
	G Class	**SMG** 	**Medium(Finish) cutting for Swiss style lathes machining** 3D molded chipbreaker provides good chip control. G class insert gives sharp cutting action, allowing high precision machining. Breaker geometry appropriate for copying and back turning.	Carbon Steel·Alloy Steel  
Light Cutting	M Class	**SV** 	**First recommendation for light cutting of carbon steel, alloy steel, mild steel, stainless steel and cast iron** The double breaker design promotes chip discharge for mild steel and low depth of cut machining applications.	Carbon Steel·Alloy Steel  
Medium Cutting	M Class	**Standard** 	**Alternative chipbreaker for medium cutting of carbon steel, alloy steel and stainless steel** Standard, general purpose chipbreaker.	Carbon Steel·Alloy Steel  

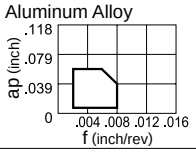
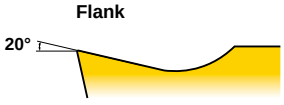
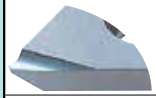
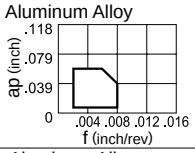
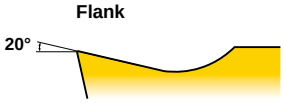
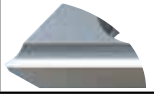
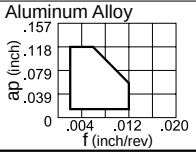
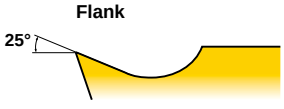
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CPGT_R/L F  A142						
	CPMT_SQ  A142			TPMT_SQ  A159			
				TPGX_R/L  A160			
	CPGT  A142						
				TPMX_L  A160			
					VPET_SRF  A169		
					VPGT_SMG  A169		
	CPMH_SV  A142			TPMH_SV  A160			
	CPMX  A143		SPMT  A154	TPMX  A161			

CLASSIFICATION

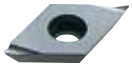
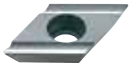
11° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M Class	**MV** 	**First recommendation for medium cutting of carbon steel, alloy steel, mild steel, stainless steel and cast iron** A positive land and the high rake angle provides sharp cutting edge performance. Double breakers in the rake face achieve a wide range of chip control.	Carbon Steel·Alloy Steel  
		MQ 	**Medium cutting of carbon steel, alloy steel and stainless steel** Can be used under a wide range of cutting conditions.	Copper  
For Cast Iron	M Class	**Flat Top** 	**Heavy cutting of cast iron** Flat top. Most effective for unstable machining due to high edge strength.	Cast Iron  
	G Class	**Flat Top** 	**For cast iron** Most effective in unstable machining due to high edge strength. G class tolerance allows use on workpieces requiring close tolerances.	Cast Iron  

15—20° POSITIVE INSERTS WITH HOLE

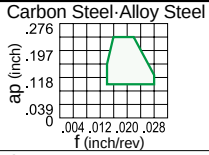
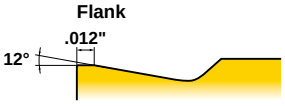
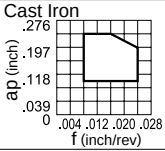
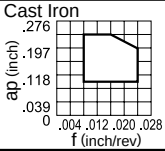
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
For Aluminum Alloy	G Class	**R/L** 	**For aluminum cutting** Angled chipbreaker. Sharp cutting edge produces excellent surface finishes.	Aluminum Alloy  
		R/L F 	**For aluminum cutting** Angled chipbreaker. Sharp cutting edge produces excellent surface finishes.	Aluminum Alloy  
		R/L 	**For aluminum cutting** Parallel chipbreaker. Sharp cutting edge produces excellent surface finishes.	Aluminum Alloy  

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
	CPMH_MV  A143			**TPMH_MV**  A161		**WPMT_MV**  A172	
	CPMT_MQ  A143			**TPMT_MQ**  A161			
			SPMW  A154				
			SPGX  A154	**TPGX**  A161			

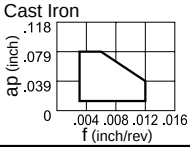
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
					VDGX_R/L  A168		
		DEGX_R/L F  A150					
		DEGX_R/L  A150		**TEGX_R/L**  A158			

CLASSIFICATION

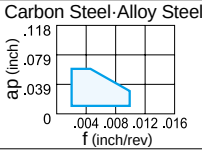
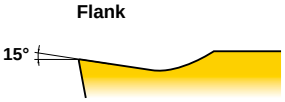
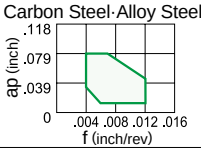
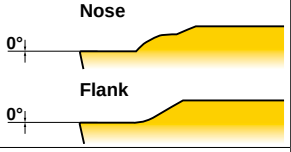
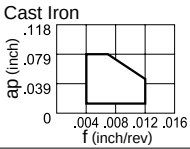
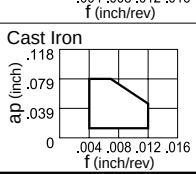
NEGATIVE INSERTS WITHOUT HOLE

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)	Carbon Steel·Alloy Steel  
For Cast Iron	M Class	**Flat Top** 	**Heavy cutting of cast iron** Double sided flat insert. Most effective for unstable machining due to high edge strength and stable insert clamping.	Cast Iron  
For Cast Iron	G Class	**Flat Top** 	**For cast iron** Double sided flat insert. Most effective for unstable machining due to high edge strength and stable insert clamping. Use on workpieces requiring close tolerance inserts.	Cast Iron  

7° POSITIVE INSERTS WITHOUT HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
For Cast Iron	G Class	**Flat Top** 	**For cast iron** Double sided flat insert. Most effective for unstable machining due to high edge strength and stable insert clamping. Use on workpieces requiring close tolerance inserts.	Cast Iron  

11° POSITIVE INSERTS WITHOUT HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	G Class	**R/L** 	**Finishing** A parallel chipbreaker. Good chip control for low to medium feed rates.	Carbon Steel·Alloy Steel  
Light to Medium Cutting	M Class	**Standard** 	**Light to medium cutting of carbon steel, alloy steel and stainless steel** Standard, general purpose chipbreaker.	Carbon Steel·Alloy Steel  
For Cast Iron	M Class	**Flat Top** 	**Heavy cutting of cast iron** Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping.	Cast Iron  
For Cast Iron	G Class	**Flat Top** 	**For cast iron** Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping. Use on workpieces requiring close tolerance inserts.	Cast Iron  

	Square 90°	Triangular 60°	Parallelogram 55°
			KNUX_M1  A133
	SNMN  A134	TNMN  A135	
	SNG  A134	TNG  A135	

	Triangular 60°
	TCG  A176

	Square 90°	Triangular 60°
	SPGR_R  A175	TPGR_R/L  A177
	SPMR  A175	TPMR  A177
	SPMN  A175	TPMN  A177
	SPG  A175	TPG  A178

SPECIAL PURPOSE INSERTS

Application	Tolerance	Tool Holder Type	Inserts
Special	G Class	TL Type	RTG  A174

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 (AISI ASTM A283, AISI 1010)	≤180HB	●	F	1	FY	VP25N	935–1460	.004–.010	.008–.032
		●	F	2	FS	NX2525	885–1260	.004–.010	.008–.028
		●	L	1	SY	VP25N	850–1330	.007–.013	.020–.048
		◐	F	1	FY	MP3025	900–1380	.004–.010	.008–.032
		◐	F	2	FY	NX3035	850–1215	.004–.010	.008–.032
		◐	F	3	FS	NX2525	885–1260	.004–.010	.008–.028
		◐	L	1	SY	MP3025	820–1260	.007–.013	.020–.048
		◐	L	2	SY	NX3035	770–1100	.007–.013	.020–.048
		✣	F	1	FY	UE6020	935–1510	.004–.010	.008–.032
		✣	F	2	FS	UE6020	935–1510	.004–.010	.008–.028
		✣	L	1	SY	UE6020	850–1380	.007–.013	.020–.048
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB	●	F	1	FH	AP25N	705–1115	.004–.008	.008–.040
		●	F	2	FH	NX2525	670–970	.004–.008	.008–.040
		●	F	3	R/L-F	MP3025	690–1065	.002–.006	.004–.020
		●	F	4	PK	NX2525	640–920	.004–.012	.008–.040
		●	L	1	LP	UE6105	720–1330	.004–.016	.012–.079
		●	L	2	SH	UE6105	720–1330	.004–.016	.012–.079
		●	L	3	LP	MP3025	640–970	.004–.016	.012–.079
		●	L	4	SH	AP25N	655–1030	.004–.016	.012–.079
		●	L	5	SH	NX2525	620–885	.004–.016	.012–.079
		●	L	6	SA	UE6105	720–1330	.004–.016	.012–.079
		●	L	7	SW	UE6105	720–1330	.004–.020	.012–.099
		●	L	8	SW	MP3025	640–970	.004–.020	.012–.099
		●	L	9	SW	NX2525	620–885	.004–.020	.012–.099
		●	L	10	R/L-K	MP3025	640–970	.004–.008	.012–.048
		●	M	1	MP	UE6105	655–1215	.007–.020	.012–.158
		●	M	2	MP	MP3025	575–885	.007–.020	.012–.158
		●	M	3	MA	UE6105	655–1215	.008–.020	.012–.158
		●	M	4	MH	UE6105	655–1215	.008–.022	.040–.158
		●	M	5	Std	UE6105	655–1215	.010–.024	.060–.197
		●	M	6	Std	MP3025	575–885	.010–.024	.060–.197
		●	M	7	Std	NX2525	560–805	.010–.024	.060–.197
		●	M	8	Std	UTi20T	280–410	.010–.024	.060–.197
		●	M	9	MW	UE6105	655–1215	.008–.024	.036–.158
		●	M	10	R/L	MP3025	575–885	.006–.013	.016–.079
		●	R	1	RP	UE6105	620–1150	.010–.024	.060–.237
		●	R	2	GH	UE6105	620–1150	.010–.024	.060–.237
		●	H	1	HX	UE6110	525–900	.020–.050	.119–.434
		●	H	2	HV	UE6110	440–740	.028–.052	.158–.473
		◐	F	1	FH	MP3025	690–1065	.004–.008	.008–.040
		◐	F	2	FH	NX3035	655–935	.004–.008	.008–.040
		◐	F	3	FH	UE6110	755–1280	.004–.008	.008–.040
		◐	L	1	LP	MC6015	690–1165	.004–.016	.012–.079
		◐	L	2	LP	UE6110	690–1165	.004–.016	.012–.079
		◐	L	3	SH	UE6110	690–1165	.004–.016	.012–.079
		◐	L	4	SA	UE6110	690–1165	.004–.016	.012–.079
		◐	L	5	LP	MP3025	640–970	.004–.016	.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)
P									
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB		**L**	6	**SH**	**NX3035**	605–850	.004–.016	.012–.079
			L	7	**SA**	**NX3035**	605–850	.004–.016	.012–.079
			L	8	**SW**	**UE6110**	690–1165	.004–.020	.012–.099
			L	9	**SW**	**NX3035**	605–850	.004–.020	.012–.099
			M	1	**MP**	**MC6015**	620–1065	.007–.020	.012–.158
			M	2	**MP**	**UE6110**	620–1065	.007–.020	.012–.158
			M	3	**MA**	**MC6015**	620–1065	.008–.020	.012–.158
			M	4	**MA**	**UE6110**	620–1065	.008–.020	.012–.158
			M	5	**MA**	**NX3035**	540–770	.008–.020	.012–.158
			M	6	**MH**	**MC6015**	620–1065	.008–.022	.040–.158
			M	7	**MH**	**UE6110**	620–1065	.008–.022	.040–.158
			M	8	**Std**	**UE6110**	620–1065	.010–.024	.060–.197
			M	9	**Std**	**NX3035**	540–770	.010–.024	.060–.197
			M	10	**MW**	**MC6015**	620–1065	.008–.024	.036–.158
			M	11	**MW**	**UE6110**	620–1065	.008–.024	.036–.158
			R	1	**RP**	**MC6015**	590–1015	.010–.024	.060–.237
			R	2	**RP**	**UE6110**	590–1015	.010–.024	.060–.237
			R	3	**GH**	**UE6110**	590–1015	.010–.024	.060–.237
			H	1	**HX**	**UE6020**	510–820	.020–.050	.119–.434
			H	2	**HV**	**UE6020**	410–670	.028–.052	.158–.473
			H	3	**HZ**	**UE6110**	525–900	.016–.048	.079–.394
			F	1	**FH**	**UE6110**	755–1280	.004–.008	.008–.040
			F	2	**FH**	**UE6020**	705–1165	.004–.008	.008–.040
			L	1	**LP**	**MC6025**	690–1115	.004–.016	.012–.079
			L	2	**SH**	**UE6020**	655–1065	.004–.016	.012–.079
			L	3	**SA**	**UE6020**	655–1065	.004–.016	.012–.079
			M	1	**MP**	**MC6025**	620–1015	.007–.020	.012–.158
			M	2	**MA**	**MC6025**	620–1015	.008–.020	.012–.158
			M	3	**Std**	**MC6025**	620–1015	.010–.024	.060–.197
			M	4	**MP**	**UE6020**	590–970	.007–.020	.012–.158
			M	5	**MA**	**UE6020**	590–970	.008–.020	.012–.158
			M	6	**MA**	**UE6035**	560–770	.008–.020	.012–.158
			M	7	**MH**	**UE6020**	590–970	.008–.022	.040–.158
			M	8	**MH**	**UE6035**	560–770	.008–.022	.040–.158
			M	9	**Std**	**UE6020**	590–970	.010–.024	.060–.197
			M	10	**Std**	**UE6035**	560–770	.010–.024	.060–.197
			M	11	**MW**	**MC6025**	620–1015	.008–.024	.036–.158
			R	1	**RP**	**MC6025**	590–970	.010–.024	.060–.237
			R	2	**GH**	**UE6020**	560–920	.010–.024	.060–.237
			H	1	**HX**	**UH6400**	440–640	.020–.050	.119–.434
			H	2	**HV**	**UH6400**	360–525	.028–.052	.158–.473
			H	3	**HZ**	**UH6400**	440–640	.016–.048	.079–.394
			H	4	**HZ**	**UE6020**	510–820	.016–.048	.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									
Austenitic Stainless Steel (AISI 304, AISI 306)	≤200HB	●	L	1	LM	MC7015	590–935	.004–.012	.012–.079
		●	L	2	SH	US735	310–605	.004–.016	.012–.079
		●	L	3	SH	NX2525	210–440	.004–.016	.012–.079
		●	L	4	SW	US7020	345–885	.004–.020	.012–.099
		●	M	1	MM	MC7015	525–835	.006–.018	.028–.197
		●	M	2	GM	MC7015	525–835	.007–.020	.020–.158
		●	M	3	MS	US7020	310–805	.007–.020	.020–.158
		●	M	4	MA	US7020	310–805	.008–.020	.012–.158
		●	M	5	MH	US7020	310–805	.008–.022	.040–.158
		●	M	6	MW	US7020	310–805	.008–.024	.036–.158
		●	R	1	RM	MC7015	510–805	.010–.022	.060–.237
		●	R	2	GH	US7020	295–770	.010–.024	.060–.237
		◐	L	1	LM	MC7025	525–705	.004–.012	.012–.079
		◐	L	2	SH	US735	310–605	.004–.016	.012–.079
		◐	M	1	MM	MC7025	475–640	.006–.018	.028–.197
		◐	M	2	GM	MC7025	475–640	.007–.020	.020–.158
		◐	M	3	MA	MC7025	475–640	.008–.020	.012–.158
		◐	M	4	MS	US735	280–540	.007–.020	.020–.158
		◐	M	5	MA	US735	280–540	.008–.020	.012–.158
		◐	R	1	RM	MC7025	460–605	.010–.022	.060–.237
		◐	R	2	GH	US735	280–525	.010–.024	.060–.237
		✣	L	1	LM	MP7035	310–510	.004–.012	.012–.079
		✣	L	2	SH	US735	310–605	.004–.016	.012–.079
		✣	M	1	MM	MP7035	280–460	.006–.018	.028–.197
		✣	M	2	GM	MP7035	280–460	.007–.020	.020–.158
		✣	M	3	MA	MP7035	280–460	.008–.020	.012–.158
		✣	M	4	MS	US735	280–540	.007–.020	.020–.158
		✣	M	5	MS	VP15TF	245–425	.007–.020	.020–.158
		✣	M	6	MS	UP20M	310–475	.007–.020	.020–.158
		✣	M	7	MS	UTi20T	245–360	.007–.020	.020–.158
		✣	M	8	MA	VP15TF	245–425	.008–.020	.012–.158
		✣	M	9	Std	VP15TF	245–425	.010–.024	.060–.197
		✣	R	1	RM	MP7035	280–440	.010–.022	.060–.237
		✣	R	2	GH	US735	280–525	.010–.024	.060–.237
Austenitic Stainless Steel (AISI 304LN, AISI 316LN)	>200HB	●	L	1	LM	MC7015	490–785	.004–.012	.012–.079
		●	L	2	SH	US735	260–510	.004–.016	.012–.079
		●	L	3	SH	NX2525	180–375	.004–.016	.012–.079
		●	L	4	SW	US7020	295–755	.004–.020	.012–.099
		●	M	1	MM	MC7015	440–705	.006–.018	.028–.197
		●	M	2	GM	MC7015	440–705	.007–.020	.020–.158
		●	M	3	MS	US7020	260–670	.007–.020	.020–.158
		●	M	4	MA	US7020	260–670	.008–.020	.012–.158
		●	M	5	MH	US7020	260–670	.008–.022	.040–.158
		●	M	6	MW	US7020	260–670	.008–.024	.036–.158
		●	R	1	RM	MC7015	425–670	.010–.022	.060–.237
		●	R	2	GH	US7020	245–640	.010–.024	.060–.237
		◐	L	1	LM	MC7025	440–590	.004–.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 304LN, AISI 316LN)	>200HB		**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	.007–.020	.020–.158
			M	3	**MA**	**MC7025**	410–540	.008–.020	.012–.158
			M	4	**MS**	**US735**	245–460	.007–.020	.020–.158
			M	5	**MA**	**US735**	245–460	.008–.020	.012–.158
			R	1	**RM**	**MC7025**	375–510	.010–.022	.060–.237
			R	2	**GH**	**US735**	230–440	.010–.024	.060–.237
			L	1	**LM**	**MP7035**	260–425	.004–.012	.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	.007–.020	.020–.158
			M	3	**MA**	**MP7035**	245–395	.008–.020	.012–.158
			M	4	**MS**	**US735**	245–460	.007–.020	.020–.158
			M	5	**MS**	**VP15TF**	210–360	.007–.020	.020–.158
			M	6	**MS**	**UP20M**	260–410	.007–.020	.020–.158
			M	7	**MS**	**UTi20T**	210–310	.007–.020	.020–.158
			M	8	**MA**	**VP15TF**	210–360	.008–.020	.012–.158
			M	9	**Std**	**VP15TF**	210–360	.010–.024	.060–.197
			R	1	**RM**	**MP7035**	230–375	.010–.022	.060–.237
			R	2	**GH**	**US735**	230–440	.010–.024	.060–.237
Two-phase Stainless Steel (DUPLEX)	≤280HB		**L**	1	**LM**	**MC7015**	395–640	.004–.012	.012–.079
			L	2	**SH**	**US735**	210–410	.004–.016	.012–.079
			L	3	**SH**	**NX2525**	150–295	.004–.016	.012–.079
			L	4	**SW**	**US7020**	245–605	.004–.020	.012–.099
			M	1	**MM**	**MC7015**	360–575	.006–.018	.028–.197
			M	2	**GM**	**MC7015**	360–575	.007–.020	.020–.158
			M	3	**MS**	**US7020**	210–560	.007–.020	.020–.158
			M	4	**MA**	**US7020**	210–560	.008–.020	.012–.158
			M	5	**MH**	**US7020**	210–560	.008–.022	.040–.158
			M	6	**MW**	**US7020**	210–560	.008–.024	.036–.158
			R	1	**RM**	**MC7015**	345–540	.010–.022	.060–.237
			R	2	**GH**	**US7020**	195–525	.010–.024	.060–.237
			L	1	**LM**	**MC7025**	360–490	.004–.012	.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	.007–.020	.020–.158
			M	3	**MA**	**MC7025**	330–440	.008–.020	.012–.158
			M	4	**MS**	**US735**	195–375	.007–.020	.020–.158
			M	5	**MA**	**US735**	195–375	.008–.020	.012–.158
			R	1	**RM**	**MC7025**	310–410	.010–.022	.060–.237
			R	2	**GH**	**US735**	180–360	.010–.024	.060–.237
			L	1	**LM**	**MP7035**	210–345	.004–.012	.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	.007–.020	.020–.158
			M	3	**MA**	**MP7035**	195–310	.008–.020	.012–.158

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 (DUPLEX)	≤280HB	✣	M	4	MS	US735	195–375	.007–.020	.020–.158
		✣	M	5	MS	VP15TF	165–295	.007–.020	.020–.158
		✣	M	6	MS	UP20M	210–330	.007–.020	.020–.158
		✣	M	7	MS	UTi20T	165–245	.007–.020	.020–.158
		✣	M	8	MA	VP15TF	165–295	.008–.020	.012–.158
		✣	M	9	Std	VP15TF	165–295	.010–.024	.060–.197
		✣	R	1	RM	MP7035	180–295	.010–.022	.060–.237
		✣	R	2	GH	US735	180–360	.010–.024	.060–.237
Ferritic and Martensitic Stainless Steel (AISI 410, AISI 430)	≤200HB	●	L	1	LM	MC7015	590–935	.004–.012	.012–.079
		●	L	2	SH	US735	310–605	.004–.016	.012–.079
		●	L	3	SH	NX2525	210–440	.004–.016	.012–.079
		●	L	4	SW	US7020	345–885	.004–.020	.012–.099
		●	M	1	MM	MC7015	525–835	.006–.018	.028–.197
		●	M	2	GM	MC7015	525–835	.007–.020	.020–.158
		●	M	3	MS	US7020	310–805	.007–.020	.020–.158
		●	M	4	MA	US7020	310–805	.008–.020	.012–.158
		●	M	5	MH	US7020	310–805	.008–.022	.040–.158
		●	M	6	MW	US7020	310–805	.008–.024	.036–.158
		●	R	1	RM	MC7015	510–805	.010–.022	.060–.237
		●	R	2	GH	US7020	295–770	.010–.024	.060–.237
		◐	L	1	LM	MC7025	525–705	.004–.012	.012–.079
		◐	L	2	SH	US735	310–605	.004–.016	.012–.079
		◐	M	1	MM	MC7025	475–640	.006–.018	.028–.197
		◐	M	2	GM	MC7025	475–640	.007–.020	.020–.158
		◐	M	3	MA	MC7025	475–640	.008–.020	.012–.158
		◐	M	4	MS	US735	280–540	.007–.020	.020–.158
		◐	M	5	MA	US735	280–540	.008–.020	.012–.158
		◐	R	1	RM	MC7025	460–605	.010–.022	.060–.237
		◐	R	2	GH	US735	280–525	.010–.024	.060–.237
		✣	L	1	LM	MP7035	310–510	.004–.012	.012–.079
		✣	L	2	SH	US735	310–605	.004–.016	.012–.079
		✣	M	1	MM	MP7035	280–460	.006–.018	.028–.197
		✣	M	2	GM	MP7035	280–460	.007–.020	.020–.158
		✣	M	3	MA	MP7035	280–460	.008–.020	.012–.158
		✣	M	4	MS	US735	280–540	.007–.020	.020–.158
		✣	M	5	MS	VP15TF	245–425	.007–.020	.020–.158
		✣	M	6	MS	UP20M	310–475	.007–.020	.020–.158
		✣	M	7	MS	UTi20T	245–360	.007–.020	.020–.158
		✣	M	8	MA	VP15TF	245–425	.008–.020	.012–.158
		✣	M	9	Std	VP15TF	245–425	.010–.024	.060–.197
		✣	R	1	RM	MP7035	280–440	.010–.022	.060–.237
		✣	R	2	GH	US735	280–525	.010–.024	.060–.237
Ferritic and Martensitic Stainless Steel (AISI 431)	>200HB	●	L	1	LM	MC7015	490–785	.004–.012	.012–.079
		●	L	2	SH	US735	260–510	.004–.016	.012–.079
		●	L	3	SH	NX2525	180–375	.004–.016	.012–.079
		●	L	4	SW	US7020	295–755	.004–.020	.012–.099
		●	M	1	MM	MC7015	440–705	.006–.018	.028–.197

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)	>200HB	●	M	2	GM	MC7015	440–705	.007–.020	.020–.158
		●	M	3	MS	US7020	260–670	.007–.020	.020–.158
		●	M	4	MA	US7020	260–670	.008–.020	.012–.158
		●	M	5	MH	US7020	260–670	.008–.022	.040–.158
		●	M	6	MW	US7020	260–670	.008–.024	.036–.158
		●	R	1	RM	MC7015	425–670	.010–.022	.060–.237
		●	R	2	GH	US7020	245–640	.010–.024	.060–.237
		●	L	1	LM	MC7025	440–590	.004–.012	.012–.079
		◐	L	2	SH	US735	260–510	.004–.016	.012–.079
		◐	M	1	MM	MC7025	410–540	.006–.018	.028–.197
		◐	M	2	MS	MC7025	410–540	.007–.020	.020–.158
		◐	M	3	MA	MC7025	410–540	.008–.020	.012–.158
		◐	M	4	MS	US735	245–460	.007–.020	.020–.158
		◐	M	5	MA	US735	245–460	.008–.020	.012–.158
		◐	R	1	RM	MC7025	375–510	.010–.022	.060–.237
		◐	R	2	GH	US735	230–440	.010–.024	.060–.237
		✣	L	1	LM	MP7035	260–425	.004–.012	.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	.007–.020	.020–.158
		✣	M	3	MA	MP7035	245–395	.008–.020	.012–.158
		✣	M	4	MS	US735	245–460	.007–.020	.020–.158
		✣	M	5	MS	VP15TF	210–360	.007–.020	.020–.158
		✣	M	6	MS	UP20M	260–410	.007–.020	.020–.158
		✣	M	7	MS	UTi20T	210–310	.007–.020	.020–.158
		✣	M	8	MA	VP15TF	210–360	.008–.020	.012–.158
		✣	M	9	Std	VP15TF	210–360	.010–.024	.060–.197
		✣	R	1	RM	MP7035	230–375	.010–.022	.060–.237
		✣	R	2	GH	US735	230–440	.010–.024	.060–.237
Hardened Stainless Steel	<450HB	●	L	1	LM	MC7015	330–525	.004–.012	.012–.079
		●	L	2	SH	US735	180–345	.004–.016	.012–.079
		●	L	3	SH	NX2525	115–245	.004–.016	.012–.079
		●	L	4	SW	US7020	195–510	.004–.020	.012–.099
		●	M	1	MM	MC7015	295–475	.006–.018	.028–.197
		●	M	2	GM	MC7015	295–475	.007–.020	.020–.158
		●	M	3	MS	US7020	180–460	.007–.020	.020–.158
		●	M	4	MA	US7020	180–460	.008–.020	.012–.158
		●	M	5	MH	US7020	180–460	.008–.022	.040–.158
		●	M	6	MW	US7020	180–460	.008–.024	.036–.158
		●	R	1	RM	MC7015	280–440	.010–.022	.060–.237
		●	R	2	GH	US7020	165–425	.010–.024	.060–.237
		◐	L	1	LM	MC7025	295–395	.004–.012	.012–.079
		◐	L	2	SH	US735	180–345	.004–.016	.012–.079
		◐	M	1	MM	MC7025	260–360	.006–.018	.028–.197
		◐	M	2	GM	MC7025	260–360	.007–.020	.020–.158
		◐	M	3	MA	MC7025	260–360	.008–.020	.012–.158
		◐	M	4	MS	US735	165–310	.007–.020	.020–.158

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									
Hardened Stainless Steel	<450HB	◐	**M**	5	**MA**	**US735**	165–310	.008–.020	.012–.158
		◐	**R**	1	**RM**	**MC7025**	260–345	.010–.022	.060–.237
		◐	**R**	2	**GH**	**US735**	150–295	.010–.024	.060–.237
		✣	**L**	1	**LM**	**MP7035**	180–280	.004–.012	.012–.079
		✣	**L**	2	**SH**	**US735**	180–345	.004–.016	.012–.079
		✣	**M**	1	**MM**	**MP7035**	165–260	.006–.018	.028–.197
		✣	**M**	2	**GM**	**MP7035**	165–260	.007–.020	.020–.158
		✣	**M**	3	**MA**	**MP7035**	165–260	.008–.020	.012–.158
		✣	**M**	4	**MS**	**US735**	165–310	.007–.020	.020–.158
		✣	**M**	5	**MS**	**VP15TF**	150–245	.007–.020	.020–.158
		✣	**M**	6	**MS**	**UP20M**	180–260	.007–.020	.020–.158
		✣	**M**	7	**MS**	**UTi20T**	150–195	.007–.020	.020–.158
		✣	**M**	8	**MA**	**VP15TF**	150–245	.008–.020	.012–.158
		✣	**M**	9	**Std**	**VP15TF**	150–245	.010–.024	.060–.197
		✣	**R**	1	**RM**	**MP7035**	150–245	.010–.022	.060–.237
		✣	**R**	2	**GH**	**US735**	150–295	.010–.024	.060–.237

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	●	L	1	LK	MC5005	715–1100	.004–.016	.012–.079
		●	L	2	MA	MC5005	640–1000	.008–.020	.012–.158
		●	L	3	MA	UC5105	560–1030	.008–.020	.012–.158
		●	M	1	MK	MC5005	640–1000	.008–.022	.036–.158
		●	M	2	GK	MC5005	640–1000	.010–.024	.060–.197
		●	M	3	Std	UC5105	560–1030	.010–.024	.060–.197
		●	M	4	Std	NX2525	510–690	.010–.024	.060–.197
		●	M	5	MW	UC5105	560–1030	.008–.024	.036–.158
		●	R	1	RK	MC5005	600–950	.010–.024	.060–.237
		●	R	2	Flat	MC5005	600–950	.010–.024	.099–.237
		●	R	3	GH	UC5105	540–985	.010–.024	.060–.237
		●	R	4	Flat	UC5105	540–985	.008–.024	.099–.237
		●	R	5	Flat	HTi10	330–475	.008–.024	.099–.237
		●	R	6	Flat	HTi05T	360–605	.008–.024	.099–.237
		●	H	1	Flat	MC5005	600–950	.008–.024	.099–.237
		●	H	2	Flat	UC5105	540–985	.008–.024	.099–.237
		◐	L	1	LK	MC5015	625–1000	.004–.016	.012–.079
		◐	L	2	MA	MC5015	580–930	.008–.020	.012–.158
		◐	L	3	MA	UC5115	540–1000	.008–.020	.012–.158
		◐	L	4	MP	UC5115	540–1000	.007–.020	.012–.158
		◐	L	5	SW	UC5115	605–1100	.004–.020	.012–.099
		◐	M	1	MK	MC5015	580–930	.008–.022	.036–.158
		◐	M	2	GK	MC5015	580–930	.010–.024	.060–.197
		◐	M	3	Std	UC5115	540–1000	.010–.024	.060–.197
		◐	M	4	Std	HTi10	345–490	.010–.024	.060–.197
		◐	M	5	MH	UC5115	540–1000	.008–.022	.040–.158
		◐	M	6	MW	UC5115	540–1000	.008–.024	.036–.158
		◐	R	1	RK	MC5015	540–860	.010–.024	.060–.237
		◐	R	2	Flat	MC5015	540–860	.008–.024	.099–.237
		◐	R	3	GH	UC5115	525–950	.010–.024	.060–.237
		◐	R	4	Flat	UC5115	525–950	.008–.024	.099–.237
		◐	H	1	Flat	MC5015	540–860	.008–.024	.099–.237
		◐	H	2	Flat	UC5115	525–950	.008–.024	.099–.237
		✣	L	1	LK	MC5015	625–1000	.004–.016	.012–.079
		✣	L	2	MA	MC5015	580–930	.008–.020	.012–.158
		✣	L	3	MA	UC5115	540–1000	.008–.020	.012–.158
		✣	M	1	MK	MC5015	580–930	.008–.022	.060–.158
		✣	M	2	GK	MC5015	580–930	.010–.024	.060–.197
		✣	M	3	Std	UC5115	540–1000	.010–.024	.060–.197
		✣	M	4	Std	UTi20T	280–395	.010–.024	.060–.197
		✣	R	1	RK	MC5015	540–860	.010–.024	.060–.237
		✣	R	2	Flat	MC5015	540–860	.008–.024	.099–.237
		✣	R	3	GH	UC5115	525–950	.010–.024	.060–.237
		✣	R	4	Flat	UC5115	525–950	.008–.024	.099–.237
		✣	R	5	Flat	UTi20T	260–375	.008–.024	.099–.237
		✣	H	1	Flat	MC5015	540–860	.008–.024	.099–.237
		✣	H	2	Flat	UC5115	525–950	.008–.024	.099–.237

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	≤450MPa	●	L	1	LK	MC5005	670–1080	.004–.016	.012–.079
		●	L	2	MA	MC5005	640–1000	.008–.020	.012–.158
		●	L	3	MA	UC5105	525–970	.008–.020	.012–.158
		●	M	1	MK	MC5005	640–1000	.008–.022	.036–.158
		●	M	2	GK	MC5005	640–1000	.010–.024	.060–.197
		●	M	3	Std	UC5105	525–970	.010–.024	.060–.197
		●	M	4	Std	NX2525	475–655	.010–.024	.060–.197
		●	R	1	RK	MC5005	600–950	.010–.024	.060–.237
		●	R	2	Flat	MC5005	600–950	.008–.024	.099–.237
		●	R	3	GH	UC5105	510–920	.010–.024	.060–.237
		●	R	4	Flat	UC5105	510–920	.008–.024	.099–.237
		●	R	5	Flat	HTi10	310–440	.008–.024	.099–.237
		●	R	6	Flat	HTi05T	345–575	.008–.024	.099–.237
		●	H	1	Flat	MC5005	600–950	.008–.024	.099–.237
		●	H	2	Flat	UC5105	510–920	.008–.024	.099–.237
		◐	L	1	LK	MC5015	625–1000	.004–.016	.012–.079
		◐	L	2	MA	MC5015	580–930	.008–.020	.012–.158
		◐	L	3	MA	UC5115	510–935	.008–.020	.012–.158
		◐	L	4	MP	UC5115	510–935	.007–.020	.012–.158
		◐	L	5	SW	UC5115	575–1030	.004–.020	.012–.099
		◐	M	1	MK	MC5015	580–930	.008–.022	.036–.158
		◐	M	2	GK	MC5015	580–930	.010–.024	.060–.197
		◐	M	3	Std	UC5115	510–935	.010–.024	.060–.197
		◐	M	4	Std	HTi10	330–460	.010–.024	.060–.197
		◐	R	1	RK	MC5015	540–860	.010–.024	.060–.237
		◐	R	2	Flat	MC5015	540–860	.008–.024	.099–.237
		◐	R	3	GH	UC5115	490–900	.010–.024	.060–.237
		◐	R	4	Flat	UC5115	490–900	.008–.024	.099–.237
		◐	H	1	Flat	MC5015	540–860	.008–.024	.099–.237
		◐	H	2	Flat	UC5115	490–900	.008–.024	.099–.237
		✣	L	1	LK	MC5015	625–1000	.004–.016	.012–.079
		✣	L	2	MA	MC5015	580–930	.008–.020	.012–.158
		✣	L	3	MA	UC5115	510–935	.008–.020	.012–.158
		✣	M	1	MK	MC5015	580–930	.008–.022	.060–.158
		✣	M	2	GK	MC5015	580–930	.010–.024	.060–.197
		✣	M	3	Std	UC5115	510–935	.010–.024	.060–.197
		✣	M	4	Std	UTi20T	260–375	.010–.024	.060–.197
		✣	R	1	RK	MC5015	540–860	.010–.024	.060–.237
		✣	R	2	Flat	MC5015	540–860	.008–.024	.099–.237
		✣	R	3	GH	UC5115	490–900	.010–.024	.060–.237
		✣	R	4	Flat	UC5115	490–900	.008–.024	.099–.237
		✣	R	5	Flat	UTi20T	245–360	.008–.024	.099–.237
		✣	H	1	Flat	MC5015	540–860	.008–.024	.099–.237
		✣	H	2	Flat	UC5115	490–900	.008–.024	.099–.237
	≤800MPa	●	L	1	LK	MC5005	600–950	.004–.016	.012–.079
		●	L	2	MA	MC5005	640–1000	.008–.020	.012–.158
		●	L	3	MA	UC5105	475–870	.008–.020	.012–.158

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	≤800MPa	●	M	1	MK	MC5005	640—1000	.008—.022	.036—.158
		●	M	2	GK	MC5005	640—1000	.010—.024	.060—.197
		●	M	3	Std	UC5105	475—870	.010—.024	.060—.197
		●	M	4	Std	NX2525	425—575	.010—.024	.060—.197
		●	R	1	RK	MC5005	600—950	.010—.024	.060—.237
		●	R	2	Flat	MC5005	600—950	.008—.024	.099—.237
		●	R	3	GH	UC5105	440—820	.010—.024	.060—.237
		●	R	4	Flat	UC5105	440—820	.008—.024	.099—.237
		●	R	5	Flat	HTi10	280—395	.008—.024	.099—.237
		●	R	6	Flat	HTi05T	295—510	.008—.024	.099—.237
		●	H	1	Flat	MC5005	600—950	.008—.024	.099—.237
		●	H	2	Flat	UC5105	440—820	.008—.024	.099—.237
		◐	L	1	LK	MC5015	625—1000	.004—.016	.012—.079
		◐	L	2	MA	MC5015	580—930	.008—.020	.012—.158
		◐	L	3	MA	UC5115	460—835	.008—.020	.012—.158
		◐	L	4	MP	UC5115	460—835	.007—.020	.012—.158
		◐	L	5	SW	UC5115	510—920	.004—.020	.012—.099
		◐	M	1	MK	MC5015	580—930	.008—.022	.036—.158
		◐	M	2	GK	MC5015	580—930	.010—.024	.060—.197
		◐	M	3	Std	UC5115	460—835	.010—.024	.060—.197
		◐	M	4	Std	HTi10	280—410	.010—.024	.060—.197
		◐	R	1	RK	MC5015	540—860	.010—.024	.060—.237
		◐	R	2	Flat	MC5015	540—860	.008—.024	.099—.237
		◐	R	3	GH	UC5115	425—785	.010—.024	.060—.237
		◐	R	4	Flat	UC5115	425—785	.008—.024	.099—.237
		◐	H	1	Flat	MC5015	540—860	.008—.024	.099—.237
		◐	H	2	Flat	UC5115	425—785	.008—.024	.099—.237
		✣	L	1	LK	MC5015	625—1000	.004—.016	.012—.079
		✣	L	2	MA	MC5015	580—930	.008—.020	.012—.158
		✣	L	3	MA	UC5115	460—835	.008—.020	.012—.158
		✣	M	1	MK	MC5015	580—930	.008—.022	.036—.158
		✣	M	2	GK	MC5015	580—930	.010—.024	.060—.197
		✣	M	3	Std	UC5115	460—835	.010—.024	.060—.197
		✣	M	4	Std	UTi20T	230—330	.010—.024	.060—.197
		✣	R	1	RK	MC5015	540—860	.010—.024	.060—.237
		✣	R	2	Flat	MC5015	540—860	.008—.024	.099—.237
		✣	R	3	GH	UC5115	425—785	.010—.024	.060—.237
		✣	R	4	Flat	UC5115	425—785	.008—.024	.099—.237
		✣	R	5	Flat	UTi20T	210—310	.008—.024	.099—.237
		✣	H	1	Flat	MC5015	540—860	.008—.024	.099—.237
		✣	H	2	Flat	UC5115	425—785	.008—.024	.099—.237

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									
Titanium Alloy (Ti-6Al-4V)	–	●	F	1	FJ	RT9010	150–310	.003–.008	.004–.040
		●	L	1	LS	MT9015	115–260	.004–.010	.008–.030
		●	L	2	MJ(M)	RT9010	130–260	.003–.010	.016–.060
		●	M	1	MS	MT9015	130–260	.004–.010	.020–.158
		●	M	2	MS	RT9010	130–260	.004–.010	.020–.158
		●	R	1	RS	MT9015	100–220	.008–.013	.036–.158
		●	R	2	GJ	RT9010	115–245	.007–.014	.040–.119
		◐	F	1	FJ	RT9010	150–310	.003–.008	.004–.040
		◐	L	1	LS	MT9015	115–260	.004–.010	.008–.030
		◐	L	2	MJ(M)	RT9010	130–260	.003–.010	.016–.060
		◐	L	3	MJ(G)	RT9010	130–260	.003–.010	.016–.060
		◐	M	1	MS	MT9015	130–260	.004–.010	.020–.158
		◐	M	2	MS	RT9010	130–260	.004–.010	.020–.158
		◐	R	1	RS	MT9015	100–220	.008–.013	.036–.158
		◐	R	2	GJ	RT9010	115–245	.007–.014	.040–.119
		✣	F	1	FJ	RT9010	150–310	.003–.008	.004–.040
		✣	L	1	MJ(M)	RT9010	130–260	.003–.010	.016–.060
		✣	L	2	MJ(G)	RT9010	130–260	.003–.010	.016–.060
		✣	M	1	MS	RT9010	130–260	.004–.010	.020–.158
		✣	R	1	GJ	RT9010	115–245	.007–.014	.040–.119
S									
Heat Resistant Alloy (Inconel718)	–	●	F	1	FJ	VP10RT	100–195	.003–.008	.004–.040
		●	L	1	LS	MP9005	90–330	.004–.010	.008–.030
		●	L	2	MJ(M)	VP05RT	100–195	.003–.010	.016–.060
		●	L	3	MJ(M)	US905	165–330	.003–.010	.016–.060
		●	L	4	MJ(G)	VP10RT	80–165	.003–.010	.016–.060
		●	M	1	MS	MP9005	90–300	.004–.010	.020–.158
		●	M	2	MS	VP05RT	100–195	.004–.010	.020–.158
		●	M	3	MS	US905	165–330	.004–.010	.020–.158
		●	R	1	RS	MP9015	60–220	.008–.013	.036–.158
		●	R	2	GJ	VP10RT	65–150	.007–.014	.040–.119
		●	R	3	GJ	US905	150–310	.007–.014	.040–.119
		◐	F	1	FJ	VP10RT	100–195	.003–.008	.004–.040
		◐	L	1	LS	MP9015	75–260	.004–.010	.008–.030
		◐	L	2	MJ(M)	VP10RT	80–165	.003–.010	.016–.060
		◐	M	1	MS	MP9015	75–245	.004–.010	.020–.158
		◐	M	2	MS	VP10RT	80–165	.004–.010	.020–.158
		◐	R	1	RS	MP9015	60–220	.008–.013	.036–.158
		◐	R	2	GJ	VP10RT	65–150	.007–.014	.040–.119
		✣	F	1	FJ	VP15TF	65–130	.003–.008	.004–.040
		✣	L	1	MJ(M)	VP15TF	65–115	.003–.010	.016–.060
		✣	L	2	MJ(G)	VP15TF	65–115	.003–.010	.016–.060
		✣	M	1	MS	VP15TF	65–115	.004–.010	.020–.158
		✣	R	1	GJ	VP15TF	50–100	.007–.014	.040–.119

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

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–.036
		●	F	2	FV	NX2525	740–1050	.002–.008	.008–.036
		●	F	3	R/L-F	MP3025	755–1150	.002–.005	.004–.020
		●	L	1	LP	NX2525	740–1050	.003–.010	.008–.040
		●	L	2	Std	UE6110	670–1150	.004–.012	.012–.079
		●	L	3	MV	MP3025	620–970	.004–.012	.012–.079
		●	L	4	Std	MP3025	620–970	.004–.012	.012–.079
		●	M	1	MP	NX2525	605–870	.004–.012	.012–.079
		◐	F	1	FP	MC6015	820–1395	.002–.008	.008–.036
		◐	F	2	FP	UE6110	820–1395	.002–.008	.008–.036
		◐	F	3	FP	MP3025	755–1150	.002–.008	.008–.036
		◐	F	4	FV	MP3025	755–1150	.002–.008	.008–.036
		◐	F	5	FV	NX3035	705–1000	.002–.008	.008–.036
		◐	L	1	LP	MC6015	820–1395	.003–.010	.008–.040
		◐	L	2	LP	UE6110	820–1395	.003–.010	.008–.040
		◐	L	3	LP	MP3025	755–1150	.003–.010	.008–.040
		◐	L	4	Std	UE6110	670–1150	.004–.012	.012–.079
		◐	M	1	MP	MC6015	670–1150	.004–.012	.012–.079
		◐	M	2	MP	UE6110	670–1150	.004–.012	.012–.079
		◐	M	3	MP	MP3025	620–970	.004–.012	.012–.079
		✣	F	1	FP	MC6025	820–1330	.002–.008	.008–.036
		✣	F	2	FV	UE6020	770–1260	.002–.008	.008–.036
		✣	L	1	LP	MC6025	820–1330	.003–.010	.008–.040
		✣	L	2	Std	UE6020	640–1050	.004–.012	.012–.079
		✣	M	1	MP	MC6025	670–1100	.004–.012	.012–.079
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB	●	F	1	FP	NX2525	540–770	.002–.008	.008–.036
		●	F	2	FV	NX2525	540–770	.002–.008	.008–.036
		●	F	3	R/L-F	MP3025	560–850	.002–.005	.004–.020
		●	L	1	LP	NX2525	540–770	.003–.010	.008–.040
		●	L	2	Std	UE6110	490–850	.004–.012	.012–.079
		●	L	3	MV	MP3025	460–705	.004–.012	.012–.079
		●	L	4	Std	MP3025	460–705	.004–.012	.012–.079
		●	L	5	SV	MP3025	560–850	.003–.010	.008–.040
		●	L	6	MW	MP3025	460–705	.004–.014	.032–.099
		●	M	1	MP	NX2525	440–640	.004–.012	.012–.079
		◐	F	1	FP	MC6015	605–1015	.002–.008	.008–.036
		◐	F	2	FP	UE6110	605–1015	.002–.008	.008–.036
		◐	F	3	FP	MP3025	560–850	.002–.008	.008–.036
		◐	F	4	FV	MP3025	560–850	.002–.008	.008–.036
		◐	F	5	FV	NX3035	525–740	.002–.008	.008–.036
		◐	F	6	SW	MP3025	560–850	.003–.010	.008–.060
		◐	L	1	LP	MC6015	605–1015	.003–.010	.008–.040
		◐	L	2	LP	UE6110	605–1015	.003–.010	.008–.040
		◐	L	3	LP	MP3025	560–850	.003–.010	.008–.040
		◐	L	4	Std	UE6110	490–850	.004–.012	.012–.079
		◐	M	1	MP	MC6015	490–850	.004–.012	.012–.079
		◐	M	2	MP	UE6110	490–850	.004–.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)
P									
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB	◔	**M**	3	**MP**	**MP3025**	460—705	.004—.012	.012—.079
		✣	**F**	1	**FP**	**MC6025**	605—970	.002—.008	.008—.036
		✣	**F**	2	**FV**	**UE6020**	575—935	.002—.008	.008—.036
		✣	**L**	1	**LP**	**MC6025**	605—970	.003—.010	.008—.040
		✣	**L**	2	**Std**	**UE6020**	475—770	.004—.012	.012—.079
		✣	**M**	1	**MP**	**MC6025**	490—805	.004—.012	.012—.079
Carbon Steel • Alloy Steel (AISI 4340)	280 | 350HB	●	**M**	1	**MP**	**NX2525**	310—460	.004—.012	.012—.079
		◔	**M**	1	**MP**	**MC6015**	360—605	.004—.012	.012—.079
		◔	**M**	2	**MP**	**UE6110**	360—605	.004—.012	.012—.079
		◔	**M**	3	**MP**	**MP3025**	330—510	.004—.012	.012—.079
		✣	**M**	1	**MP**	**MC6025**	360—575	.004—.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 306)	≤200HB	●	F	1	FM	VP15TF	245–410	.002–.008	.008–.036
		●	F	2	Std	US735	230–440	.004–.012	.012–.079
		●	L	1	LM	MC7025	460–620	.003–.010	.008–.040
		●	L	2	Std	US735	230–440	.004–.012	.012–.079
		●	M	1	MM	MC7025	375–510	.004–.012	.012–.079
		◐	F	1	FM	VP15TF	245–410	.002–.008	.008–.036
		◐	F	2	Std	US735	230–440	.004–.012	.012–.079
		◐	L	1	LM	MC7025	460–620	.003–.010	.008–.040
		◐	L	2	Std	US735	230–440	.004–.012	.012–.079
		◐	M	1	MM	MC7025	375–510	.004–.012	.012–.079
		✣	F	1	FM	VP15TF	245–410	.002–.008	.008–.036
		✣	F	2	Std	US735	230–440	.004–.012	.012–.079
		✣	L	1	LM	MP7035	280–440	.003–.010	.008–.040
		✣	L	2	LM	VP15TF	245–410	.003–.010	.008–.040
		✣	L	3	Std	US735	230–440	.004–.012	.012–.079
		✣	M	1	MM	MP7035	230–375	.004–.012	.012–.079
		✣	M	2	MM	VP15TF	195–345	.004–.012	.012–.079
Austenitic Stainless Steel (AISI 304LN, AISI 316LN)	>200HB	●	F	1	FM	VP15TF	195–345	.002–.008	.008–.036
		●	F	2	Std	US735	195–360	.004–.012	.012–.079
		●	L	1	LM	MC7025	395–525	.003–.010	.008–.040
		●	L	2	Std	US735	195–360	.004–.012	.012–.079
		●	M	1	MM	MC7025	330–425	.004–.012	.012–.079
		◐	F	1	FM	VP15TF	195–345	.002–.008	.008–.036
		◐	F	2	Std	US735	195–360	.004–.012	.012–.079
		◐	L	1	LM	MC7025	395–525	.003–.010	.008–.040
		◐	L	2	Std	US735	195–360	.004–.012	.012–.079
		◐	M	1	MM	MC7025	330–425	.004–.012	.012–.079
		✣	F	1	FM	VP15TF	195–345	.002–.008	.008–.036
		✣	F	2	Std	US735	195–360	.004–.012	.012–.079
		✣	L	1	LM	MP7035	230–375	.003–.010	.008–.040
		✣	L	2	LM	VP15TF	195–345	.003–.010	.008–.040
		✣	L	3	Std	US735	195–360	.004–.012	.012–.079
		✣	M	1	MM	MP7035	195–310	.004–.012	.012–.079
		✣	M	2	MM	VP15TF	165–295	.004–.012	.012–.079
Two-phase Stainless Steel (DUPLEX)	≤280HB	●	F	1	FM	VP15TF	165–280	.002–.008	.008–.036
		●	F	2	Std	US735	150–295	.004–.012	.012–.079
		●	L	1	LM	MC7025	310–425	.003–.010	.008–.040
		●	L	2	Std	US735	150–295	.004–.012	.012–.079
		●	M	1	MM	MC7025	260–345	.004–.012	.012–.079
		◐	F	1	FM	VP15TF	165–280	.002–.008	.008–.036
		◐	F	2	Std	US735	150–295	.004–.012	.012–.079
		◐	L	1	LM	MC7025	310–425	.003–.010	.008–.040
		◐	L	2	Std	US735	150–295	.004–.012	.012–.079
		◐	M	1	MM	MC7025	260–345	.004–.012	.012–.079
		✣	F	1	FM	VP15TF	165–280	.002–.008	.008–.036
		✣	F	2	Std	US735	150–295	.004–.012	.012–.079
		✣	L	1	LM	MP7035	180–310	.003–.010	.008–.040

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 (DUPLEX)	≤280HB	✣	L	2	LM	VP15TF	165–280	.003–.010	.008–.040
		✣	L	3	Std	US735	150–295	.004–.012	.012–.079
		✣	M	1	MM	MP7035	150–245	.004–.012	.012–.079
		✣	M	2	MM	VP15TF	130–230	.004–.012	.012–.079
Ferritic and Martensitic Stainless Steel (AISI 410, AISI 430)	≤200HB	●	F	1	FM	VP15TF	245–410	.002–.008	.008–.036
		●	F	2	Std	US735	230–440	.004–.012	.012–.079
		●	L	1	LM	MC7025	460–620	.003–.010	.008–.040
		●	L	2	Std	US735	230–440	.004–.012	.012–.079
		●	M	1	MM	MC7025	375–510	.004–.012	.012–.079
		◐	F	1	FM	VP15TF	245–410	.002–.008	.008–.036
		◐	F	2	Std	US735	230–440	.004–.012	.012–.079
		◐	L	1	LM	MC7025	460–620	.003–.010	.008–.040
		◐	L	2	Std	US735	230–440	.004–.012	.012–.079
		◐	M	1	MM	MC7025	375–510	.004–.012	.012–.079
		✣	F	1	FM	VP15TF	245–410	.002–.008	.008–.036
		✣	F	2	Std	US735	230–440	.004–.012	.012–.079
		✣	L	1	LM	MP7035	280–440	.003–.010	.008–.040
		✣	L	2	LM	VP15TF	245–410	.003–.010	.008–.040
		✣	L	3	Std	US735	230–440	.004–.012	.012–.079
		✣	M	1	MM	MP7035	230–375	.004–.012	.012–.079
		✣	M	2	MM	VP15TF	195–345	.004–.012	.012–.079
Ferritic and Martensitic Stainless Steel (AISI 431)	>200HB	●	F	1	FM	VP15TF	195–345	.002–.008	.008–.036
		●	F	2	Std	US735	195–360	.004–.012	.012–.079
		●	L	1	LM	MC7025	395–525	.003–.010	.008–.040
		●	L	2	Std	US735	195–360	.004–.012	.012–.079
		●	M	1	MM	MC7025	330–425	.004–.012	.012–.079
		◐	F	1	FM	VP15TF	195–345	.002–.008	.008–.036
		◐	F	2	Std	US735	195–360	.004–.012	.012–.079
		◐	L	1	LM	MC7025	395–525	.003–.010	.008–.040
		◐	L	2	Std	US735	195–360	.004–.012	.012–.079
		◐	M	1	MM	MC7025	330–425	.004–.012	.012–.079
		✣	F	1	FM	VP15TF	195–345	.002–.008	.008–.036
		✣	F	2	Std	US735	195–360	.004–.012	.012–.079
		✣	L	1	LM	MP7035	230–375	.003–.010	.008–.040
		✣	L	2	LM	VP15TF	195–345	.003–.010	.008–.040
		✣	L	3	Std	US735	195–360	.004–.012	.012–.079
		✣	M	1	MM	MP7035	195–310	.004–.012	.012–.079
		✣	M	2	MM	VP15TF	165–295	.004–.012	.012–.079
Hardened Stainless Steel	<450HB	●	F	1	FM	VP15TF	130–230	.002–.008	.008–.036
		●	F	2	Std	US735	130–245	.004–.012	.012–.079
		●	L	1	LM	MC7025	260–345	.003–.010	.008–.040
		●	L	2	Std	US735	130–245	.004–.012	.012–.079
		●	M	1	MM	MC7025	210–295	.004–.012	.012–.079
		◐	F	1	FM	VP15TF	130–230	.002–.008	.008–.036
		◐	F	2	Std	US735	130–245	.004–.012	.012–.079
		◐	L	1	LM	MC7025	260–345	.003–.010	.008–.040
		◐	L	2	Std	US735	130–245	.004–.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									
Hardened Stainless Steel	<450HB		**M**	1	**MM**	**MC7025**	210–295	.004–.012	.012–.079
			F	1	**FM**	**VP15TF**	130–230	.002–.008	.008–.036
			F	2	**Std**	**US735**	130–245	.004–.012	.012–.079
			L	1	**LM**	**MP7035**	150–245	.003–.010	.008–.040
			L	2	**LM**	**VP15TF**	130–230	.003–.010	.008–.040
			L	3	**Std**	**US735**	130–245	.004–.012	.012–.079
			M	1	**MM**	**MP7035**	130–210	.004–.012	.012–.079
			M	2	**MM**	**VP15TF**	115–195	.004–.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)
K									
Gray Cast Iron (AISI No 45 B)	≤350MPa	●	F	1	MK	MC5005	515—820	.004—.012	.012—.079
		●	F	2	Std	UC5115	425—805	.004—.012	.012—.079
		●	L	1	MK	MC5005	515—820	.004—.012	.012—.079
		●	L	2	Std	UC5115	425—805	.004—.012	.012—.079
		●	M	1	Flat	MC5005	515—820	.004—.012	.012—.079
		●	M	2	Flat	UC5115	425—805	.004—.012	.012—.079
		◐	F	1	MK	MC5015	470—745	.004—.012	.012—.079
		◐	F	2	Std	UC5115	425—805	.004—.012	.012—.079
		◐	L	1	MK	MC5015	470—745	.004—.012	.012—.079
		◐	L	2	Std	UC5115	425—805	.004—.012	.012—.079
		◐	M	1	Flat	MC5015	470—745	.004—.012	.012—.079
		◐	M	2	Flat	UC5115	425—805	.004—.012	.012—.079
		✣	F	1	MK	MC5015	470—745	.004—.012	.012—.079
		✣	F	2	Std	UC5115	425—805	.004—.012	.012—.079
		✣	L	1	MK	MC5015	470—745	.004—.012	.012—.079
		✣	L	2	Std	UC5115	425—805	.004—.012	.012—.079
		✣	M	1	Flat	MC5015	470—745	.004—.012	.012—.079
		✣	M	2	Flat	UC5115	425—805	.004—.012	.012—.079
Ductile Cast Iron	≤450MPa	●	F	1	MK	MC5005	485—770	.004—.012	.012—.079
		●	F	2	Std	UC5115	410—755	.004—.012	.012—.079
		●	L	1	MK	MC5005	485—770	.004—.012	.012—.079
		●	L	2	Std	UC5115	410—755	.004—.012	.012—.079
		●	M	1	Flat	MC5005	485—770	.004—.012	.012—.079
		●	M	2	Flat	UC5115	410—755	.004—.012	.012—.079
		◐	F	1	MK	MC5015	440—715	.004—.012	.012—.079
		◐	F	2	Std	UC5115	410—755	.004—.012	.012—.079
		◐	L	1	MK	MC5015	440—715	.004—.012	.012—.079
		◐	L	2	Std	UC5115	410—755	.004—.012	.012—.079
		◐	M	1	Flat	MC5015	440—715	.004—.012	.012—.079
		◐	M	2	Flat	UC5115	410—755	.004—.012	.012—.079
		✣	F	1	MK	MC5015	420—680	.004—.012	.012—.079
		✣	F	2	Std	UC5115	410—755	.004—.012	.012—.079
		✣	L	1	MK	MC5015	420—680	.004—.012	.012—.079
		✣	L	2	Std	UC5115	410—755	.004—.012	.012—.079
		✣	M	1	Flat	MC5015	420—680	.004—.012	.012—.079
		✣	M	2	Flat	UC5115	410—755	.004—.012	.012—.079
	≤800MPa	●	F	1	MK	MC5005	420—680	.004—.012	.012—.079
		●	F	2	Std	UC5115	360—670	.004—.012	.012—.079
		●	L	1	MK	MC5005	420—680	.004—.012	.012—.079
		●	L	2	Std	UC5115	360—670	.004—.012	.012—.079
		●	M	1	Flat	MC5005	420—680	.004—.012	.012—.079
		●	M	2	Flat	UC5115	360—670	.004—.012	.012—.079
		◐	F	1	MK	MC5015	390—625	.004—.012	.012—.079
		◐	F	2	Std	UC5115	360—670	.004—.012	.012—.079
		◐	L	1	MK	MC5015	390—625	.004—.012	.012—.079
		◐	L	2	Std	UC5115	360—670	.004—.012	.012—.079
		◐	M	1	Flat	MC5015	390—625	.004—.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									
Ductile Cast Iron	≤800MPa		**M**	2	**Flat**	**UC5115**	360—670	.004—.012	.012—.079
			F	1	**MK**	**MC5015**	390—625	.004—.012	.012—.079
			F	2	**Std**	**UC5115**	360—670	.004—.012	.012—.079
			L	1	**MK**	**MC5015**	390—625	.004—.012	.012—.079
			L	2	**Std**	**UC5115**	360—670	.004—.012	.012—.079
			M	1	**Flat**	**MC5015**	390—625	.004—.012	.012—.079
			M	2	**Flat**	**UC5115**	360—670	.004—.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									
Aluminium Alloy (A6061, A7075)	Si<5%	●	**F**	1	**AZ**	**HTi10**	985–2295	.004–.016	.008–.119
		◕	**F**	1	**AZ**	**HTi10**	985–2295	.004–.016	.008–.119
		✣	**F**	1	**AZ**	**HTi10**	985–2295	.004–.016	.008–.119
Aluminium Alloy (AC4B)	5%≤Si≤10%	●	**F**	1	**AZ**	**HTi10**	985–2295	.004–.016	.008–.119
		◕	**F**	1	**AZ**	**HTi10**	985–2295	.004–.016	.008–.119
		✣	**F**	1	**AZ**	**HTi10**	985–2295	.004–.016	.008–.119
Aluminium Alloy (ADC12, A390)	Si>10%	●	**F**	1	**AZ**	**HTi10**	985–2295	.004–.016	.008–.119
		◕	**F**	1	**AZ**	**HTi10**	985–2295	.004–.016	.008–.119
		✣	**F**	1	**AZ**	**HTi10**	985–2295	.004–.016	.008–.119

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	**FJ**	**RT9010**	115–245	.002–.005	.008–.056
		◐	**F**	1	**FJ**	**RT9010**	115–245	.002–.005	.008–.056
		✣	**F**	1	**FJ**	**RT9010**	115–245	.002–.005	.008–.056
S									
Heat Resistant Alloy (Inconel718)	—	●	**F**	1	**FJ**	**VP10RT**	65–150	.002–.005	.008–.056
		◐	**F**	1	**FJ**	**VP10RT**	65–150	.002–.005	.008–.056
		✣	**F**	1	**FJ**	**VP10RT**	65–150	.002–.005	.008–.056

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–.005	.008–.024
		●	L	1	R-Std	NX2525	605–870	.004–.012	.012–.079
		●	M	1	R-Std	NX2525	605–870	.004–.012	.012–.079
		◐	F	1	R-R/L	NX2525	740–1050	.002–.005	.008–.024
		◐	L	1	R-Std	UE6110	670–1150	.004–.012	.012–.079
		◐	L	2	R-Std	MP3025	620–970	.004–.012	.012–.079
		◐	L	3	R-Std	NX3035	590–835	.004–.012	.012–.079
		◐	M	1	R-Std	UE6110	670–1150	.004–.012	.012–.079
		◐	M	2	R-Std	MP3025	620–970	.004–.012	.012–.079
		◐	M	3	R-Std	NX3035	590–835	.004–.012	.012–.079
		✣	F	1	R-R/L	UTi20T	375–540	.002–.005	.008–.024
		✣	L	1	R-Std	UE6020	640–1050	.004–.012	.012–.079
		✣	L	2	N-Flat	UE6020	640–1050	.004–.012	.012–.079
		✣	L	3	N-Flat	UP20M	345–525	.004–.012	.012–.079
		✣	M	1	R-Std	UE6020	640–1050	.004–.012	.012–.079
		✣	M	2	N-Flat	UE6020	640–1050	.004–.012	.012–.079
		✣	M	3	N-Flat	UP20M	345–525	.004–.012	.012–.079
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB	●	F	1	R-R/L	NX2525	540–770	.002–.005	.008–.024
		●	L	1	R-Std	NX2525	440–640	.004–.012	.012–.079
		●	M	1	R-Std	NX2525	440–640	.004–.012	.012–.079
		◐	F	1	R-R/L	NX2525	540–770	.002–.005	.008–.024
		◐	L	1	R-Std	UE6110	490–850	.004–.012	.012–.079
		◐	L	2	R-Std	MP3025	460–705	.004–.012	.012–.079
		◐	L	3	R-Std	NX3035	425–620	.004–.012	.012–.079
		◐	M	1	R-Std	UE6110	490–850	.004–.012	.012–.079
		◐	M	2	R-Std	MP3025	460–705	.004–.012	.012–.079
		◐	M	3	R-Std	NX3035	425–620	.004–.012	.012–.079
		✣	F	1	R-R/L	UTi20T	280–395	.002–.005	.008–.024
		✣	L	1	R-Std	UE6020	475–770	.004–.012	.012–.079
		✣	L	2	N-Flat	UE6020	475–770	.004–.012	.012–.079
		✣	L	3	N-Flat	UP20M	245–375	.004–.012	.012–.079
		✣	M	1	R-Std	UE6020	475–770	.004–.012	.012–.079
		✣	M	2	N-Flat	UE6020	475–770	.004–.012	.012–.079
		✣	M	3	N-Flat	UP20M	245–375	.004–.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

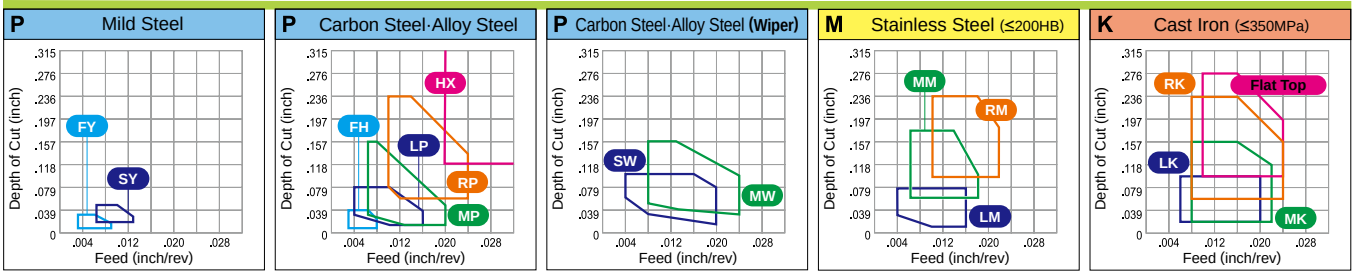
Work Material	Hardness	Cutting Mode		Priority	Breaker	Grade	Cutting Speed (SFM)	Feed (IPR)	Depth of Cut (inch)
K									
Gray Cast Iron (AISI No 45 B)	≤350MPa	●	F	1	R-R/L	NX2525	490–670	.002–.005	.008–.024
		●	L	1	N-Flat	UC5105	440–820	.004–.012	.012–.079
		●	L	2	N-Flat	NX2525	410–560	.004–.012	.012–.079
		●	L	3	R-Std	NX2525	410–560	.004–.012	.012–.079
		●	M	1	N-Flat	UC5105	440–820	.004–.012	.012–.079
		●	M	2	N-Flat	NX2525	410–560	.004–.012	.012–.079
		◐	M	3	R-Std	NX2525	410–560	.004–.012	.012–.079
		◐	F	1	R-R/L	NX2525	490–670	.002–.005	.008–.024
		◐	F	2	R-R/L	HTi10	330–475	.002–.005	.008–.024
		◐	L	1	N-Flat	UC5115	425–805	.004–.012	.012–.079
		◐	L	2	N-Flat	UE6110	425–655	.004–.012	.012–.079
		◐	M	1	N-Flat	UC5115	425–805	.004–.012	.012–.079
		◐	M	2	N-Flat	UE6110	425–655	.004–.012	.012–.079
		✣	F	1	R-R/L	UTi20T	260–375	.002–.005	.008–.024
		✣	L	1	N-Flat	VP15TF	375–525	.004–.012	.012–.079
		✣	M	1	N-Flat	VP15TF	375–525	.004–.012	.012–.079
Ductile Cast Iron	≤450MPa	●	F	1	R-R/L	NX2525	460–620	.002–.005	.008–.024
		●	L	1	N-Flat	UC5105	425–770	.004–.012	.012–.079
		●	L	2	N-Flat	NX2525	375–525	.004–.012	.012–.079
		●	L	3	R-Std	NX2525	375–525	.004–.012	.012–.079
		●	M	1	N-Flat	UC5105	425–770	.004–.012	.012–.079
		●	M	2	N-Flat	NX2525	375–525	.004–.012	.012–.079
		●	M	3	R-Std	NX2525	375–525	.004–.012	.012–.079
		◐	F	1	R-R/L	NX2525	460–620	.002–.005	.008–.024
		◐	F	2	R-R/L	HTi10	310–440	.002–.005	.008–.024
		◐	L	1	N-Flat	UC5115	410–755	.004–.012	.012–.079
		◐	L	2	N-Flat	UE6110	395–620	.004–.012	.012–.079
		◐	M	1	N-Flat	UC5115	410–755	.004–.012	.012–.079
		◐	M	2	N-Flat	UE6110	395–620	.004–.012	.012–.079
		✣	F	1	R-R/L	UTi20T	245–360	.002–.005	.008–.024
		✣	L	1	N-Flat	VP15TF	360–490	.004–.012	.012–.079
		✣	M	1	N-Flat	VP15TF	360–490	.004–.012	.012–.079
	≤800MPa	●	F	1	R-R/L	NX2525	410–560	.002–.005	.008–.024
		●	L	1	N-Flat	UC5105	375–690	.004–.012	.012–.079
		●	L	2	N-Flat	NX2525	345–460	.004–.012	.012–.079
		●	L	3	R-Std	NX2525	345–460	.004–.012	.012–.079
		●	M	1	N-Flat	UC5105	375–690	.004–.012	.012–.079
		●	M	2	N-Flat	NX2525	345–460	.004–.012	.012–.079
		●	M	3	R-Std	NX2525	345–460	.004–.012	.012–.079
		◐	F	1	R-R/L	NX2525	410–560	.002–.005	.008–.024
		◐	F	2	R-R/L	HTi10	280–395	.002–.005	.008–.024
		◐	L	1	N-Flat	UC5115	360–670	.004–.012	.012–.079
		◐	L	2	N-Flat	UE6110	345–560	.004–.012	.012–.079
		◐	M	1	N-Flat	UC5115	360–670	.004–.012	.012–.079
		◐	M	2	N-Flat	UE6110	345–560	.004–.012	.012–.079
		✣	F	1	R-R/L	UTi20T	210–310	.002–.005	.008–.024
		✣	L	1	N-Flat	VP15TF	310–440	.004–.012	.012–.079
		✣	M	1	N-Flat	VP15TF	310–440	.004–.012	.012–.079

80° CN TYPE INSERTS WITH HOLE

CNMG 4 3 0.5 FH
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting Light Cutting Medium Cutting Rough Cutting Heavy Cutting



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
FH	**CNMG430.5FH**	CNMG120402-FH	.008	●	▲																					●	●	●										C006
	CNMG**431FH**	CNMG120404-FH	.016	●	▲																					★		●	●									–009
	CNMG**432FH**	CNMG120408-FH	.031	●																						★		●	●									E021
	CNMG**433FH**	CNMG120412-FH	.047																							★			★									E024
Finish Cutting																																						H006
																																					–008
FS	**CNMG431FS**	CNMG120404-FS	.016		▲																					★			●								C006
	CNMG**432FS**	CNMG120408-FS	.031																							★			●								–009
																																						E021
																																						E024
Finish Cutting																																						H006
																																						–008
FY	**CNMG431FY**	CNMG120404-FY	.016		▲																					●		●		★							C006
	CNMG**432FY**	CNMG120408-FY	.031		▲																							●		★							–009
																																						E021
																																						E024
Finish Cutting																																						H006
																																						–008
FJ	**CNGG43V5FJ**	CNGG1204V5-FJ	.002																					●											★		C006
	CNGG**430.2FJ**	CNGG120401-FJ	.004																					●											★		–009
	CNGG**430.5FJ**	CNGG120402-FJ	.008																					●											★		E021
	CNGG**431FJ**	CNGG120404-FJ	.016																					●	★										★		E024
Finish Cutting	CNGG**432FJ**	CNGG120408-FJ	.031																					●	●										●		H006
																																						–008
FJ-P	**CNGG430.2FJ-P**	CNGG120401-FJ-P	.004																																●		C006
	CNGG**430.5FJ-P**	CNGG120402-FJ-P	.008																																●		–009
	CNGG**43V5FJ-P**	CNGG1204V5-FJ-P	.002																																●		E021
																																						E024
Finish Cutting																																						H006
																																						–008
PK	**CNGG431PK**	CNGG120404-PK	.016																							★												C006
																																						–009
																																						E021
																																						E024
Finish Cutting																																						H006
																																						–008

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																				Cermet		Coated Cermet		Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
LP	CNMG431LP	CNMG120404-LP	.016	●	●			●																				●								C006
	CNMG432LP	CNMG120408-LP	.031	●	●		●	●																				●								–009
	CNMG433LP	CNMG120412-LP	.047	●	●		●	●																												E021 E024 H006
Light Cutting																																				–008
LM	CNMG431LM	CNMG120404-LM	.016								●	●	●																							C006
	CNMG432LM	CNMG120408-LM	.031								●	●	●																							–009
	CNMG433LM	CNMG120412-LM	.047								●	●	●																							E021 E024 H006
Light Cutting																																				–008
NEW LK	CNMG431LK	CNMG120404-LK	.016													●	●																			C006
	CNMG432LK	CNMG120408-LK	.031													●	●																			–009
	CNMG433LK	CNMG120412-LK	.047													●	●																			E021 E024 H006
Light Cutting																																				–008
NEW LS	CNMG431LS	CNMG120404-LS	.016																	●	●															C006
	CNMG432LS	CNMG120408-LS	.031																	●	●															–009
																																				E021 E024 H006
Light Cutting																																				–008
SH	CNMG32.51SH	CNMG09T304-SH	.016		★									★																						C006
	CNMG32.52SH	CNMG09T308-SH	.031		★																															–009
	CNMG431SH	CNMG120404-SH	.016	●	●	▲	●	●						●					●								★	●		★						E021 E024
	CNMG432SH	CNMG120408-SH	.031	●	●	▲	●	●						●					●								★	●		★						H006
Light Cutting	CNMG433SH	CNMG120412-SH	.047	●	●	▲	●	●																												–008
SA	CNMG431SA	CNMG120404-SA	.016	●	●	▲	●	●						●														●								C006
	CNMG432SA	CNMG120408-SA	.031	●	●	▲	●	●						▲	●													●								–009
	CNMG433SA	CNMG120412-SA	.047	●	●	▲	●	●																				●								E021 E024 H006
Light Cutting																																				–008
SW (With Wiper)	*CNMG431SW	CNMG120404-SW	.016	●	●		●							▲					●								★	●	●							C006
	*CNMG432SW	CNMG120408-SW	.031	●	●		●							▲					●								★	●	●							–009
	*CNMG433SW	CNMG120412-SW	.047	●	●		●							▲													●	●	●							E021 E024 H006
Light Cutting																																				–008
SY	CNMG431SY	CNMG120404-SY	.016			▲																						●	★							C006
	CNMG432SY	CNMG120408-SY	.031			▲																						●	★							–009
																																				E021 E024 H006
Light Cutting																																				–008

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

■ = MIRACLE SIGMA

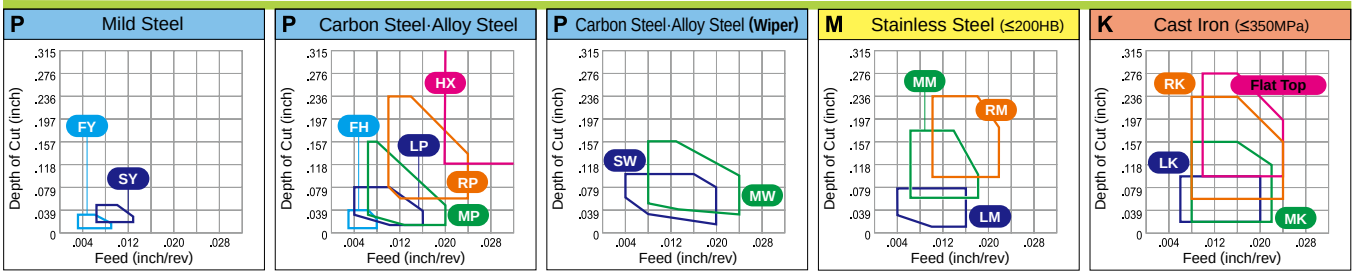
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

80° CN TYPE INSERTS WITH HOLE

CNMG 4 3 1 C
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting ··· Light Cutting ··· Medium Cutting ··· Rough Cutting ··· Heavy Cutting ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	UE6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
C	**CNMG431C**	CNMG120404-C	.016																							★●											
	CNMG**432C**	CNMG120408-C	.031																							★●											C006 −009 E021 E024 H006 −008
Light Cutting																																					
MJ	**CNMG431MJ**	CNMG120404-MJ	.016												★								●●													●		C006 −009 E021 E024 H006 −008
	CNMG**432MJ**	CNMG120408-MJ	.031												★								●●												●		
	CNMG**433MJ**	CNMG120412-MJ	.047												★								★★														
Light Cutting	CNMG**434MJ**	CNMG120416-MJ	.063												★								★★														
MJ	**CNGG431MJ**	CNGG120404-MJ	.016																				●●											●	●		C006 −009 E021 E024 H006 −008
	CNGG**432MJ**	CNGG120408-MJ	.031																				●●											●	●		
Light Cutting																																					
MP	**CNMG431MP**	CNMG120404-MP	.016	●●	▲	●●													●										●								C006 −009 E021 E024 H006 −008
	CNMG**432MP**	CNMG120408-MP	.031	●●	▲	●●													●										●								
	CNMG**433MP**	CNMG120412-MP	.047	●●	▲	●●													●										●								
	CNMG**434MP**	CNMG120416-MP	.063	●●	▲	●●													●																		
	CNMG**542MP**	CNMG160608-MP	.031	●●	▲		●												●																		
Medium Cutting	CNMG**543MP**	CNMG160612-MP	.047	●●	▲		●												●																		
	CNMG**544MP**	CNMG160616-MP	.063	●●	▲		●												●																		
MM	**CNMG432MM**	CNMG120408-MM	.031								●●	●																									
	CNMG**433MM**	CNMG120412-MM	.047								●●	●																									
	CNMG**434MM**	CNMG120416-MM	.063								●●	●																									
	CNMG**542MM**	CNMG160608-MM	.031								●●	●																									C006 −009 E021 E024 H006 −008
	CNMG**543MM**	CNMG160612-MM	.047								●●	●																									
	CNMG**544MM**	CNMG160616-MM	.063								●●	●																									
	CNMG**642MM**	CNMG190608-MM	.031								●●	●																									
Medium Cutting	CNMG**643MM**	CNMG190612-MM	.047								●●	●																									
	CNMG**644MM**	CNMG190616-MM	.063								●●	●																									

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◐ General Cutting ✣ Unstable Cutting

Work Material		
P	Steel	● ◐ ✣ ◐ ✣ ✣ ✣
M	Stainless Steel	○ ◐ ✣ ○ ✣
K	Cast Iron	◐ ✣ ● ◐
N	Non-Ferrous Metal	●
S	Heat-resistant Alloy, Titanium Alloy	● ◐ ● ◐ ✣

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																				Cermet		Coated Cermet			Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
(NEW) MK	**CNMG431MK**	CNMG120404-MK	.016														●	●																		C006
	CNMG432MK	CNMG120408-MK	.031														●	●																		−009
	CNMG433MK	CNMG120412-MK	.047														●	●																		E021
Medium Cutting																																				E024 H006 −008
GM	**CNMG431GM**	CNMG120404-GM	.016								●	●	●																							C006
	CNMG432GM	CNMG120408-GM	.031								●	●	●																							−009
	CNMG433GM	CNMG120412-GM	.047								●	●	●																							E021
Medium Cutting																																				E024 H006 −008
(NEW) GK	**CNMG431GK**	CNMG120404-GK	.016														●	●																		C006
	CNMG432GK	CNMG120408-GK	.031														●	●																		−009
	CNMG433GK	CNMG120412-GK	.047														●	●																		E021
Medium Cutting																																				E024 H006 −008
MA	**CNMG431MA**	CNMG120404-MA	.016	●	●	▲	●	●			●	●	▲	●			●	●	●	●				●		●										C006
	CNMG432MA	CNMG120408-MA	.031	●	●	▲	●	●	●		●	●	▲	●			●	●	●	●				●		●										−009
	CNMG433MA	CNMG120412-MA	.047	●	●	▲	●	●	●		●	●	▲	●					●	●				●		●										E021
	CNMG434MA	CNMG120416-MA	.063	●	●	▲							▲	★					●																	E024
	CNMG542MA	CNMG160608-MA	.031	●	●	▲	○	○	●					★					●																	H006
	CNMG543MA	CNMG160612-MA	.047	●	●	▲	○	○	●				▲	●					●																	−008
	CNMG544MA	CNMG160616-MA	.063	●	●		○	○						●					●																	
Medium Cutting	**CNMG643MA**	CNMG190612-MA	.047	●	●	▲	○	○	●				▲	●					●	●																
	CNMG644MA	CNMG190616-MA	.063		●	▲	○	○						●					●																	
MH	**CNMG431MH**	CNMG120404-MH	.016	●	●	▲			★				▲																							C006
	CNMG432MH	CNMG120408-MH	.031	●	●	▲	●	●	●				▲						●																	−009
	CNMG433MH	CNMG120412-MH	.047	●	●	▲	●	●	●				▲						●																	E021
	CNMG434MH	CNMG120416-MH	.063	●	●	▲													●																	E024
	CNMG542MH	CNMG160608-MH	.031	●	★														●																	H006
	CNMG543MH	CNMG160612-MH	.047	●	●	▲	○	○					▲						●																	−008
	CNMG544MH	CNMG160616-MH	.063	●	★														★																	
Medium Cutting	**CNMG643MH**	CNMG190612-MH	.047	●	●	▲	○	○	●				▲						★																	
	CNMG644MH	CNMG190616-MH	.063	●	●	▲																														
Standard	**CNMG322**	CNMG090308	.031		●																					★										C006
	CNMG32.51	CNMG09T304	.016		★		○	○																		★										−009
	CNMG32.52	CNMG09T308	.031		★		○	○																		★										E021
	CNMG431	CNMG120404	.016	●	●	▲	●	●	●										●	●						★	●	●			●		●			E024
	CNMG432	CNMG120408	.031	●	●	▲	●	●	●										●	●					●	★		●			●		●			H006
	CNMG433	CNMG120412	.047	●	●	▲	●	●	★										●	●					●	★										−008
Medium Cutting	**CNMG434**	CNMG120416	.063	●	●		○	○											★	★																

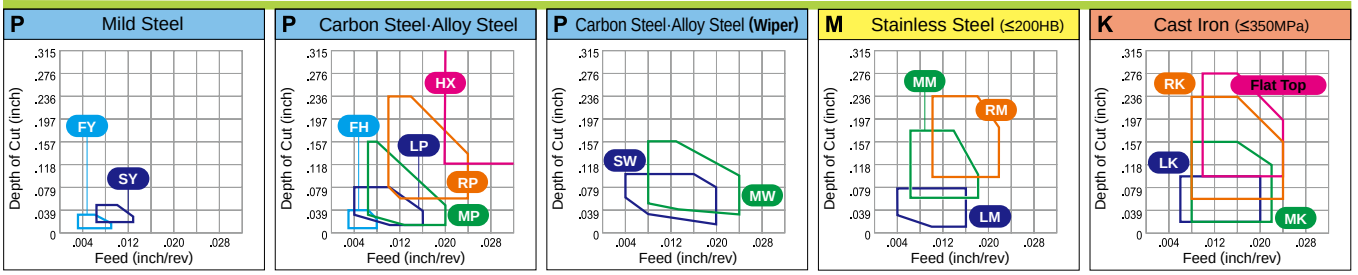
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

80° CN TYPE INSERTS WITH HOLE

CNMG 5 4 3
Size Thickness Corner Radius
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting ··· Light Cutting ··· Medium Cutting ··· Rough Cutting ··· Heavy Cutting ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	UE6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
Standard	**CNMG542**	CNMG160608	.031	●	●	▲	○	●																													
	CNMG**543**	CNMG160612	.047	●	●	▲	○	●											●	●																	C006 −009 E021 E024 H006 −008
	CNMG**544**	CNMG160616	.063	●	●		○	●											★	★																	
	CNMG**642**	CNMG190608	.031	●	●	▲	○	●	★																												
	CNMG**643**	CNMG190612	.047	●	●	▲	○	●	●											●	●																
Medium Cutting	CNMG**644**	CNMG190616	.063	●	●	▲	○	●	●												★																
MW (With Wiper)	★1 **CNMG432MW**	CNMG120408-MW	.031	●	●	▲	●	●							▲					●	●																C006 −009 E021 E024 H006 −008
	★1 CNMG**433MW**	CNMG120412-MW	.047	●	●	▲	●	●							▲					●	●																
Medium Cutting																																					
MS	**CNMG321MS**	CNMG090304-MS	.016												●																						
	CNMG**322MS**	CNMG090308-MS	.031		●										●																						
	CNMG**32.51MS**	CNMG09T304-MS	.016												★																	★					
	CNMG**32.52MS**	CNMG09T308-MS	.031		★										★																						
	CNMG**431MS**	CNMG120404-MS	.016		●	▲								▲	●	●					●	●	●	●	●	●							★		●	●	C006 −009 E021 E024 H006 −008
	CNMG**432MS**	CNMG120408-MS	.031		●	▲								▲	●	●					●	●	●	●	●	●						●	★		●	●	
	CNMG**433MS**	CNMG120412-MS	.047		●									▲	●	●					●	●	★	●	●										★	●	
	CNMG**542MS**	CNMG160608-MS	.031												★																						
	NEW CNMG**543MS**	CNMG160612-MS	.047												●							●	●													●	●	
	NEW CNMG**544MS**	CNMG160616-MS	.063																			●	●														●	
	CNMG**643MS**	CNMG190612-MS	.047												●																						
Medium Cutting	CNMG**644MS**	CNMG190616-MS	.063												●																						
	CNMP432	CNMP120408	.031												●																						
Medium Cutting																																					C006 −009 E021 E024 H006 −008

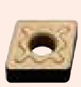
★1 Please refer to page A032 before using the MW breaker (wiper insert).
★2 New design MS breaker : MP9005, MP9015, MT9015

■ = MIRACLE SIGMA

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◐ General Cutting ✤ Unstable Cutting

Work Material		UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)
P	Steel	●	◐	✤	◐	✤	✤	✤															✤	✤	●	◐	◐	●	●	✤					
M	Stainless Steel								●	◐	✤	●	✤									◐	✤	✤	●			●	●	✤					
K	Cast Iron														◐	✤	●	◐				◐	✤		●			●	●	✤	●	◐			
N	Non-Ferrous Metal																															◐	●		
S	Heat-resistant Alloy, Titanium Alloy												●						●	◐	●	◐	✤									◐	●	◐	◐

Shape	Order Number	(ISO) Number	Corner Radius (inch)	UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
				Coated																							Cermet		Coated Cermet			Carbide						
RP	CNMG432RP	CNMG120408-RP	.031	●	●		●	●																														C006–009 E021 E024 H006–008
	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								●	●	●																									C006–009 E021 E024 H006–008
	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 (NEW)	CNMG432RK	CNMG120408-RK	.031														●	●																				C006–009 E021 E024 H006–008
	CNMG433RK	CNMG120412-RK	.047														●	●																				
	CNMG434RK	CNMG120416-RK	.063														●	●																				
	CNMG543RK	CNMG160612-RK	.047														●	●																				
	CNMG544RK	CNMG160616-RK	.063														●	●																				
	CNMG643RK	CNMG190612-RK	.047														●	●																				
Rough Cutting	CNMG644RK	CNMG190616-RK	.063														●	●																				
RS (NEW)	CNMG432RS	CNMG120408-RS	.031																			●															●	C006–009 E021 E024 H006–008
	CNMG433RS	CNMG120412-RS	.047																			●															●	
	CNMG434RS	CNMG120416-RS	.063																			●															●	
	CNMG543RS	CNMG160612-RS	.047																			●															●	
	CNMG544RS	CNMG160616-RS	.063																			●															●	
	CNMG643RS	CNMG190612-RS	.047																			●															●	
Rough Cutting	CNMG644RS	CNMG190616-RS	.063																			●															●	
GH	CNMG432GH	CNMG120408-GH	.031	●	●	▲			●					▲	●				●	●																		C006–009 E021 E024 H006–008
	CNMG433GH	CNMG120412-GH	.047	●	●	▲								▲	●				●	●																		
	CNMG434GH	CNMG120416-GH	.063	●	★														●	●																		
	CNMG543GH	CNMG160612-GH	.047	●	●	▲								▲	●				●	●																		
	CNMG544GH	CNMG160616-GH	.063	●	●														●	●																		
	CNMG643GH	CNMG190612-GH	.047	●	●	▲									●				●	●																		
Rough Cutting	CNMG644GH	CNMG190616-GH	.063	●	●	▲								▲	●				●	●																		
GJ	CNMG432GJ	CNMG120408-GJ	.031													●								●	●											●		C006–009 E021 E024 H006–008
	CNMG433GJ	CNMG120412-GJ	.047													●								●	●											●		
	CNMG434GJ	CNMG120416-GJ	.063													●								★	★											★		
	CNMG543GJ	CNMG160612-GJ	.047													●								●												●		
	CNMG643GJ	CNMG190612-GJ	.047													●								●												●		
Rough Cutting	CNMG644GJ	CNMG190616-GJ	.063													●								●												●		

■ = MIRACLE SIGMA

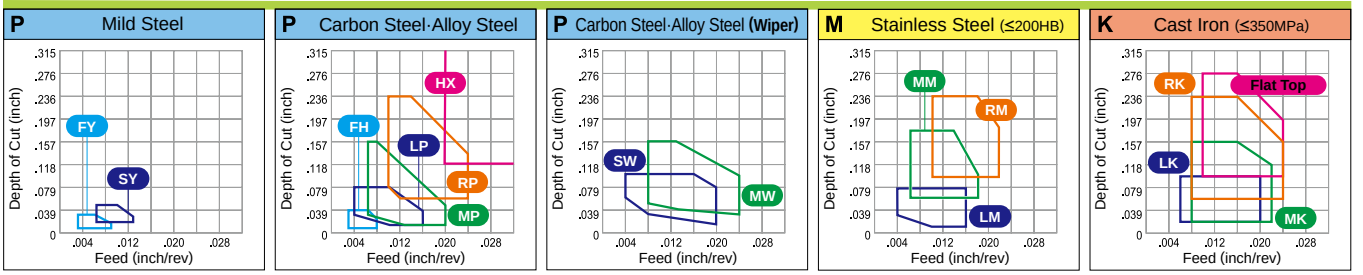
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

80° CN TYPE INSERTS WITH HOLE

CNMM 4 3 2 HZ
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting ··· Light Cutting ··· Medium Cutting ··· Rough Cutting ··· Heavy Cutting ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
HZ	**CNMM432HZ**	CNMM120408-HZ	.031	●	▲																																
	CNMM**433HZ**	CNMM120412-HZ	.047	●	▲																																
	CNMM**543HZ**	CNMM160612-HZ	.047	●	▲																																
	CNMM**544HZ**	CNMM160616-HZ	.063	●	▲																																
	CNMM**643HZ**	CNMM190612-HZ	.047	●	▲					★																											
Heavy Cutting	CNMM**644HZ**	CNMM190616-HZ	.063	●	▲					★																											C006 −009 E021 E024 H006 −008
HX	**CNMM643HX**	CNMM190612-HX	.047	●	▲					★																											
	CNMM**644HX**	CNMM190616-HX	.063	●	▲					★																											
	CNMM**646HX**	CNMM190624-HX	.094	●	▲					★																											
Heavy Cutting	CNMM**866HX**	CNMM250924-HX	.094	●	▲					★																											C007 −009 E024
HV	**CNMM644HV**	CNMM190616-HV	.063	●	▲					★																											
	CNMM**646HV**	CNMM190624-HV	.094	●	▲					★																											
	CNMM**866HV**	CNMM250924-HV	.094	●	▲					★																											
Heavy Cutting																																					C007 −009 E024
Flat Top	**CNMA431**	CNMA120404	.016													●	●	●	●													★	●				
	CNMA**432**	CNMA120408	.031													●	●	●	●													★	●				
	CNMA**433**	CNMA120412	.047													●	●	●	●																		C006 −009 E021 E024 H006 −008
	CNMA**434**	CNMA120416	.063													●	●	●	●																		
	CNMA**543**	CNMA160612	.047															●	●																		
	CNMA**544**	CNMA160616	.063															●	●																		
	CNMA**643**	CNMA190612	.047															●	●																		
	CNMA**644**	CNMA190616	.063															●	●																		

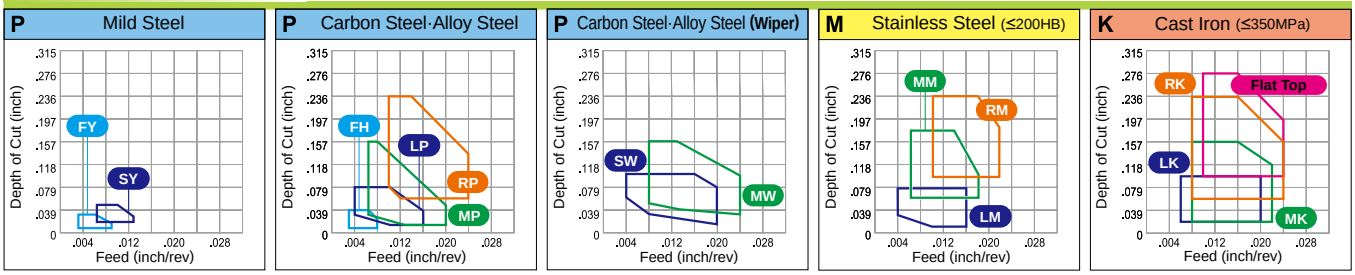
● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

55° DN TYPE INSERTS WITH HOLE

DNMG 4 3 0.5 FH
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting Light Cutting Medium Cutting Rough Cutting Heavy Cutting



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
FH	**DNMG430.5FH**	DNMG150402-FH	.008	●	▲																					●	●	●										C010 −012 E021 E024 H009 −011
	DNMG**431FH**	DNMG150404-FH	.016	●																						★	●	●	●									
	DNMG**432FH**	DNMG150408-FH	.031	●																						★		●	●									
	DNMG**440.5FH**	DNMG150602-FH	.008	●	▲																					★	★	●										
	DNMG**441FH**	DNMG150604-FH	.016	★	▲																							●										
Finish Cutting	DNMG**442FH**	DNMG150608-FH	.031	★	▲																							●										
FS	**DNMG431FS**	DNMG150404-FS	.016																							★			●									C010 −012 E021 E024 H009 −011
	DNMG**432FS**	DNMG150408-FS	.031		▲																					★			●									
Finish Cutting																																						
FY	**DNMG431FY**	DNMG150404-FY	.016		▲																						●	●		★								C010 −012 E021 E024 H009 −011
	DNMG**432FY**	DNMG150408-FY	.031		▲																							●		★								
	DNMG**441FY**	DNMG150604-FY	.016																									★										
Finish Cutting	DNMG**442FY**	DNMG150608-FY	.031		▲																							★										
FJ	**DNGG431FJ**	DNGG150404-FJ	.016																					★	★											★		C010 −012 E021 E024 H009 −011
	DNGG**432FJ**	DNGG150408-FJ	.031																					●	●											●		
Finish Cutting																																						
PK	**DNGG431PK**	DNGG150404-PK	.016																							★												C010 −012 E021 E024 H009 −011
Finish Cutting																																						

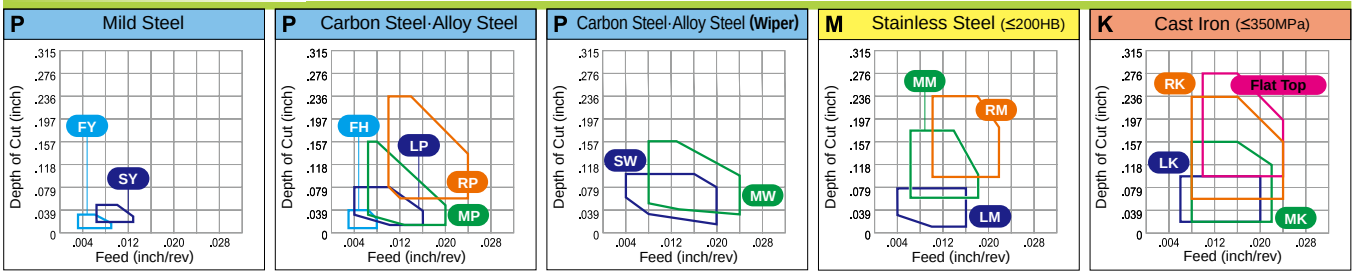
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

55° DN TYPE INSERTS WITH HOLE

DNMG 3 3 1 LP
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting ··· Light Cutting ··· Medium Cutting ··· Rough Cutting ··· Heavy Cutting ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✲ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020 (NEW)	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
LP	**DNMG331LP**	DNMG110404-LP	.016	●	●		●	●																				●									
	DNMG**332LP**	DNMG110408-LP	.031	●	●		●	●																				●									
	DNMG**431LP**	DNMG150404-LP	.016	●	●		●	●																				●									C010
	DNMG**432LP**	DNMG150408-LP	.031	●	●		●	●																				●									–012 E021
	DNMG**433LP**	DNMG150412-LP	.047	●	●		●	●																				●									E024
	DNMG**441LP**	DNMG150604-LP	.016	●	●		●	●																				●									H009
	DNMG**442LP**	DNMG150608-LP	.031	●	●		●	●																				●									–011
Light Cutting	DNMG**443LP**	DNMG150612-LP	.047	●	●		●	●																													
LM	**DNMG331LM**	DNMG110404-LM	.016								●	●	●																								
	DNMG**332LM**	DNMG110408-LM	.031								●	●	●																								
	DNMG**431LM**	DNMG150404-LM	.016								●	●	●																								C010
	DNMG**432LM**	DNMG150408-LM	.031								●	●	●																								–012 E021
	DNMG**433LM**	DNMG150412-LM	.047								●	●	●																								E024
	DNMG**441LM**	DNMG150604-LM	.016								●	●	●																								H009
	DNMG**442LM**	DNMG150608-LM	.031								●	●	●																								–011
Light Cutting	DNMG**443LM**	DNMG150612-LM	.047								●	●	●																								
NEW **LK**	**DNMG431LK**	DNMG150404-LK	.016														●	●																			C010
	DNMG**432LK**	DNMG150408-LK	.031														●	●																			–012 E021
	DNMG**433LK**	DNMG150412-LK	.047														●	●																			E024
	DNMG**441LK**	DNMG150604-LK	.016														●	●																			H009
	DNMG**442LK**	DNMG150608-LK	.031														●	●																			–011
Light Cutting	DNMG**443LK**	DNMG150612-LK	.047														●	●																			
NEW **LS**	**DNMG431LS**	DNMG150404-LS	.016																		●	●														●	C010
	DNMG**432LS**	DNMG150408-LS	.031																		●	●														●	–012 E021
	DNMG**441LS**	DNMG150604-LS	.016																		●	●														●	E024
	DNMG**442LS**	DNMG150608-LS	.031																		●	●														●	H009
Light Cutting																																					–011

■ = MIRACLE SIGMA

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																				Cermet		Coated Cermet			Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
SH	**DNMG331SH**	DNMG110404-SH	.016	●	●										★																					
	DNMG**332SH**	DNMG110408-SH	.031	●	●										●																					
	DNMG**431SH**	DNMG150404-SH	.016	●	●	▲	●	●							●				●							★	●		★							C010 –012 E021 E024 H009 –011
	DNMG**432SH**	DNMG150408-SH	.031	●	●	▲	●	●							●				●							★	●		★							
	DNMG**433SH**	DNMG150412-SH	.047	●	●	▲	●	●							●				★							★			★							
	DNMG**441SH**	DNMG150604-SH	.016	★	★																															
	DNMG**442SH**	DNMG150608-SH	.031	★	★														★																	
Light Cutting	DNMG**443SH**	DNMG150612-SH	.047	★	★														★																	
SA	**DNMG431SA**	DNMG150404-SA	.016	●	●	▲	●	●																		●										C010 –012 E021 E024 H009 –011
	DNMG**432SA**	DNMG150408-SA	.031	●	●	▲	●	●						▲	●											●										
	DNMG**433SA**	DNMG150412-SA	.047	●	●	▲	●	●																		●										
	DNMG**441SA**	DNMG150604-SA	.016	★	★	▲																				★										
	DNMG**442SA**	DNMG150608-SA	.031	★	★	▲																				★										
Light Cutting	DNMG**443SA**	DNMG150612-SA	.047	★	★	▲																				★										
SW (With Wiper)	⁎**DNMX331SW**	DNMX110404-SW	.016	●			○																													C010 E021 H009 H011
	⁎DNMX**332SW**	DNMX110408-SW	.031	●			○																													
	⁎DNMX**431SW**	DNMX150404-SW	.016	●	●		○							▲												★	●	●								
	⁎DNMX**432SW**	DNMX150408-SW	.031	●	●		○							▲												★	●	●								
	⁎DNMX**433SW**	DNMX150412-SW	.047	●	●		○							▲												●	●									
	⁎DNMX**441SW**	DNMX150604-SW	.016	●	●		○							▲												★	★	★								
	⁎DNMX**442SW**	DNMX150608-SW	.031	●	●		○							▲												★	★	★								
Light Cutting	⁎DNMX**443SW**	DNMX150612-SW	.047	●	●		○							▲												●	●									
SY	**DNMG431SY**	DNMG150404-SY	.016			▲																					●	●								C010 –012 E021 E024 H009 –011
	DNMG**432SY**	DNMG150408-SY	.031			▲																						●		★						
	DNMG**441SY**	DNMG150604-SY	.016																									★								
Light Cutting	DNMG**442SY**	DNMG150608-SY	.031			▲																						★								
C	**DNMG431C**	DNMG150404-C	.016																							★	●									C010 –012 E021 E024 H009 –011
	DNMG**432C**	DNMG150408-C	.031																							★	●									
	DNMG**441C**	DNMG150604-C	.016																							★	★									
Light Cutting	DNMG**442C**	DNMG150608-C	.031																							★	★									
MJ	**DNMG431MJ**	DNMG150404-MJ	.016												★								●	●											●	
	DNMG**432MJ**	DNMG150408-MJ	.031												★								●	●											●	
	DNMG**433MJ**	DNMG150412-MJ	.047												★								★	★												C010 –012 E021 E024 H009 –011
	DNMG**434MJ**	DNMG150416-MJ	.063												★								★	★												
	DNMG**441MJ**	DNMG150604-MJ	.016												★								★	★												
	DNMG**442MJ**	DNMG150608-MJ	.031												★								★	★												
	DNMG**443MJ**	DNMG150612-MJ	.047												★								★	★												
Light Cutting	DNMG**444MJ**	DNMG150616-MJ	.063												★								★	★												

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

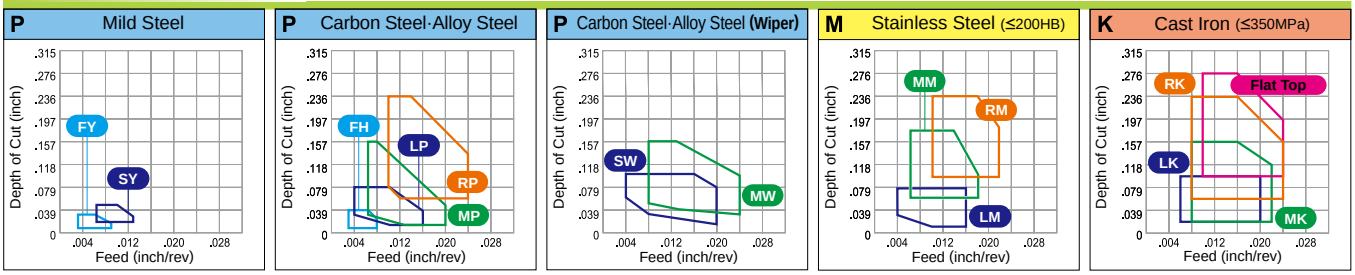
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

55° DN TYPE INSERTS WITH HOLE

DNGM 4 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 ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
MJ	**DNGM431MJ**	DNGM150404-MJ	.016																				●	★									●		●		C010
	DNGM**432MJ**	DNGM150408-MJ	.031																				●	★									●		●		–012
																																					E021 E024 H009 –011
Light Cutting																																					
MP	**DNMG431MP**	DNMG150404-MP	.016	●	●	▲	●	●											●										●								C010
	DNMG**432MP**	DNMG150408-MP	.031	●	●	▲	●	●											●										●								–012
	DNMG**433MP**	DNMG150412-MP	.047	●	●	▲	●	●											●										●								E021
	DNMG**434MP**	DNMG150416-MP	.063	●	●	▲	●	●											●																		E024
	DNMG**441MP**	DNMG150604-MP	.016	★	★	▲	●	●											★										★								H009
	DNMG**442MP**	DNMG150608-MP	.031	★	★	▲	●	●											★										★								–011
	DNMG**443MP**	DNMG150612-MP	.047	★	★	▲	●	●											★										★								
Medium Cutting	DNMG**444MP**	DNMG150616-MP	.063	★	★	▲	●	●											★																		
MM	**DNMG432MM**	DNMG150408-MM	.031								●	●	●																								C010
	DNMG**433MM**	DNMG150412-MM	.047								●	●	●																								–012
	DNMG**442MM**	DNMG150608-MM	.031								●	●	●																								E021
	DNMG**443MM**	DNMG150612-MM	.047								●	●	●																								E024
Medium Cutting																																					H009 –011
NEW **MK**	**DNMG431MK**	DNMG150404-MK	.016														●	●																		C010
	DNMG**432MK**	DNMG150408-MK	.031														●	●																		–012
	DNMG**433MK**	DNMG150412-MK	.047														●	●																		E021
	DNMG**441MK**	DNMG150604-MK	.016														●	●																		E024
	DNMG**442MK**	DNMG150608-MK	.031														●	●																		H009
Medium Cutting	DNMG**443MK**	DNMG150612-MK	.047														●	●																		–011
NEW **GK**	**DNMG431GK**	DNMG150404-GK	.016														●	●																		C010
	DNMG**432GK**	DNMG150408-GK	.031														●	●																		–012
	DNMG**433GK**	DNMG150412-GK	.047														●	●																		E021
	DNMG**441GK**	DNMG150604-GK	.016														●	●																		E024
	DNMG**442GK**	DNMG150608-GK	.031														●	●																		H009
Medium Cutting	DNMG**443GK**	DNMG150612-GK	.047														●	●																		–011

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◐ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																					Cermet		Coated Cermet			Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
GM	**DNMG431GM**	DNMG150404-GM	.016								●	●	●																								
	DNMG**432GM**	DNMG150408-GM	.031								●	●	●																								C010 –012 E021 E024 H009 –011
	DNMG**433GM**	DNMG150412-GM	.047								●	●	●																								
	DNMG**441GM**	DNMG150604-GM	.016								●	●	●																								
	DNMG**442GM**	DNMG150608-GM	.031								●	●	●																								
Medium Cutting	DNMG**443GM**	DNMG150612-GM	.047								●	●	●																								
MA	**DNMG331MA**	DNMG110404-MA	.016	●	●		○	○							●																					
	DNMG**332MA**	DNMG110408-MA	.031	●	●		○	○							●																					
	DNMG**333MA**	DNMG110412-MA	.047	●	★		○	○																												
	DNMG**431MA**	DNMG150404-MA	.016	●	●	▲	●	●				●	●	▲	●		●	●	●	●					●		●										C010 –012 E021 E024 H009 –011
	DNMG**432MA**	DNMG150408-MA	.031	●	●	▲	●	●	●			●	●	▲	●		●	●	●	●					●		●										
	DNMG**433MA**	DNMG150412-MA	.047	●	●	▲	●	●	●			●	●		●					●					●		●										
	DNMG**441MA**	DNMG150604-MA	.016	★	●	▲	●	●				●	●	▲	★		●	●							●		★										
	DNMG**442MA**	DNMG150608-MA	.031	★	●	▲	●	●	★			●	●	▲	★		●	●	★	★					●		★										
Medium Cutting	DNMG**443MA**	DNMG150612-MA	.047	★	●	▲	●	●				●	●	▲	★				★	★					●		★										
	DNMG**444MA**	DNMG150616-MA	.063		★																															
MH	**DNMG431MH**	DNMG150404-MH	.016	●	●	▲																														
	DNMG**432MH**	DNMG150408-MH	.031	●	●	▲	●	●	●					▲					●																		C010 –012 E021 E024 H009 –011
	DNMG**433MH**	DNMG150412-MH	.047	●	●	▲	●	●						▲					●																		
	DNMG**441MH**	DNMG150604-MH	.016	★	★														★																		
	DNMG**442MH**	DNMG150608-MH	.031	★	★	▲	●	●						▲					★																		
Medium Cutting	DNMG**443MH**	DNMG150612-MH	.047	★	★	▲	●	●											★																		
Standard	**DNMG332**	DNMG110408	.031		●																															
	DNMG**431**	DNMG150404	.016	●	●	▲	●	●											●	●							★	●	●				●				
	DNMG**432**	DNMG150408	.031	●	●	▲	●	●											●	●					●		★	●	●				●				C010 –012 E021 E024 H009 –011
	DNMG**433**	DNMG150412	.047	●	●	▲	●	●											●	●					●		★										
	DNMG**434**	DNMG150416	.063		●		○	○																												
	DNMG**441**	DNMG150604	.016	★	★	▲	○	○											★	★							★		★								
	DNMG**442**	DNMG150608	.031	★	●	▲	●	●											★	★					●		★		★								
	DNMG**443**	DNMG150612	.047	★	★	▲	●	●											★	★					●												
Medium Cutting	DNMG**444**	DNMG150616	.063		●		○	○																												
MW (With Wiper)	⁎**DNMX432MW**	DNMX150408-MW	.031	●	●		○												●	●																	
	⁎DNMX**433MW**	DNMX150412-MW	.047	●	●		○												●	●																	C010 E021 H009 H011
	⁎DNMX**442MW**	DNMX150608-MW	.031	★	●		○							▲					★	★																	
Medium Cutting	⁎DNMX**443MW**	DNMX150612-MW	.047	★	●		○																													

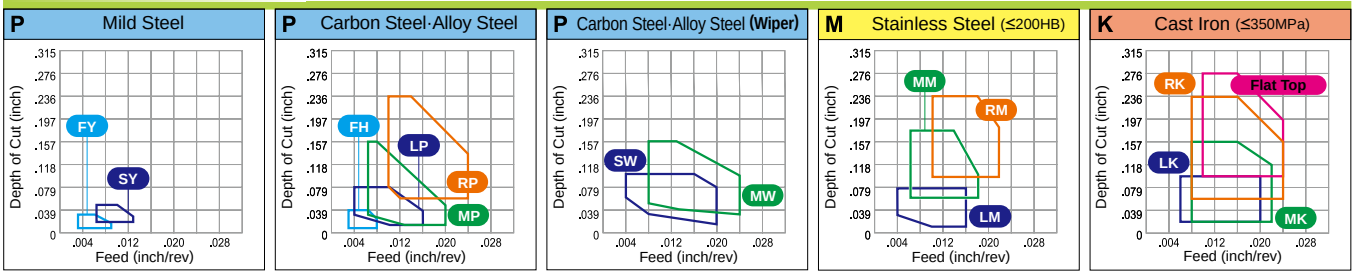
⁎Please refer to page A032 before using the MW breaker (wiper insert).

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



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
MS	**DNMG332MS**	DNMG110408-MS	.031	●											★																						
	DNMG**431MS**	DNMG150404-MS	.016	●	▲									▲	●	●					●	●	●	●	●												●	C010
	DNMG**432MS**	DNMG150408-MS	.031	●										▲	●	●					●	●	●	●	●	●										●	●	–012
	DNMG**433MS**	DNMG150412-MS	.047	★											●	●					●	●	★	★													●	E021
	DNMG**441MS**	DNMG150604-MS	.016	★										▲	★	★					●	●	●	★		★											●	E024
	DNMG**442MS**	DNMG150608-MS	.031	★										▲	★	★					●	●	●	★													●	H009
Medium Cutting	DNMG**443MS**	DNMG150612-MS	.047	★												★					●	●	●	★													●	–011
R/L	**DNGG431R**	DNGG150404R	.016																							★	●				★		★				C010
	DNGG**431L**	DNGG150404L	.016																							★	●				★		★				–012
	DNGG**432R**	DNGG150408R	.031																							★	●				★						E021
	DNGG**432L**	DNGG150408L	.031																							★	●										E024
	DNGG**441R**	DNGG150604R	.016																								★				★						H009
	DNGG**441L**	DNGG150604L	.016																								★										–011
	DNGG**442R**	DNGG150608R	.031																								★										
Medium Cutting	DNGG**442L**	DNGG150608L	.031																								★										
RP	**DNMG432RP**	DNMG150408-RP	.031	●	●		●	●																													C010
	DNMG**433RP**	DNMG150412-RP	.047	●	●		●	●																													–012
	DNMG**434RP**	DNMG150416-RP	.063	●	●		●	●																													E021
	DNMG**442RP**	DNMG150608-RP	.031	●	●		●	●																													E024
	DNMG**443RP**	DNMG150612-RP	.047	●	●		●	●																													H009
Rough Cutting	DNMG**444RP**	DNMG150616-RP	.063	●	●		●	●																													–011
RM	**DNMG432RM**	DNMG150408-RM	.031								●	●	●																								C010
	DNMG**433RM**	DNMG150412-RM	.047								●	●	●																								–012
	DNMG**434RM**	DNMG150416-RM	.063								●	●	●																								E021
	DNMG**442RM**	DNMG150608-RM	.031								●	●	●																								E024
	DNMG**443RM**	DNMG150612-RM	.047								●	●	●																								H009
Rough Cutting	DNMG**444RM**	DNMG150616-RM	.063								●	●	●																								–011

★New design MS breaker : MP9005, MP9015, MT9015

■ = MIRACLE SIGMA

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																				Cermet		Coated Cermet			Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
(NEW) RK	**DNMG432RK**	DNMG150408-RK	.031														●	●																		C010
	DNMG**433RK**	DNMG150412-RK	.047														●	●																		−012
	DNMG**442RK**	DNMG150608-RK	.031														●	●																		E021
	DNMG**443RK**	DNMG150612-RK	.047														●	●																		E024
Rough Cutting																																				H009 −011
(NEW) RS	**DNMG432RS**	DNMG150408-RS	.031																		●														●	
	DNMG**433RS**	DNMG150412-RS	.047																		●														●	C010 −012
	DNMG**434RS**	DNMG150416-RS	.063																		●														●	E021
	DNMG**442RS**	DNMG150608-RS	.031																		●														●	E024
	DNMG**443RS**	DNMG150612-RS	.047																		●														●	H009 −011
Rough Cutting	DNMG**444RS**	DNMG150616-RS	.063																		●														●	
GH	**DNMG432GH**	DNMG150408-GH	.031	●	●	▲									●				●	●																C010
	DNMG**433GH**	DNMG150412-GH	.047	●	●	▲								▲	●				●	●																−012
	DNMG**442GH**	DNMG150608-GH	.031	★	●	▲									★				★	★																E021
	DNMG**443GH**	DNMG150612-GH	.047	★	●	▲									★				★	★																E024
Rough Cutting																																				H009 −011
GJ	**DNMG432GJ**	DNMG150408-GJ	.031													●							●	●											●	
	DNMG**433GJ**	DNMG150412-GJ	.047													●							●	●											●	C010 −012
	DNMG**434GJ**	DNMG150416-GJ	.063													●							★	★											★	E021
	DNMG**442GJ**	DNMG150608-GJ	.031													★							★													E024
	DNMG**443GJ**	DNMG150612-GJ	.047													★							★													H009 −011
Rough Cutting	DNMG**444GJ**	DNMG150616-GJ	.063													★							★													
HZ	**DNMM432HZ**	DNMM150408-HZ	.031		●	▲																														C010
	DNMM**433HZ**	DNMM150412-HZ	.047		●	▲																														−012
	DNMM**442HZ**	DNMM150608-HZ	.031		●	▲																														E021
	DNMM**443HZ**	DNMM150612-HZ	.047		●	▲																														E024
Heavy Cutting																																				H009 −011
Flat Top	**DNMA431**	DNMA150404	.016														●	●	●	●													★			
	DNMA**432**	DNMA150408	.031														●	●	●	●						★						★	★			C010 −012
	DNMA**433**	DNMA150412	.047														●	●	●	●																E021
	(NEW) DNMA**441**	DNMA150604	.016														●	●																		E024
	DNMA**442**	DNMA150608	.031														●	●	★	★																H009 −011
	DNMA**443**	DNMA150612	.047														●	●	★	★																
Flat Top	**DNGA431**	DNGA150404	.016																														★			C010
	DNGA**432**	DNGA150408	.031																													★	★			−012
																																				E021 E024 H009 −011

■ = MIRACLE SIGMA

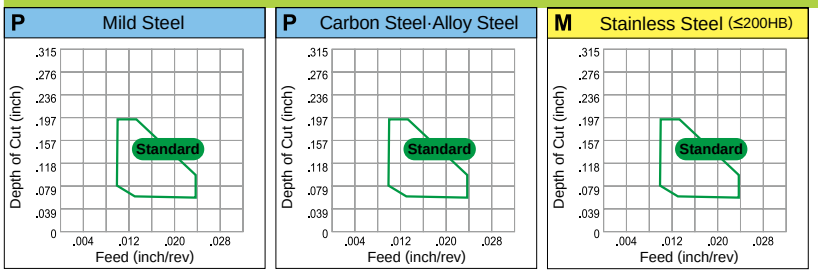
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

RN TYPE INSERTS WITH HOLE

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

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	UC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
Standard	RNMG43	RNMG120400	—	●	▲	○	○																																
 Medium Cutting																																						C013

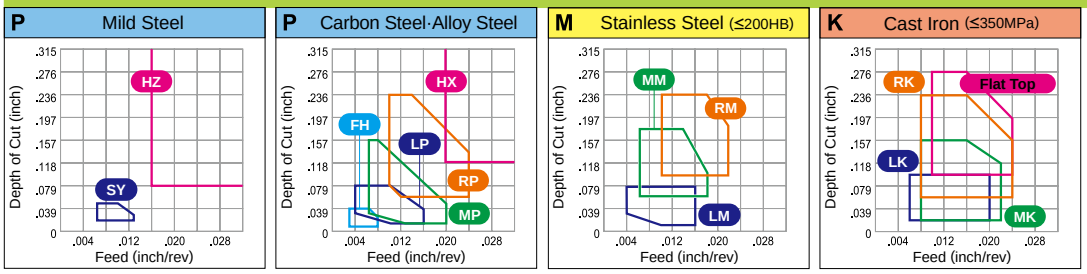
● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

90° SN TYPE INSERTS WITH HOLE

SNMG 3 2 1 FH
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting ··· Light Cutting ··· Medium Cutting ··· Rough Cutting ··· Heavy Cutting ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
FH	**SNMG321FH**	SNMG090304-FH	.016																							★											
	322FH	090308-FH	.031																							★			●								C014 −017 E022 E025
	431FH	120404-FH	.016		★																					★		●								
	432FH	120408-FH	.031		●																							●								
Finish Cutting																																					
FS	**SNMG432FS**	SNMG120408-FS	.031																							★											
Finish Cutting																																				C014 −017 E022 E025	
LP	**SNMG431LP**	SNMG120404-LP	.016	●	●		●	●																				●								
	432LP	120408-LP	.031	●	●		●	●																				●								C014 −017 E022 E025
	433LP	120412-LP	.047	●	●		●	●																													
Light Cutting																																					
LM	**SNMG431LM**	SNMG120404-LM	.016								●	●	●																								
	432LM	120408-LM	.031								●	●	●																								C014 −017 E022 E025
Light Cutting																																					
NEW **LK**	**SNMG432LK**	SNMG120408-LK	.031														●	●																			
	433LK	120412-LK	.047														●	●																			C014 −017 E022 E025
Light Cutting																																					
SH	**SNMG431SH**	SNMG120404-SH	.016		★															●																
	432SH	120408-SH	.031	●	●	▲														●							★									C014 −017 E022 E025
	433SH	120412-SH	.047		★	▲														★																
Light Cutting																																					

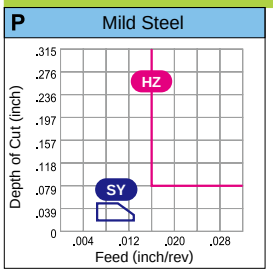
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

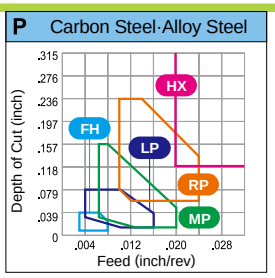
90° SN TYPE INSERTS WITH HOLE

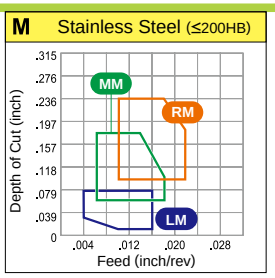
SNMG 4 3 1 SA
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

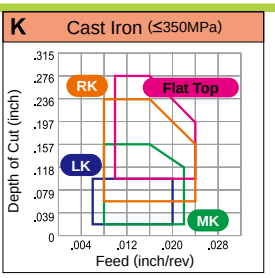
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting ··· Light Cutting ··· Medium Cutting ··· Rough Cutting ··· Heavy Cutting ···









Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	UE6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
SA	**SNMG431SA**	SNMG120404-SA	.016		●																					●											
	SNMG**432SA**	SNMG120408-SA	.031	●	●	▲																				●											C014 −017 E022 E025
	SNMG**433SA**	SNMG120412-SA	.047		●	▲																				●											
Light Cutting																																					
SY	**SNMG432SY**	SNMG120408-SY	.031			▲																						●									
Light Cutting																																					C014 −017 E022 E025
C	**SNMG321C**	SNMG090304-C	.016																							★											
	SNMG**322C**	SNMG090308-C	.031																							★											C014 −017 E022 E025
	SNMG**432C**	SNMG120408-C	.031																							★	●										
	SNMG**434C**	SNMG120416-C	.063																							★											
Light Cutting																																					
R/L 1G	**SNMG431R1G**	SNMG120404R-1G	.016																							★											
	SNMG**431L1G**	SNMG120404L-1G	.016																							★											C014 −017 E022 E025
	SNMG**432R1G**	SNMG120408R-1G	.031																							★											
Light Cutting																																					
MP	**SNMG431MP**	SNMG120404-MP	.016		●	▲	●	●												●								●									
	SNMG**432MP**	SNMG120408-MP	.031		●	▲	●	●												★								●									C014 −017 E022 E025
	SNMG**433MP**	SNMG120412-MP	.047		●	▲	●	●												★								●									
Medium Cutting																																					

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																					Cermet		Coated Cermet			Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
MM	**SNMG432MM**	SNMG120408-MM	.031								●	●	●																								C014 −017 E022 E025
	SNMG**433MM**	SNMG120412-MM	.047								●	●	●																								
	SNMG**434MM**	SNMG120416-MM	.063								●	●	●																								
	SNMG**542MM**	SNMG150608-MM	.031								●	●	●																								
	SNMG**543MM**	SNMG150612-MM	.047								●	●	●																								
	SNMG**544MM**	SNMG150616-MM	.063								●	●	●																								
Medium Cutting	SNMG**643MM**	SNMG190612-MM	.047								●	●	●																								
	SNMG**644MM**	SNMG190616-MM	.063								●	●	●																								
NEW **MK**	**SNMG432MK**	SNMG120408-MK	.031														●	●																			
	SNMG**433MK**	SNMG120412-MK	.047														●	●																			C014 −017 E022 E025
	SNMG**434MK**	SNMG120416-MK	.063														●	●																			
Medium Cutting																																					
NEW **GK**	**SNMG431GK**	SNMG120404-GK	.016														●	●																			
	SNMG**432GK**	SNMG120408-GK	.031														●	●																			C014 −017 E022 E025
	SNMG**433GK**	SNMG120412-GK	.047														●	●																			
Medium Cutting																																					
GM	**SNMG431GM**	SNMG120404-GM	.016								●	●	●																								
	SNMG**432GM**	SNMG120408-GM	.031								●	●	●																								C014 −017 E022 E025
	SNMG**433GM**	SNMG120412-GM	.047								●	●	●																								
Medium Cutting																																					
MA	**SNMG431MA**	SNMG120404-MA	.016	●	●	▲	●	●			●	●		●		●	●		●					●			●										
	SNMG**432MA**	SNMG120408-MA	.031	●	●	▲	●	●	●		●	●	▲	●		●	●		●	●				●			●										
	SNMG**433MA**	SNMG120412-MA	.047	●	●	▲	●	●			●	●	▲	●					●	●				●			●										
	SNMG**434MA**	SNMG120416-MA	.063																●																		C014 −017 E022 E025
	SNMG**542MA**	SNMG150608-MA	.031	●	●	▲			●						★																						
	SNMG**543MA**	SNMG150612-MA	.047	●	★	▲	○	○	●						●				★																		
	SNMG**544MA**	SNMG150616-MA	.063		★		○	○																													
Medium Cutting	SNMG**643MA**	SNMG190612-MA	.047	●	●	▲	○	○	●						●				●																		
	SNMG**644MA**	SNMG190616-MA	.063	★	●	▲	○	○	●						★																						
MH	**SNMG432MH**	SNMG120408-MH	.031	●	●	▲	●	●					▲						●																		
	SNMG**433MH**	SNMG120412-MH	.047	●	●	▲	●	●					▲						●																		C014 −017 E022 E025
	SNMG**643MH**	SNMG190612-MH	.047	★	●	▲													★																		
	SNMG**644MH**	SNMG190616-MH	.063	★	●	▲																															
Medium Cutting																																					

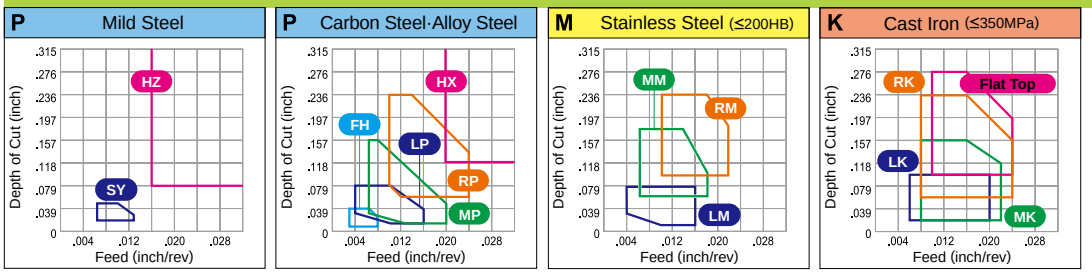
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

90° SN TYPE INSERTS WITH HOLE

SNMG 3 2 1
Size Thickness Corner Radius
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting ··· Light Cutting ··· Medium Cutting ··· Rough Cutting ··· Heavy Cutting ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020 (NEW)	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
Standard	**SNMG321**	SNMG090304	.016	★	●	▲	●	●																		★	●	●			●						
	SNMG322	SNMG090308	.031	★	●	▲	●	●																		★	●	●			●	★	★				
	SNMG431	SNMG120404	.016	●	●	▲	●	●																		★		●			●		★				
	SNMG432	SNMG120408	.031	●	●	▲	●	●	●										★	★					●	★	●			●	★	★				
	SNMG433	SNMG120412	.047	●	●	▲	●	●											★	★							●			●	★					C014 −017 E022 E025
	SNMG434	SNMG120416	.063		●	▲	●	●											●	●							●			●						
	SNMG435	SNMG120420	.079			▲	●	●																												
	SNMG543	SNMG150612	.047	●	●	▲	○	●	●										●	●																
NEW	**SNMG544**	SNMG150616	.063				○	○																												
	SNMG643	SNMG190612	.047	●	●	▲	○	●	●										★	★												●				
Medium Cutting	**SNMG644**	SNMG190616	.063	★	●	▲	○	●	●											★												●				
MS	**SNMG321MS**	SNMG090304-MS	.016												★																				
	SNMG322MS	SNMG090308-MS	.031												★																				
	SNMG431MS	SNMG120404-MS	.016		★									▲	●						●	●														●
	SNMG432MS	SNMG120408-MS	.031		●	▲								▲	●	●					●	●	★	★	★	●						●			●	●	C014 −017 E022 E025
	SNMG433MS	SNMG120412-MS	.047		★									▲	●	●					●	●	★	★	★											●
	SNMG434MS	SNMG120416-MS	.063												★																					
NEW	**SNMG543MS**	SNMG150612-MS	.047																			●	●													●
NEW	**SNMG544MS**	SNMG150616-MS	.063																			●	●													●
Medium Cutting	**SNMG644MS**	SNMG190616-MS	.063												★																					
R/L	**SNGG321R**	SNGG090304R	.016																								★	★				★		★			
	SNGG321L	SNGG090304L	.016																								★	★				★					
	SNGG322R	SNGG090308R	.031																								★	★									
	SNGG322L	SNGG090308L	.031																								★	★									C014 −017 E022 E025
	SNGG431R	SNGG120404R	.016																								★	★	●			★					
	SNGG431L	SNGG120404L	.016																								★	★	●			★					
	SNGG432R	SNGG120408R	.031																								★	★	●								
Medium Cutting	**SNGG432L**	SNGG120408L	.031																								★	★	●			★		★			

★New design MS breaker : MP9005, MP9015, MT9015

■ = MIRACLE SIGMA

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																				Cermet		Coated Cermet			Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
RP	**SNMG432RP**	SNMG120408-RP	.031	●	●		●	●																												
	SNMG**433RP**	SNMG120412-RP	.047	●	●		●	●																												
	SNMG**434RP**	SNMG120416-RP	.063	●	●		●	●																												C014 –017 E022 E025
	SNMG**543RP**	SNMG150612-RP	.047	●	●		●	●																												
	SNMG**544RP**	SNMG150616-RP	.063	●	●		●	●																												
	SNMG**643RP**	SNMG190612-RP	.047	●	●		●	●																												
Rough Cutting	SNMG**644RP**	SNMG190616-RP	.063	●	●		●	●																												
RM	**SNMG432RM**	SNMG120408-RM	.031								●	●	●																							
	SNMG**433RM**	SNMG120412-RM	.047								●	●	●																							
	SNMG**434RM**	SNMG120416-RM	.063								●	●	●																							C014 –017 E022 E025
	SNMG**543RM**	SNMG150612-RM	.047								●	●	●																							
	SNMG**544RM**	SNMG150616-RM	.063								●	●	●																							
	SNMG**643RM**	SNMG190612-RM	.047								●	●	●																							
Rough Cutting	SNMG**644RM**	SNMG190616-RM	.063								●	●	●																							
NEW **RK**	**SNMG432RK**	SNMG120408-RK	.031														●	●																		
	SNMG**433RK**	SNMG120412-RK	.047														●	●																		C014 –017 E022 E025
	SNMG**434RK**	SNMG120416-RK	.063														●	●																		
Rough Cutting																																				
NEW **RS**	**SNMG432RS**	SNMG120408-RS	.031																			●													●	
	SNMG**433RS**	SNMG120412-RS	.047																			●													●	C014 –017 E022 E025
	SNMG**434RS**	SNMG120416-RS	.063																			●													●	
Rough Cutting	SNMG**544RS**	SNMG150616-RS	.063																			●													●	
	SNMG**644RS**	SNMG190616-RS	.063																			●													●	
GH	**SNMG432GH**	SNMG120408-GH	.031	●	●	▲								▲	★				●	●																
	SNMG**433GH**	SNMG120412-GH	.047	●	●	▲								▲	★				●	●																
	SNMG**434GH**	SNMG120416-GH	.063	●	●										★																						C014 –017 E022 E025
	SNMG**543GH**	SNMG150612-GH	.047	★	●										★																					
	SNMG**544GH**	SNMG150616-GH	.063		●																															
	SNMG**643GH**	SNMG190612-GH	.047	★	●				●						●																					
Rough Cutting	SNMG**644GH**	SNMG190616-GH	.063	●	●				●					▲	●																					
	SNMG**866GH**	SNMG250924-GH	.094			▲									●																					
HZ	**SNMM432HZ**	SNMM120408-HZ	.031		●	▲																														
	SNMM**433HZ**	SNMM120412-HZ	.047		●	▲																														C014 –017 E022 E025
	SNMM**543HZ**	SNMM150612-HZ	.047		●	▲																														
	SNMM**643HZ**	SNMM190612-HZ	.047		●	▲				★																										
Heavy Cutting	SNMM**644HZ**	SNMM190616-HZ	.063		●	▲				★																										
HX	**SNMM643HX**	SNMM190612-HX	.047		●	▲				★																										
	SNMM**644HX**	SNMM190616-HX	.063		●	▲				★																										
	SNMM**646HX**	SNMM190624-HX	.094		●	▲				★																										C014 –017 E025
	SNMM**856HX**	SNMM250724-HX	.094		●	▲				★																										
Heavy Cutting	SNMM**866HX**	SNMM250924-HX	.094		●	▲				★																										

■ = MIRACLE SIGMA

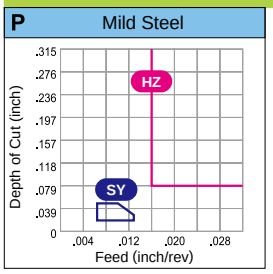
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

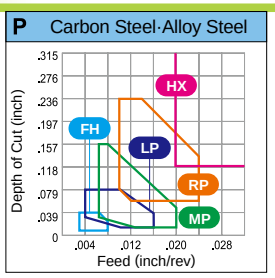
90° SN TYPE INSERTS WITH HOLE

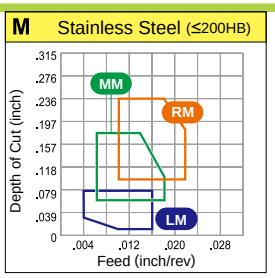
SNMM 6 4 3 HV
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

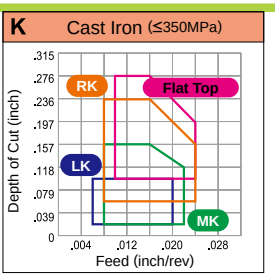
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting ··· Light Cutting ··· Medium Cutting ··· Rough Cutting ··· Heavy Cutting ···









Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
HV	**SNMM644HV**	SNMM190616-HV	.063	●	▲					★																											
	SNMM**646HV**	SNMM190624-HV	.094	●	▲					★																											C014 −017 E025
	SNMM**856HV**	SNMM250724-HV	.094	●	▲					★																											
Heavy Cutting	SNMM**866HV**	SNMM250924-HV	.094	●	▲					★																											
Flat Top	**SNMA321**	SNMA090304	.016																														★				
	SNMA**322**	SNMA090308	.031																●	●														●			
	SNMA**432**	SNMA120408	.031														●	●	●	●												●	★	★			C014 −017 E022 E025
	SNMA**433**	SNMA120412	.047														●	●	●	●														★			
	SNMA**434**	SNMA120416	.063														●	●	●	●																	
	SNMA**543**	SNMA150612	.047																	●																	
	SNMA**643**	SNMA190612	.047																●	●																	
	SNMA**644**	SNMA190616	.063																●	●																	
Flat Top	**SNGA321**	SNGA090304	.016																								★										
	SNGA**431**	SNGA120404	.016																															★			C014 −017 E022 E025
	SNGA**432**	SNGA120408	.031																								★							★	★		

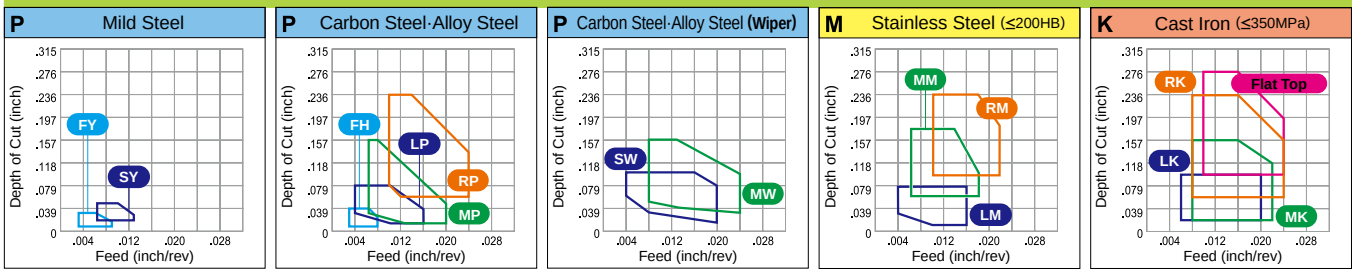
● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

60° TN TYPE INSERTS WITH HOLE

TNMG 2 2 1 FH
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting ··· Light Cutting ··· Medium Cutting ··· Rough Cutting ··· Heavy Cutting ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
FH	**TNMG221FH**	TNMG110304-FH	.016																							★											
	TNMG**330.5FH**	TNMG160402-FH	.008		●	▲																				●	●	●									C018 −023 E022 E025
	TNMG**331FH**	TNMG160404-FH	.016		●																					★	●	●	●								
Finish Cutting	TNMG**332FH**	TNMG160408-FH	.031		●	▲																				★	●	●	●								
FS	**TNMG331FS**	TNMG160404-FS	.016			▲																				★											
	TNMG**332FS**	TNMG160408-FS	.031			▲																				★											C018 −023 E022 E025
Finish Cutting																																						
FY	**TNMG331FY**	TNMG160404-FY	.016			▲																					●	●		★								
	TNMG**332FY**	TNMG160408-FY	.031			▲																						●		★							C018 −023 E022 E025
Finish Cutting																																						
PK	**TNGG331PK**	TNGG160404-PK	.016																							★											
	TNGG**332PK**	TNGG160408-PK	.031																							★											C018 −023 E022 E025
Finish Cutting																																						
R/L FS	**TNGG330.5RFS**	TNGG160402R-FS	.008																							★											
	TNGG**330.5LFS**	TNGG160402L-FS	.008																							★											C018 −023 E022 E025
	TNGG**331RFS**	TNGG160404R-FS	.016																							★											
Finish Cutting	TNGG**331LFS**	TNGG160404L-FS	.016																							★											
R/L F	**TNGG330.5RF**	TNGG160402R-F	.008																						●	★	★	●									
	TNGG**330.5LF**	TNGG160402L-F	.008																						●	★	★	●									C018 −023 E022 E025
	TNGG**331RF**	TNGG160404R-F	.016																						●	★	★	●									
	TNGG**331LF**	TNGG160404L-F	.016																						●	★	★	●									
Finish Cutting	TNGG**332RF**	TNGG160408R-F	.031																						●	★	★	●									
	TNGG**332LF**	TNGG160408L-F	.031																						●	★	★	●									

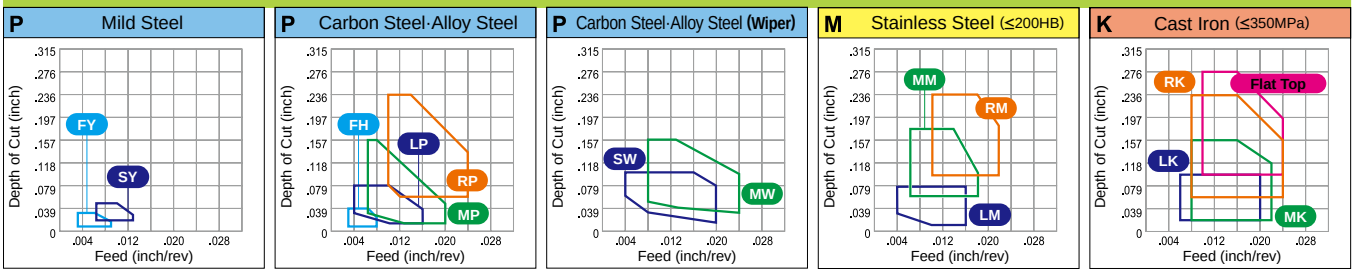
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

60° TN TYPE INSERTS WITH HOLE

TNMG 3 3 1 LP
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting Light Cutting Medium Cutting Rough Cutting Heavy Cutting



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated UE6105	UE6110	UE6020	UE6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet NX2525	NX3035	Coated Cermet MP3025	AP25N	VP25N	Carbide UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
LP	**TNMG331LP**	TNMG160404-LP	.016	●	●			●	●																			●									
	TNMG**332LP**	TNMG160408-LP	.031	●	●			●	●																			●									C018 −023 E022 E025
	TNMG**333LP**	TNMG160412-LP	.047	●	●			●	●																			●									
	TNMG**432LP**	TNMG220408-LP	.031	●	●			●	●																			●									
Light Cutting	TNMG**433LP**	TNMG220412-LP	.047	●	●			●	●																												
LM	**TNMG331LM**	TNMG160404-LM	.016								●	●	●																								
	TNMG**332LM**	TNMG160408-LM	.031								●	●	●																								C018 −023 E022 E025
	TNMG**333LM**	TNMG160412-LM	.047								●	●	●																								
Light Cutting																																					
NEW **LK**	**TNMG331LK**	TNMG160404-LK	.016														●	●																			
	TNMG**332LK**	TNMG160408-LK	.031														●	●																			C018 −023 E022 E025
Light Cutting																																					
NEW **LS**	**TNMG331LS**	TNMG160404-LS	.016																		●	●														●	
	TNMG**332LS**	TNMG160408-LS	.031																		●	●														●	C018 −023 E022 E025
Light Cutting																																					
SH	**TNMG331SH**	TNMG160404-SH	.016	●	●	▲	●	●							●					●							★	●		★							
	TNMG**332SH**	TNMG160408-SH	.031	●	●	▲	●	●							●					●							★	●		★							C018 −023 E022 E025
	TNMG**432SH**	TNMG220408-SH	.031	●	●										●																						
Light Cutting																																					
SA	**TNMG331SA**	TNMG160404-SA	.016	●	●	▲	●	●																				●									
	TNMG**332SA**	TNMG160408-SA	.031	●	●	▲	●	●																				●									C018 −023 E022 E025
	TNMG**333SA**	TNMG160412-SA	.047	●	●	▲																						●									
Light Cutting	TNMG**432SA**	TNMG220408-SA	.031	●	●	▲																															
	TNMG**433SA**	TNMG220412-SA	.047		●																																

■ = MIRACLE SIGMA

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																					Cermet		Coated Cermet			Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
SW (With Wiper)	⁎**TNMX331SW**	TNMX160404-SW	.016	●	●		○							▲												★	●	●								C018
Light Cutting	⁎TNMX**332SW**	TNMX160408-SW	.031	●	●		○							▲												★	●	●								
SY	**TNMG331SY**	TNMG160404-SY	.016			▲																					●	●		★						C018 −023 E022 E025
Light Cutting	TNMG**332SY**	TNMG160408-SY	.031			▲																						●		★						
C	**TNMG331C**	TNMG160404-C	.016																							★	●									C018 −023 E022 E025
Light Cutting	TNMG**332C**	TNMG160408-C	.031																							★	●									
	TNMG**431C**	TNMG220404-C	.016																							★	●		●							
	TNMG**432C**	TNMG220408-C	.031																								●									
R/L 1G	**TNMG331R1G**	TNMG160404R-1G	.016																							★										C018 −023 E022 E025
Light Cutting	TNMG**331L1G**	TNMG160404L-1G	.016																							★										
	TNMG**431R1G**	TNMG220404R-1G	.016																							★										
	TNMG**431L1G**	TNMG220404L-1G	.016																							★										
R/L K	**TNGG330.5RK**	TNGG160402R-K	.008																							★	★	●								C018 −023 E022 E025
Light Cutting	TNGG**330.5LK**	TNGG160402L-K	.008																							★	★	●								
	TNGG**331RK**	TNGG160404R-K	.016																							★	★	●								
	TNGG**331LK**	TNGG160404L-K	.016																								★	●								
	TNGG**332LK**	TNGG160408L-K	.031																									●								
	TNGG**332RK**	TNGG160408R-K	.031																									●								
MJ	**TNMG331MJ**	TNMG160404-MJ	.016												★								●	●											●	C018 −023 E022 E025
Light Cutting	TNMG**332MJ**	TNMG160408-MJ	.031												★								●	●											●	
	TNMG**333MJ**	TNMG160412-MJ	.047												★								★	★												
MP	**TNMG331MP**	TNMG160404-MP	.016	●	●	▲	●	●												●									●								C018 −023 E022 E025
Medium Cutting	TNMG**332MP**	TNMG160408-MP	.031	●	●	▲	●	●												●									●								
	TNMG**333MP**	TNMG160412-MP	.047	●	●	▲	●	●												●									●								
	TNMG**432MP**	TNMG220408-MP	.031	●	●	▲	●	●												●																	
	TNMG**433MP**	TNMG220412-MP	.047	●	●	▲	●	●												●																	
MM	**TNMG332MM**	TNMG160408-MM	.031								●	●	●																								C018 −023 E022 E025
Medium Cutting	TNMG**333MM**	TNMG160412-MM	.047								●	●	●																								
	TNMG**432MM**	TNMG220408-MM	.031								●	●	●																								
	TNMG**433MM**	TNMG220412-MM	.047								●	●	●																								
	TNMG**434MM**	TNMG220416-MM	.063								●	●	●																								

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

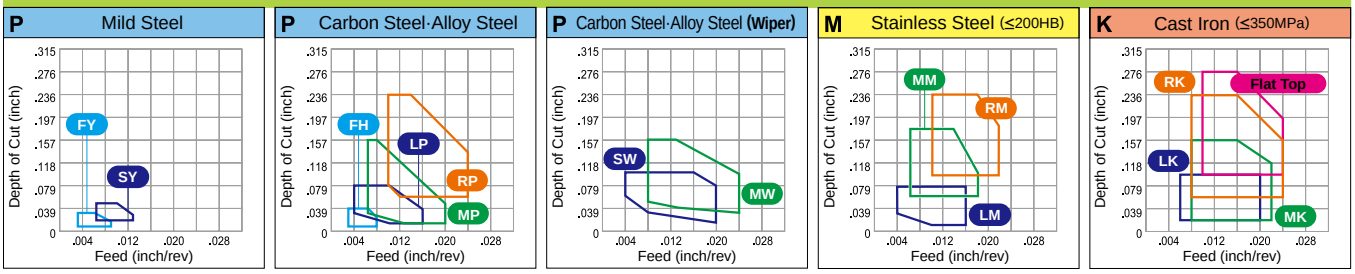
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

60° TN TYPE INSERTS WITH HOLE

TNMG 3 3 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 ··· Rough Cutting ··· Heavy Cutting ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020 (NEW)	UE6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
(NEW) MK	TNMG331MK	TNMG160404-MK	.016														●	●																			
	TNMG332MK	TNMG160408-MK	.031														●	●																			
	TNMG333MK	TNMG160412-MK	.047														●	●																			
Medium Cutting																																					C018 −023 E022 E025
(NEW) GK	TNMG331GK	TNMG160404-GK	.016														●	●																			
	TNMG332GK	TNMG160408-GK	.031														●	●																			
	TNMG333GK	TNMG160412-GK	.047														●	●																			
Medium Cutting																																					C018 −023 E022 E025
GM	TNMG331GM	TNMG160404-GM	.016								●	●	●																							
	TNMG332GM	TNMG160408-GM	.031								●	●	●																							
	TNMG333GM	TNMG160412-GM	.047								●	●	●																							
	TNMG432GM	TNMG220408-GM	.031								●	●	●																							
Medium Cutting	TNMG433GM	TNMG220412-GM	.047								●	●	●																							
MA	TNMG321MA	TNMG160304-MA	.016			▲																															C018 −023 E022 E025
	TNMG322MA	TNMG160308-MA	.031			▲																															
	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																●																		
Medium Cutting	TNMG542MA	TNMG270608-MA	.031	●	●	▲			●																												
	TNMG543MA	TNMG270612-MA	.047	●	●	▲										●																					
MH	TNMG331MH	TNMG160404-MH	.016	●	●	▲								▲					●																		
	TNMG332MH	TNMG160408-MH	.031	●	●	▲	●	●	★					▲					●																		
	TNMG333MH	TNMG160412-MH	.047	●	●	▲	●	●	★										●																		
	TNMG432MH	TNMG220408-MH	.031	●	●	▲	○	○	●					▲					●																		
Medium Cutting	TNMG433MH	TNMG220412-MH	.047	●	●	▲	○	○	●										●																		

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✣ Unstable Cutting

Work Material		
P	Steel	● ◕ ✣ ◕ ✣ ✣
M	Stainless Steel	○ ◕ ✣ ○ ✣
K	Cast Iron	◕ ✣ ● ◕
N	Non-Ferrous Metal	●
S	Heat-resistant Alloy, Titanium Alloy	● ● ● ● ✣

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																						Cermet		Coated Cermet			Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
Standard	**TNMG221**	TNMG110304	.016		●	▲	●	●											★											★		★				C018 –023 E022 E025
	TNMG**222**	TNMG110308	.031		●	▲	●	●																												
	TNMG**321**	TNMG160304	.016		●		○	○																							●					
	TNMG**322**	TNMG160308	.031		●	▲	●	●																							●					
	TNMG**331**	TNMG160404	.016	●	●	▲	●	●											★	★				●		★	●	●			●	★	●				
	TNMG**332**	TNMG160408	.031	●	●	▲	●	●	●										★	★				●		★	●	●			●	★	●				
	TNMG**333**	TNMG160412	.047	★	●	▲	●	●											★	★						★											
	TNMG**334**	TNMG160416	.063		●		○	○												★						★											
	TNMG**431**	TNMG220404	.016	●	●	▲	●	●	●																		●					●					
	TNMG**432**	TNMG220408	.031	●	●	▲	●	●	●											●						★	●					●					
	TNMG**433**	TNMG220412	.047	●	●	▲	●	●												★																	
	TNMG**434**	TNMG220416	.063		●	▲	●	●																													
	TNMG**542**	TNMG270608	.031		●		○	○																													
	TNMG**543**	TNMG270612	.047		●	▲	○	○																							●					
	TNMG**544**	TNMG270616	.063		●	▲																															
Medium Cutting	TNMG**666**	TNMG330924	.094			▲																									●					
MW (With Wiper)	✶1 **TNMX332MW**	TNMX160408-MW	.031	●	●		○							▲						★																	C018
	✶1 TNMX**333MW**	TNMX160412-MW	.047	●	●		○							▲					★	★																	
Medium Cutting																																					
MS	**TNMG331MS**	TNMG160404-MS	.016		●									▲	●	●					●	●	●	●	★						★					●	
	TNMG**332MS**	TNMG160408-MS	.031		●	▲								▲	●	●					●	●	●	●	★	●	●								●	●	C018 –023 E022 E025
	TNMG**333MS**	TNMG160412-MS	.047		★										★	★					●	●	★	●												●	
	TNMG**432MS**	TNMG220408-MS	.031		●									▲	●	●					●	●	●	●	★	●											●	
Medium Cutting	TNMG**433MS**	TNMG220412-MS	.047												★						●	●															●	
R/L ES	TNMG**331RES**	TNMG160404R-ES	.016											▲	★																						
	TNMG**331LES**	TNMG160404L-ES	.016											▲	★																						C018 –023 E022 E025
	TNMG**332RES**	TNMG160408R-ES	.031											▲	★																						
	TNMG**332LES**	TNMG160408L-ES	.031											▲	★																						
	TNMG**432RES**	TNMG220408R-ES	.031												★																						
Medium Cutting	TNMG**432LES**	TNMG220408L-ES	.031												★																						
R/L 2G	TNMG**331R2G**	TNMG160404R-2G	.016																							★										
	TNMG**331L2G**	TNMG160404L-2G	.016																							★										C018 –023 E022 E025
	TNMG**332R2G**	TNMG160408R-2G	.031																							★										
	TNMG**332L2G**	TNMG160408L-2G	.031																							★										
Medium Cutting																																					

✶1 Please refer to page A032 before using the MW breaker (wiper insert).
✶2 New design MS breaker : MP9005, MP9015, MT9015

■ = MIRACLE SIGMA

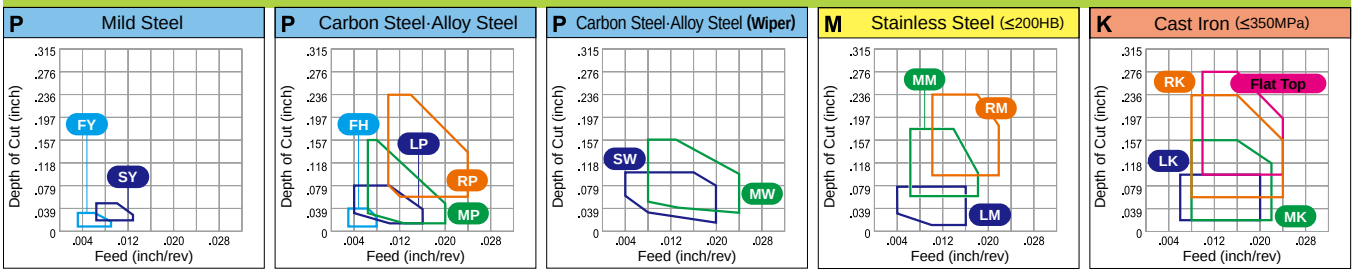
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

60° TN TYPE INSERTS WITH HOLE

TNGG 2 2 0.5 R
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting ··· Light Cutting ··· Medium Cutting ··· Rough Cutting ··· Heavy Cutting ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	UE6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
R/L	**TNGG220.5R**	TNGG110302R	.008																							★											
	TNGG**220.5L**	TNGG110302L	.008																							★	★										
	TNGG**221R**	TNGG110304R	.016																							★	★										
	TNGG**221L**	TNGG110304L	.016																							★	★										
	TNGG**222R**	TNGG110308R	.031																								★										
	TNGG**222L**	TNGG110308L	.031																							★	★										
	TNGG**321R**	TNGG160304R	.016																							★	★				★						
	TNGG**321L**	TNGG160304L	.016																							★	★										
	TNGG**330.5R**	TNGG160402R	.008																							★	★	●			★		★				C018 −023 E022 E025
	TNGG**330.5L**	TNGG160402L	.008																							★	★	●									
	TNGG**331R**	TNGG160404R	.016																							★	●	●			★	★	★				
	TNGG**331L**	TNGG160404L	.016																							★	●	●			★		★				
	TNGG**332R**	TNGG160408R	.031																							★	●	●			★	★	★				
	TNGG**332L**	TNGG160408L	.031																							★	●	●			★	★	★				
	TNGG**431R**	TNGG220404R	.016																							★	●				★						
	TNGG**431L**	TNGG220404L	.016																							★	●				★						
	TNGG**432R**	TNGG220408R	.031																							★	●				★						
Medium Cutting	TNGG**432L**	TNGG220408L	.031																							★	●				★						
RP	**TNMG332RP**	TNMG160408-RP	.031	●	●		●	●																													
	TNMG**333RP**	TNMG160412-RP	.047	●	●		●	●																													
	TNMG**432RP**	TNMG220408-RP	.031	●	●		●	●																													C018 −023 E022 E025
	TNMG**433RP**	TNMG220412-RP	.047	●	●		●	●																													
	TNMG**434RP**	TNMG220416-RP	.063	●	●		●	●																													
	TNMG**543RP**	TNMG270612-RP	.047	●	●		●	●																													
Rough Cutting	TNMG**544RP**	TNMG270616-RP	.063	●	●		●	●																													
RM	**TNMG332RM**	TNMG160408-RM	.031								●	●	●																								
	TNMG**333RM**	TNMG160412-RM	.047								●	●	●																								C018 −023 E022 E025
	TNMG**432RM**	TNMG220408-RM	.031								●	●	●																								
	TNMG**433RM**	TNMG220412-RM	.047								●	●	●																								
Rough Cutting	TNMG**434RM**	TNMG220416-RM	.063								●	●	●																								

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																				Cermet		Coated Cermet			Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
(NEW) RK	TNMG332RK	TNMG160408-RK	.031														●	●																		
	TNMG333RK	TNMG160412-RK	.047														●	●																		
	TNMG334RK	TNMG160416-RK	.063														●	●																		C018 −023 E022 E025
	TNMG432RK	TNMG220408-RK	.031														●	●																		
Rough Cutting	TNMG433RK	TNMG220412-RK	.047														●	●																		
	TNMG434RK	TNMG220416-RK	.063														●	●																		
(NEW) RS	TNMG332RS	TNMG160408-RS	.031																			●													●	
	TNMG333RS	TNMG160412-RS	.047																			●													●	C018 −023 E022 E025
	TNMG432RS	TNMG220408-RS	.031																			●													●	
Rough Cutting	TNMG433RS	TNMG220412-RS	.047																			●													●	
GH	TNMG332GH	TNMG160408-GH	.031	●	●	▲								▲	●				●	●																
	TNMG333GH	TNMG160412-GH	.047	★	★														●																	
	TNMG432GH	TNMG220408-GH	.031	●	●	▲									●				●																	
	TNMG433GH	TNMG220412-GH	.047	●	●	▲									●				●	●																C018 −023 E022 E025
	TNMG434GH	TNMG220416-GH	.063	●	●																															
	TNMG543GH	TNMG270612-GH	.047	●	●	▲			●						●																					
Rough Cutting	TNMG544GH	TNMG270616-GH	.063	●	●																															
	TNMG666GH	TNMG330924-GH	.094						●						●																					
HZ	TNMM332HZ	TNMM160408-HZ	.031		★	▲																														
	TNMM432HZ	TNMM220408-HZ	.031		●	▲																														C018 −023 E022 E025
	TNMM433HZ	TNMM220412-HZ	.047		●	▲																														
Heavy Cutting	TNMM434HZ	TNMM220416-HZ	.063		●	▲																														
Flat Top	TNMA331	TNMA160404	.016														●	●	●	●												★	★				
	TNMA332	TNMA160408	.031														●	●	●	●											★	★	●			
	TNMA333	TNMA160412	.047														●	●	●	●																
	TNMA334	TNMA160416	.063														●	●		★																C018 −023 E022 E025
	TNMA431	TNMA220404	.016																														★			
	TNMA432	TNMA220408	.031														●	●	●	●						★					★		●			
	TNMA433	TNMA220412	.047														●	●	●	●																
	TNMA434	TNMA220416	.063														●	●	●	●												●				
Flat Top	TNGA221	TNGA110304	.016																														★			
	TNGA222	TNGA110308	.031																								★						★			
	TNGA330.5	TNGA160402	.008																								★						★			C018 −023 E022 E025
	TNGA331	TNGA160404	.016																													★	★	★			
	TNGA332	TNGA160408	.031																														★	★			
	TNGA431	TNGA220404	.016																													★				
	TNGA432	TNGA220408	.031																														★			

■ = MIRACLE SIGMA

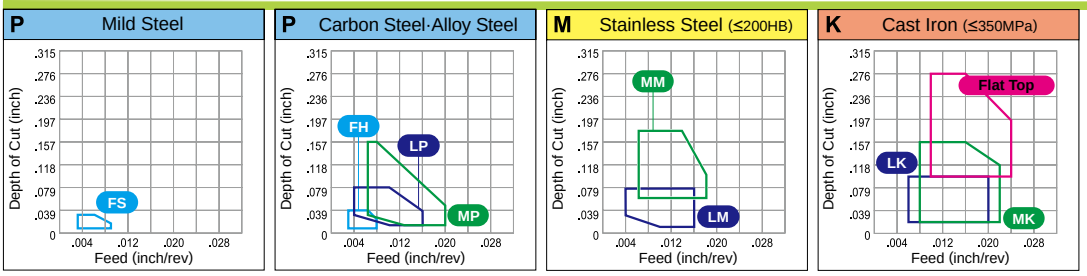
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

35° VN TYPE INSERTS WITH HOLE

VNMG 3 3 0.5 FH
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting Light Cutting Medium Cutting Rough Cutting Heavy Cutting



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✲ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020 (NEW)	UE6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010 (NEW)	MT9015 (NEW)	Applicable Holder Page
FH	**VNMG330.5FH**	VNMG160402-FH	.008		●	▲																				●	●	●									
	VNMG**331FH**	VNMG160404-FH	.016		★	▲																				★		●	★								C024 C025 E023 E026
	VNMG**332FH**	VNMG160408-FH	.031		★	▲																				★	●	●	★								
Finish Cutting																																						
FS	**VNMG331FS**	VNMG160404-FS	.016			▲																				★			●								
	VNMG**332FS**	VNMG160408-FS	.031			▲																				★			●								C024 C025 E023 E026
Finish Cutting																																						
FJ	**VNGG33V5FJ**	VNGG1604V5-FJ	.002																					●												●		
	VNGG**330.2FJ**	VNGG160401-FJ	.004																					●												●		C024 C025 E023 E026
	VNGG**330.5FJ**	VNGG160402-FJ	.008																					●												●		
Finish Cutting																																						
R/L F	**VNGG330.5RF**	VNGG160402R-F	.008																						●			●	●	●								
	VNGG**330.5LF**	VNGG160402L-F	.008																						●			●	●	●								C024 C025 E023 E026
	VNGG**331RF**	VNGG160404R-F	.016																						●			●	●	●								
	VNGG**331LF**	VNGG160404L-F	.016																						●			●	●	●								
Finish Cutting																																						
LP	**VNMG331LP**	VNMG160404-LP	.016	●	●		●	●																				●										
	VNMG**332LP**	VNMG160408-LP	.031	●	●		●	●																				●										C024 C025 E023 E026
Light Cutting																																						
LM	**VNMG331LM**	VNMG160404-LM	.016								●	●	●																									
	VNMG**332LM**	VNMG160408-LM	.031								●	●	●																									C024 C025 E023 E026
Light Cutting																																						

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																			Cermet		Coated Cermet			Carbide					Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
(NEW) LK	**VNMG331LK**	VNMG160404-LK	.016													●	●																		C024 –025 E023 E026
Light Cutting	**VNMG332LK**	VNMG160408-LK	.031													●	●																		
(NEW) LS	**VNMG331LS**	VNMG160404-LS	.016																	●	●													●	C024 –025 E023 E026
Light Cutting	**VNMG332LS**	VNMG160408-LS	.031																	●	●													●	
SH	**VNMG331SH**	VNMG160404-SH	.016	●	★	▲	●	●																		★	●		★						C024 C025 E023 E026
Light Cutting	**VNMG332SH**	VNMG160408-SH	.031	●	★	▲	●	●																		★	●		★						
(NEW) SA	**VNMG331SA**	VNMG160404-SA	.016				○	○																											C024 –026 E023 E026
Light Cutting	**VNMG332SA**	VNMG160408-SA	.031				○	○																											
MJ	**VNMG331MJ**	VNMG160404-MJ	.016												★								●	●										●	C024 –025 E023 E026
Light Cutting	**VNMG332MJ**	VNMG160408-MJ	.031												★								●	●										●	
	VNMG333MJ	VNMG160412-MJ	.047												★								★	★											
MJ	**VNGM331MJ**	VNGM160404-MJ	.016																				●											●	C024 –026 E023 E026
Light Cutting	**VNGM332MJ**	VNGM160408-MJ	.031																				●											●	
	VNGM431MJ	VNGM220404-MJ	.016																				●											●	
	VNGM432MJ	VNGM220408-MJ	.031																				●											●	
MP	**VNMG331MP**	VNMG160404-MP	.016	●	●	▲	●	●											●									●							C024 –025 E023 E026
Medium Cutting	**VNMG332MP**	VNMG160408-MP	.031	●	●	▲	●	●											●									●							
	VNMG333MP	VNMG160412-MP	.047	●	●	▲	●	●											●																
MM	**VNMG332MM**	VNMG160408-MM	.031								●	●	●																						C024 –025 E023 E026
Medium Cutting																																			

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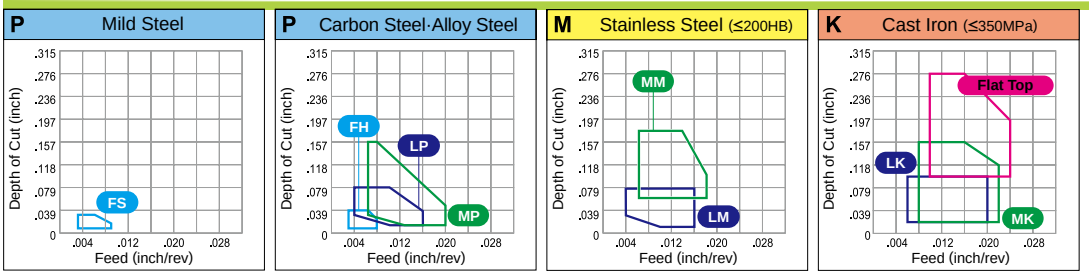
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

35° VN TYPE INSERTS WITH HOLE

VNMG 3 3 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 Rough Cutting Heavy Cutting



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✲ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	UE6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
(NEW) MK	VNMG331MK	VNMG160404-MK	.016														●	●																			
	VNMG332MK	VNMG160408-MK	.031														●	●																			C024 C025 E023 E026
	VNMG333MK	VNMG160412-MK	.047														●	●																			
Medium Cutting																																					
(NEW) GK	VNMG331GK	VNMG160404-GK	.016														●	●																			
	VNMG332GK	VNMG160408-GK	.031														●	●																			C024 C025 E023 E026
Medium Cutting																																					
GM	VNMG331GM	VNMG160404-GM	.016								●	●	●																								
	VNMG332GM	VNMG160408-GM	.031								●	●	●																								C024 C025 E023 E026
Medium Cutting																																					
MA	VNMG331MA	VNMG160404-MA	.016	●	●	▲	●	●			●	●	▲	●			●	●	●	●					●												
	VNMG332MA	VNMG160408-MA	.031	●	●	▲	●	●	●		●	●	▲	●			●	●	●	●					●												C024 C025 E023 E026
Medium Cutting																																					
MH	VNMG331MH	VNMG160404-MH	.016	●	●	▲														●																	
	VNMG332MH	VNMG160408-MH	.031	●	●	▲	●	●						▲						●																	C024 C025 E023 E026
Medium Cutting																																					
Standard	VNMG331	VNMG160404	.016	●	●	▲	●	●											★	★					●		★	●	●			●		●			
	VNMG332	VNMG160408	.031	●	●	▲	●	●											★	●					●		★	●	●	●		●		●			C024 C025 E023 E026
	VNMG333	VNMG160412	.047	★	●		○	○											★	★							★										
Medium Cutting																																					

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																				Cermet		Coated Cermet			Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
MS	**VNMG331MS**	VNMG160404-MS	.016		●									▲	●	●					●	●	●	●		★									●	
	VNMG**332MS**	VNMG160408-MS	.031		●									▲	●	●					●	●	★	●			●								●	●	C024 C025 E023 E026
Medium Cutting																																				
R/L	**VNGG331R**	VNGG160404R	.016																							★	●				★		★			
	VNGG**331L**	VNGG160404L	.016																							★	●				★					C024 C025 E023 E026
Medium Cutting																																				
Flat Top	**VNGA331**	VNGA160404	.016																													★	●			
	VNGA**332**	VNGA160408	.031																													★	●			C024 C025 E023 E026

*New design MS breaker : MP9005, MP9015, MT9015

■ = MIRACLE SIGMA

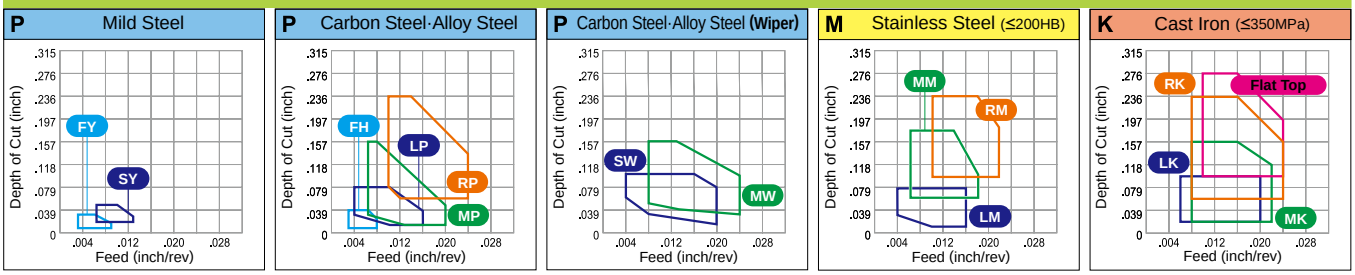
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

80° WN TYPE INSERTS WITH HOLE

WNMG 4 3 1 FH
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting ··· Light Cutting ··· Medium Cutting ··· Rough Cutting ··· Heavy Cutting ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																				Cermet		Coated Cermet			Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	UE6015 NEW	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 NEW	MC5015 NEW	UC5105	UC5115	MP9005 NEW	MP9015 NEW	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 NEW	
FH	**WNMG431FH**	WNMG080404-FH	.016	●																				★		●									
Finish Cutting	WNMG**432FH**	WNMG080408-FH	.031	●																				★		●	●								C027 E023 E026 E027
FS	**WNMG431FS**	WNMG080404-FS	.016		▲																			★											
Finish Cutting	WNMG**432FS**	WNMG080408-FS	.031		▲																			★											C027 E023 E026 E027
FY	**WNMG431FY**	WNMG080404-FY	.016																							●									
Finish Cutting	WNMG**432FY**	WNMG080408-FY	.031		▲																					●		★							C027 E023 E026 E027
LP	**WNMG331LP**	WNMG060404-LP	.016	●	●		●	●																		●									
	WNMG**332LP**	WNMG060408-LP	.031	●	●		●	●																		●									
	WNMG**32.51LP**	WNMG06T304-LP	.016	●	●		●	●																		●									C027 E023 E026 E027
	WNMG**32.52LP**	WNMG06T308-LP	.031	●	●		●	●																		●									
	WNMG**431LP**	WNMG080404-LP	.016	●	●		●	●																		●									
	WNMG**432LP**	WNMG080408-LP	.031	●	●		●	●																		●									
Light Cutting	WNMG**433LP**	WNMG080412-LP	.047	●	●		●	●																											
LM	**WNMG331LM**	WNMG060404-LM	.016								●	●	●																						
	WNMG**332LM**	WNMG060408-LM	.031								●	●	●																						
	WNMG**431LM**	WNMG080404-LM	.016								●	●	●																						C027 E023 E026 E027
	WNMG**432LM**	WNMG080408-LM	.031								●	●	●																						
Light Cutting																																			
NEW **LK**	**WNMG431LK**	WNMG080404-LK	.016														●	●																	
	WNMG**432LK**	WNMG080408-LK	.031														●	●																	C027 E023 E026 E027
Light Cutting	WNMG**433LK**	WNMG080412-LK	.047														●	●																	

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																				Cermet		Coated Cermet			Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
(NEW) LS	**WNMG431LS**	WNMG080404-LS	.016																	●	●														●	
	WNMG**432LS**	WNMG080408-LS	.031																	●	●														●	C027 E023 E026 E027
Light Cutting																																				
SH	**WNMG32.51SH**	WNMG06T304-SH	.016	●	●										●																					
	WNMG**32.52SH**	WNMG06T308-SH	.031	●	●										●																					
	WNMG**331SH**	WNMG060404-SH	.016	●	●										●																					C027
	WNMG**332SH**	WNMG060408-SH	.031	●	●										●																					E023 E026
	WNMG**431SH**	WNMG080404-SH	.016	●	●			●	●						●				●								★									E027
	WNMG**432SH**	WNMG080408-SH	.031	●	●	▲	●	●							●				●								★									
Light Cutting	WNMG**433SH**	WNMG080412-SH	.047	●	●	▲	●	●							●				★																	
SA	**WNMG431SA**	WNMG080404-SA	.016	●	●	▲	●	●							●												●									
	WNMG**432SA**	WNMG080408-SA	.031	●	●	▲	●	●							●												●									C027 E023 E026 E027
Light Cutting	WNMG**433SA**	WNMG080412-SA	.047	●	●	▲	●	●							●												●									
SW (With Wiper)	⁎**WNMG331SW**	WNMG060404-SW	.016	●	●		●							▲												★	●								
	⁎WNMG**332SW**	WNMG060408-SW	.031	●	●		●							▲												★	●								C027 E023 E026 E027
	⁎WNMG**431SW**	WNMG080404-SW	.016	●	●		●							▲					●							★	●	●							
	⁎WNMG**432SW**	WNMG080408-SW	.031	●	●		●							▲					●							★	●	●							
Light Cutting	⁎WNMG**433SW**	WNMG080412-SW	.047	●	●		●							▲												●	●	●							
SY	**WNMG431SY**	WNMG080404-SY	.016																									●							
	WNMG**432SY**	WNMG080408-SY	.031			▲																					●	●		★					C027 E023 E026 E027
Light Cutting																																				
C	**WNMG431C**	WNMG080404-C	.016																							★	●								
	WNMG**432C**	WNMG080408-C	.031																								●								C027 E023 E026 E027
Light Cutting																																				
MJ	**WNMG432MJ**	WNMG080408-MJ	.031													★							★	★												
	WNMG**433MJ**	WNMG080412-MJ	.047													★							★	★												C027 E023 E026 E027
Light Cutting	WNMG**434MJ**	WNMG080416-MJ	.063													★							★	★												

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

■ = MIRACLE SIGMA

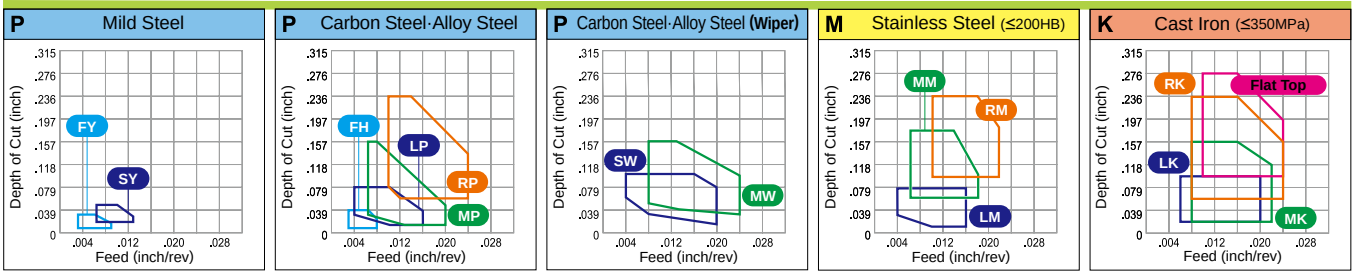
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

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···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	UE6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
MP	**WNMG32.51MP**	WNMG06T304-MP	.016	●	●	▲	●	●											●																		
	WNMG**32.52MP**	WNMG06T308-MP	.031	●	●	▲	●	●											●																		
	WNMG**32.53MP**	WNMG06T312-MP	.047	●	●	▲	●	●											●																		
	WNMG**331MP**	WNMG060404-MP	.016	●	●	▲	●	●											●																		
	WNMG**332MP**	WNMG060408-MP	.031	●	●	▲	●	●											●																		C027 E023 E026 E027
	WNMG**333MP**	WNMG060412-MP	.047	●	●	▲	●	●											●																		
	WNMG**431MP**	WNMG080404-MP	.016	●	●	▲	●	●											●										●								
	WNMG**432MP**	WNMG080408-MP	.031	●	●	▲	●	●											●										●								
Medium Cutting	WNMG**433MP**	WNMG080412-MP	.047	●	●	▲	●	●											●										●								
	WNMG**434MP**	WNMG080416-MP	.063	●	●	▲	●	●											●																		
MM	**WNMG332MM**	WNMG060408-MM	.031								●	●	●																								
	WNMG**333MM**	WNMG060412-MM	.047								●	●	●																								C027 E023 E026 E027
	WNMG**432MM**	WNMG080408-MM	.031								●	●	●																								
Medium Cutting	WNMG**433MM**	WNMG080412-MM	.047								●	●	●																								
NEW **MK**	**WNMG431MK**	WNMG080404-MK	.016														●	●																			
	WNMG**432MK**	WNMG080408-MK	.031														●	●																			C027 E023 E026 E027
	WNMG**433MK**	WNMG080412-MK	.047														●	●																			
Medium Cutting	WNMG**434MK**	WNMG080416-MK	.063														●	●																			
NEW **GK**	**WNMG431GK**	WNMG080404-GK	.016														●	●																			
	WNMG**432GK**	WNMG080408-GK	.031														●	●																			C027 E023 E026 E027
	WNMG**433GK**	WNMG080412-GK	.047														●	●																			
Medium Cutting																																					
GM	**WNMG331GM**	WNMG060404-GM	.016								●	●	●																								
	WNMG**332GM**	WNMG060408-GM	.031								●	●	●																								C027 E023 E026 E027
	WNMG**431GM**	WNMG080404-GM	.016								●	●	●																								
	WNMG**432GM**	WNMG080408-GM	.031								●	●	●																								
Medium Cutting	WNMG**433GM**	WNMG080412-GM	.047								●	●	●																								

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																				Cermet		Coated Cermet			Carbide						Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	
MA	**WNMG32.51MA**	WNMG06T304-MA	.016	●	●									★																						
	WNMG**32.52MA**	WNMG06T308-MA	.031	●	●									★																						
	WNMG**32.53MA**	WNMG06T312-MA	.047	★	●									★																						
	WNMG**331MA**	WNMG060404-MA	.016	●	★		○	○						●																						
	WNMG**332MA**	WNMG060408-MA	.031	●	★	▲	●	●				●	●		●										●											C027
	WNMG**333MA**	WNMG060412-MA	.047	●	●		●	●				●	●		★										●											E023
	WNMG**431MA**	WNMG080404-MA	.016	●	●	▲	●	●				●	●	▲	●		●	●		●					●		●									E026
	WNMG**432MA**	WNMG080408-MA	.031	●	●	▲	●	●	●			●	●	▲	●		●	●	●	●					●		●									E027
	WNMG**433MA**	WNMG080412-MA	.047	●	●	▲	●	●	●			●	●	▲	●				●	●					●		●									
	WNMG**434MA**	WNMG080416-MA	.063	★	★														●																	
Medium Cutting	WNMG**543MA**	WNMG100612-MA	.047			▲			●																											
MH	**WNMG431MH**	WNMG080404-MH	.016	●	●	▲																														
	WNMG**432MH**	WNMG080408-MH	.031	●	●	▲	●	●	●					▲					●																	C027
	WNMG**433MH**	WNMG080412-MH	.047	●	●	▲	●	●	●										●																	E023
Medium Cutting																																				E026 E027
Standard	**WNMG431**	WNMG080404	.016	●	●	▲	●	●											●	●						★	●									
	WNMG**432**	WNMG080408	.031	●	●	▲	●	●											●	●					●	★	●			★					C027
	WNMG**433**	WNMG080412	.047	●	●	▲	●	●											●	●					●					★					E023
	WNMG**434**	WNMG080416	.063																★																E026
Medium Cutting																																				E027
MW (With Wiper)	⁎1 WNMG**332MW**	WNMG060408-MW	.031	●	●	▲	●	●											●	●															C027
	⁎1 WNMG**333MW**	WNMG060412-MW	.047	●	★		●	●											●	●															E023
	⁎1 WNMG**432MW**	WNMG080408-MW	.031	●	●	▲	●	●						▲					●	●															E026
	⁎1 WNMG**433MW**	WNMG080412-MW	.047	●	●		●	●						▲					●	●															E027
Medium Cutting																																				
MS	**WNMG322MS**	WNMG060308-MS	.031												●																					
	WNMG**32.51MS**	WNMG06T304-MS	.016		●									▲	●																					
	WNMG**32.52MS**	WNMG06T308-MS	.031		●									▲	●																					C027
	WNMG**331MS**	WNMG060404-MS	.016		●									▲	●																					E023
	WNMG**332MS**	WNMG060408-MS	.031		●									▲	●																					E026
	WNMG**431MS**	WNMG080404-MS	.016		●	▲								▲	●						●	●	●	●	●										●	E027
	WNMG**432MS**	WNMG080408-MS	.031		●	▲								▲	●	●					●	●	●	●	●									●	●	
Medium Cutting	WNMG**433MS**	WNMG080412-MS	.047		★										●	●					●	●	★	●											●	
RP	**WNMG432RP**	WNMG080408-RP	.031	●	●		●	●																												
	WNMG**433RP**	WNMG080412-RP	.047	●	●		●	●																												C027 E023 E026 E027
Rough Cutting																																				

⁎1 Please refer to page A032 before using the MW breaker (wiper insert).
⁎2 New design MS breaker : MP9005, MP9015, MT9015

■ = MIRACLE SIGMA

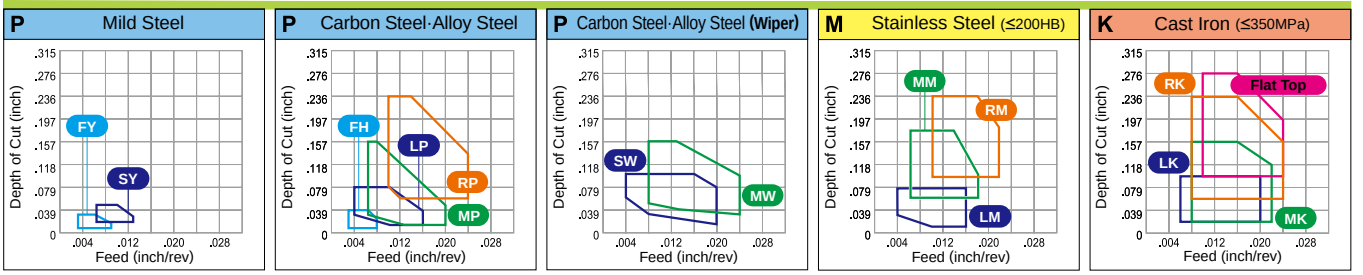
CHIP BREAKER ➤ A046
IDENTIFICATION ➤ A002

80° WN TYPE INSERTS WITH HOLE

WNMG 3 3 2 RM
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting··· Light Cutting··· Medium Cutting··· Rough Cutting··· Heavy Cutting···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	UE6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
RM	WNMG332RM	WNMG060408-RM	.031								●	●	●																								
	WNMG333RM	WNMG060412-RM	.047								●	●	●																								C027 E023 E026 E027
	WNMG432RM	WNMG080408-RM	.031								●	●	●																								
	WNMG433RM	WNMG080412-RM	.047								●	●	●																								
Rough Cutting																																					
NEW RK	WNMG432RK	WNMG080408-RK	.031													●	●																				
	WNMG433RK	WNMG080412-RK	.047													●	●																				C027 E023 E026 E027
	WNMG434RK	WNMG080416-RK	.063													●	●																				
Rough Cutting																																					
NEW RS	WNMG432RS	WNMG080408-RS	.031																			●														●	
	WNMG433RS	WNMG080412-RS	.047																			●														●	C027 E023 E026 E027
	WNMG434RS	WNMG080416-RS	.063																			●														●	
	WNMG543RS	WNMG100612-RS	.047																			●														●	
Rough Cutting																																					
GH	WNMG432GH	WNMG080408-GH	.031	●	●	▲			●					▲	●				●	●																
	WNMG433GH	WNMG080412-GH	.047	●	●	▲									●				●	●																C027 E023 E026 E027
Rough Cutting																																					
GJ	WNMG432GJ	WNMG080408-GJ	.031													●								●												●	
	WNMG433GJ	WNMG080412-GJ	.047													●								●												●	C027 E023 E026 E027
	WNMG434GJ	WNMG080416-GJ	.063													●								●												●	
	WNMG543GJ	WNMG100612-GJ	.047																					●												●	
Rough Cutting																																					
Flat Top	WNMA431	WNMA080404	.016														●	●	●	●														★			
	WNMA432	WNMA080408	.031														●	●	●	●														★			C027 E023 E026 E027
	WNMA433	WNMA080412	.047														●	●	●	●																	
	WNMA434	WNMA080416	.063														●	●		★																	
Rough Cutting																																					

■ = MIRACLE SIGMA

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

CHIP BREAKER ➤ A046

55° KN TYPE INSERTS WITHOUT HOLE

Cutting Conditions : ● Stable Cutting ◐ General Cutting ✲ Unstable Cutting

Shape	Order Number	(ISO) Number	Corner Radius (inch)	UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
				Coated																							Cermet		Coated Cermet			Carbide						
Work Material	P	Steel		●	◐	✲	◐	✲	✲	✲															✲	✲	●	◐	◐	●	●	✲						
	M	Stainless Steel									●	◐	✲	●	✲									◐	✲	✲	●			●	●	✲						
	K	Cast Iron															◐	✲	●	◐				◐	✲		●			●	●	✲	●	◐				
	N	Non-Ferrous Metal																																◐	●			
	S	Heat-resistant Alloy, Titanium Alloy														●					●	◐	●	◐	✲									◐	●	◐	◐	
M1  Rough Cutting	KNUX160405RM1	KNUX160405R-M1	.020			▲																										●						–

CHIP BREAKER ➤ A072
IDENTIFICATION ➤ A002

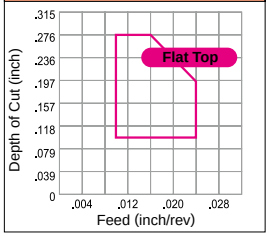
90° SN TYPE INSERTS WITHOUT HOLE

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)



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✲ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
Flat Top	**SNMN432**	SNMN120408	.031																★	★							★					★		★				
	SNMN**433**	SNMN120412	.047																●	●							★					★						
	SNMN**434**	SNMN120416	.063																●	●																		–
	SNMN**633**	SNMN190412	.047																													★						
Flat Top	**SNG322**	SNGN090308	.031																														★					
	SNG**431**	SNGN120404	.016																													★	★					
	SNG**432**	SNGN120408	.031																													★						–

● : Inventory maintained. ★ : Inventory maintained in Japan.
<10 inserts in one case>

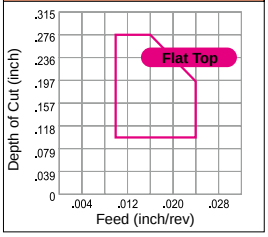
60° TN TYPE INSERTS WITHOUT HOLE

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)



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✲ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UE6035	UH6400	MC7015	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	MP9005 (NEW)	MP9015 (NEW)	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	MT9015 (NEW)	Applicable Holder Page
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																														★				

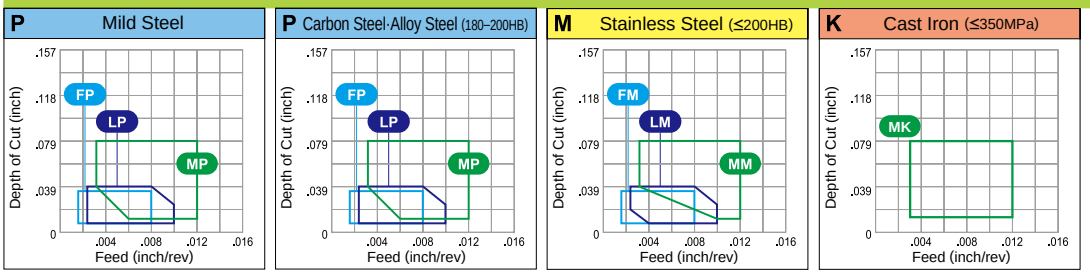
CHIP BREAKER ➤ A072
IDENTIFICATION ➤ A002

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 ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
FP	**CCMT21.50.5FP**	CCMT060202-FP	.008	●			●	●															●		●									
	CCMT**21.51FP**	CCMT060204-FP	.016	●			●	●															●		●									C030 D008 D012 E012 E013
	CCMT**32.50.5FP**	CCMT09T302-FP	.008	●			●	●															●		●									
	CCMT**32.51FP**	CCMT09T304-FP	.016	●			●	●															●		●									
Finish Cutting	CCMT**32.52FP**	CCMT09T308-FP	.031	●			●	●															●		●									
FM	**CCMT21.50.5FM**	CCMT060202-FM	.008																		●													
	CCMT**21.51FM**	CCMT060204-FM	.016																		●													C030 D008 D012 E012 E013
	CCMT**32.50.5FM**	CCMT09T302-FM	.008																		●													
	CCMT**32.51FM**	CCMT09T304-FM	.016																		●													
Finish Cutting	CCMT**32.52FM**	CCMT09T308-FM	.031																		●													
FV	**CCMT21.50.5FV**	CCMT060202-FV	.008			▲															●		★	●		●		★						
	CCMT**21.51FV**	CCMT060204-FV	.016			▲															●		★	●		●		★						C030 D008 D012 E012 E013
	CCMT**32.50.5FV**	CCMT09T302-FV	.008			▲																	●	●				●						
	CCMT**32.51FV**	CCMT09T304-FV	.016			▲																	★	●		●		★						
Finish Cutting	CCMT**32.52FV**	CCMT09T308-FV	.031			▲																	★	●		●		★						
FJ	**CCGT21.5V5FJ**	CCGT0602V5-FJ	.002																	●														
	CCGT**21.50.2FJ**	CCGT060201-FJ	.004																	●														
	CCGT**21.50.5FJ**	CCGT060202-FJ	.008																	●														C030 D008 D012 E012 E013
	CCGT**32.5V5FJ**	CCGT09T3V5-FJ	.002																	●														
	CCGT**32.50.2FJ**	CCGT09T301-FJ	.004																	●													★	
	CCGT**32.50.5FJ**	CCGT09T302-FJ	.008																	●													★	
Finish Cutting	CCGT**32.51FJ**	CCGT09T304-FJ	.016																	●													★	
FJ-P	**CCGT21.5V5FJ-P**	CCGT0602V5-FJ-P	.002																														●	
	CCGT**21.50.2FJ-P**	CCGT060201-FJ-P	.004																														●	
	CCGT**21.50.5FJ-P**	CCGT060202-FJ-P	.008																														●	C030 D008 D012 E012 E013
	CCGT**32.5V5FJ-P**	CCGT09T3V5-FJ-P	.002																														●	
	CCGT**32.50.2FJ-P**	CCGT09T301-FJ-P	.004																														●	
	CCGT**32.50.5FJ-P**	CCGT09T302-FJ-P	.008																														●	
Finish Cutting	CCGT**32.51FJ-P**	CCGT09T304-FJ-P	.016																														●	

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
AZ	**CCGT21.50.5AZ**	CCGT060202-AZ	.008																											●			
	CCGT**21.51AZ**	CCGT060204-AZ	.016																											●			
	CCGT**32.50.5AZ**	CCGT09T302-AZ	.008																											●			
	CCGT**32.51AZ**	CCGT09T304-AZ	.016																											●			C030 D008 D012 E012 E013
	CCGT**32.52AZ**	CCGT09T308-AZ	.031																											●			
	CCGT**430.5AZ**	CCGT120402-AZ	.008																											●			
	CCGT**431AZ**	CCGT120404-AZ	.016																											●			
Medium-Finish Cutting	CCGT**432AZ**	CCGT120408-AZ	.031																											●			
L-F	**CCGT1.20.90.V3LF**	CCGT03S1V3L-F	.0012																		●		●										
	CCGT**1.20.90.2LF**	CCGT03S101L-F	.004																		●		●										
	CCGT**1.20.90.5LF**	CCGT03S102L-F	.008																		●		●		●								
	CCGT**1.20.91LF**	CCGT03S104L-F	.016																		●		★		●								E012 E029
	CCGT**1.51.10.V3LF**	CCGT04T0V3L-F	.0012																		●		●										
	CCGT**1.51.10.2LF**	CCGT04T001L-F	.004																		●		●										
	CCGT**1.51.10.5LF**	CCGT04T002L-F	.008																		●		●		●								
Finish Cutting	CCGT**1.51.11LF**	CCGT04T004L-F	.016																		●		★		●								
R/L F	**CCGH21.50.5RF**	CCGH060202R-F	.008																		●		★			★					●		
	CCGH**21.50.5LF**	CCGH060202L-F	.008																		●		★			★					●		C030 E006 E012 E013
	CCGH**21.51RF**	CCGH060204R-F	.016																		●		★			★					●		
Finish Cutting	CCGH**21.51LF**	CCGH060204L-F	.016																		●		★			★					●		
LP	**CCMT21.51LP**	CCMT060204-LP	.016	●		●	●																●		●								
	CCMT**21.52LP**	CCMT060208-LP	.031	●		●	●																●		●								C030 D008 D012 E012 E013
	CCMT**32.51LP**	CCMT09T304-LP	.016	●		●	●																●		●								
Light Cutting	CCMT**32.52LP**	CCMT09T308-LP	.031	●		●	●																●		●								
LM	**CCMT21.51LM**	CCMT060204-LM	.016							●	●										●												
	CCMT**21.52LM**	CCMT060208-LM	.031							●	●										●												C030 D008 D012 E012 E013
	CCMT**32.51LM**	CCMT09T304-LM	.016							●	●										●												
Light Cutting	CCMT**32.52LM**	CCMT09T308-LM	.031							●	●										●												
SV	**CCMH21.50.5SV**	CCMH060202-SV	.008			▲		○				▲	●								★		★	●	●			★					
	CCMH**21.51SV**	CCMH060204-SV	.016			▲		○				▲	●								★		★	●	●			★					C030 D012 E006 E012 E013
Light Cutting																																		
SW (With Wiper)	* **CCMT21.50.5SW**	CCMT060202-SW	.008	●		▲		○	○			▲												●		●		●						
	* CCMT**21.51SW**	CCMT060204-SW	.016	●		▲		○	○			▲						●						●		●		●						C030 D008 D012 E012 E013
	* CCMT**32.50.5SW**	CCMT09T302-SW	.008	●		▲		○	○			▲						●						●		●		●						
Light Cutting	* CCMT**32.51SW**	CCMT09T304-SW	.016	●		▲		○	○			▲						●						●		●		●						

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

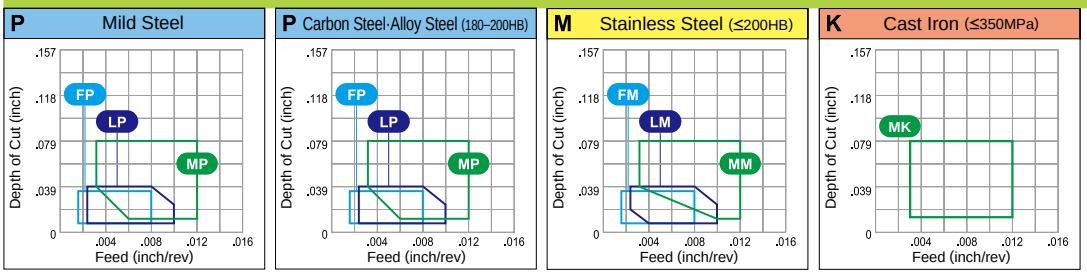
CHIP BREAKER ➤ A060
IDENTIFICATION ➤ A002

80° CC TYPE INSERTS WITH HOLE

CCGT 2 1.5 V3 RSS
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
R/L SS	**CCGT21.5V3RSS**	CCGT0602V3R-SS	.0012																		●												
	CCGT**21.5V3LSS**	CCGT0602V3L-SS	.0012																		●												
	CCGT**21.50.2RSS**	CCGT060201R-SS	.004																		●												
	CCGT**21.50.2LSS**	CCGT060201L-SS	.004																		●												
	CCGT**21.50.5RSS**	CCGT060202R-SS	.008																		●												
	CCGT**21.50.5LSS**	CCGT060202L-SS	.008																		●												
	CCGT**32.5V3RSS**	CCGT09T3V3R-SS	.0012																		●												
	CCGT**32.5V3LSS**	CCGT09T3V3L-SS	.0012																		●												
	CCGT**32.50.2RSS**	CCGT09T301R-SS	.004																		●												
	CCGT**32.50.2LSS**	CCGT09T301L-SS	.004																		●												
	CCGT**32.50.5RSS**	CCGT09T302R-SS	.008																		●												
Light Cutting	CCGT**32.50.5LSS**	CCGT09T302L-SS	.008																		●												
MJ	**CCGT21.51MJ**	CCGT060204-MJ	.016																	●													
	CCGT**32.52MJ**	CCGT09T308-MJ	.031																	●													
Light Cutting																																	
MJ-P	**CCGT21.51MJ-P**	CCGT060204-MJ-P	.016																													●	
	CCGT**32.52MJ-P**	CCGT09T308-MJ-P	.031																													●	
Light Cutting																																	
MP	**CCMT21.51MP**	CCMT060204-MP	.016		●		●	●															●		●								
	CCMT**21.52MP**	CCMT060208-MP	.031		●		●	●															●		●								
	CCMT**32.51MP**	CCMT09T304-MP	.016		●		●	●															●		●								
	CCMT**32.52MP**	CCMT09T308-MP	.031		●		●	●															●		●								
	CCMT**431MP**	CCMT120404-MP	.016		●		●	●															●		●								
	CCMT**432MP**	CCMT120408-MP	.031		●		●	●															●		●								
Medium Cutting	CCMT**433MP**	CCMT120412-MP	.047		●		●	●															●		●								

Applicable Holder Page: C030 D008 D012 E012 E013

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◐ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
MM	**CCMT21.51MM**	CCMT060204-MM	.016							●	●										●												
	CCMT**21.52MM**	CCMT060208-MM	.031							●	●										●												
	CCMT**32.51MM**	CCMT09T304-MM	.016							●	●										●												
	CCMT**32.52MM**	CCMT09T308-MM	.031							●	●										●												
	CCMT**431MM**	CCMT120404-MM	.016							●	●										●												
	CCMT**432MM**	CCMT120408-MM	.031							●	●										●												
Medium Cutting	CCMT**433MM**	CCMT120412-MM	.047							●	●										●												
NEW **MK**	**CCMT21.51MK**	CCMT060204-MK	.016												●	●																	
	CCMT**21.52MK**	CCMT060208-MK	.031												●	●																	
	CCMT**32.51MK**	CCMT09T304-MK	.016												●	●																	
	CCMT**32.52MK**	CCMT09T308-MK	.031												●	●																	
	CCMT**431MK**	CCMT120404-MK	.016												●	●																	
Medium Cutting	CCMT**432MK**	CCMT120408-MK	.031												●	●																	
Standard	**CCMT21.50.5**	CCMT060202	.008		●	▲						●											★	●	●	●			●		●		
	CCMT**21.51**	CCMT060204	.016	●	●	▲						●						●			●		★	●	●	●			●		●		
	CCMT**21.52**	CCMT060208	.031		●	▲						●						●			●		★						●		●		
	CCMT**2.520.5**	CCMT080302	.008		★																												
	CCMT**2.521**	CCMT080304	.016		★							●											★	●	●	●			●				
	CCMT**2.522**	CCMT080308	.031		★							●																	●				
	CCMT**32.50.5**	CCMT09T302	.008		●	▲						●											★	●	●	●					●		
	CCMT**32.51**	CCMT09T304	.016	●	●	▲						●						●			●		★	●	●	●			●		●		
	CCMT**32.52**	CCMT09T308	.031	●	●	▲						●						●			●		★	●	●	●			●		●		
	CCMT**431**	CCMT120404	.016	●	●	▲						●						●			●		★	●	●	●			★		●		
Medium Cutting	CCMT**432**	CCMT120408	.031	●	●	▲						●						●			●		★	●	●				●		●		
	CCMT**433**	CCMT120412	.047		●	▲						●						★						●									
MV	**CCMH21.50.5MV**	CCMH060202-MV	.008			▲		●			▲	●										★	★	●	●	●		●						
	CCMH**21.51MV**	CCMH060204-MV	.016			▲		●			▲	●										●	★	●	●	●		●						
Medium Cutting																																		
MW (With Wiper)	* **CCMT21.51MW**	CCMT060204-MW	.016			▲	○	○			▲												●		●		●							
	* CCMT**21.52MW**	CCMT060208-MW	.031		●	▲	○	○			▲												●		●		●							
	* CCMT**32.51MW**	CCMT09T304-MW	.016		●	▲	○	○			▲												★		●		●							
	* CCMT**32.52MW**	CCMT09T308-MW	.031		●	▲	○	○			▲												●		●		●							
	* CCMT**431MW**	CCMT120404-MW	.016		●	▲	○	○			▲							●					●				●							
Medium Cutting	* CCMT**432MW**	CCMT120408-MW	.031		●	▲	○	○			▲							●					●				●							

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

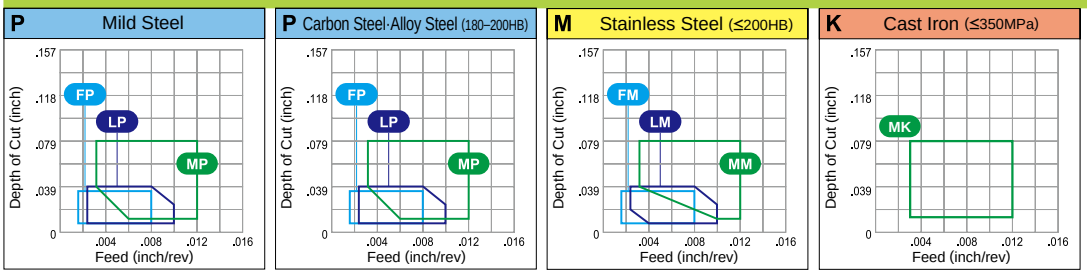
CHIP BREAKER ➤ A060
IDENTIFICATION ➤ A002

80° CC TYPE INSERTS WITH HOLE

CCET 2 1.5 V3 R SR
Size Thickness Corner Radius R/L Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
R/L SR	CCET21.5V3RSR	CCET0602V3R-SR	.0012																		●		★							●			
	CCET21.5V3LSR	CCET0602V3L-SR	.0012																		●		★							●			
	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	.0012																		●		★							●			
	CCET32.5V3LSR	CCET09T3V3L-SR	.0012																		●		★							●			
	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	CCET21.5V0RSN	CCET060200R-SN	0																		●		★							●			
	CCET21.5V0LSN	CCET060200L-SN	0																		●		★							●			
	CCET21.5V3RSN	CCET0602V3R-SN	.0012																		●		★							●			
	CCET21.5V3LSN	CCET0602V3L-SN	.0012																		●		★							●			
	CCET21.50.2RSN	CCET060201R-SN	.004																		●		★							●			
	CCET21.50.2LSN	CCET060201L-SN	.004																		●		★							●			
	CCET21.50.5RSN	CCET060202R-SN	.008																		●		★							●			
	CCET21.50.5LSN	CCET060202L-SN	.008																		●		★							●			
	CCET21.51RSN	CCET060204R-SN	.016																		●		★							●			
	CCET21.51LSN	CCET060204L-SN	.016																		●		★							●			
	CCET32.5V0RSN	CCET09T300R-SN	0																		●		★							●			
	CCET32.5V0LSN	CCET09T300L-SN	0																		●		★							●			
	CCET32.5V3RSN	CCET09T3V3R-SN	.0012																		●		★							●			
Medium Cutting	CCET32.5V3LSN	CCET09T3V3L-SN	.0012																		●		★							●			

C030 D008 D012 E012 E013

C030 D008 D012 E012 E013

● : Inventory maintained. ★ : Inventory maintained in Japan.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◐ General Cutting ✣ Unstable Cutting

Work Material		
P	Steel	● ◐ ✣ ◐ ✣ ✣
M	Stainless Steel	◐ ✣ ● ✣
K	Cast Iron	◐ ✣ ● ◐
N	Non-Ferrous Metal	●
S	Heat-resistant Alloy, Titanium Alloy	● ◐ ✣

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
R/L SN	**CCET32.50.2RSN**	CCET09T301R-SN	.004																		●		★							●			
	CCET**32.50.2LSN**	CCET09T301L-SN	.004																		●		★							●			C030 D008 D012 E012 E013
	CCET**32.50.5RSN**	CCET09T302R-SN	.008																		●		★							●			
	CCET**32.50.5LSN**	CCET09T302L-SN	.008																		●		★							●			
	CCET**32.51RSN**	CCET09T304R-SN	.016																		●		★							●			
Medium Cutting	CCET**32.51LSN**	CCET09T304L-SN	.016																		●		★							●			
R/L SN	**CCGT21.5V3RSN**	CCGT0602V3R-SN	.0012																		●												
	CCGT**21.50.2RSN**	CCGT060201R-SN	.004																		●												
	CCGT**21.50.2LSN**	CCGT060201L-SN	.004																		●												
	CCGT**21.50.5RSN**	CCGT060202R-SN	.008																		●												
	CCGT**21.50.5LSN**	CCGT060202L-SN	.008																		●												
	CCGT**32.5V3RSN**	CCGT09T3V3R-SN	.0012																		●												C030 D008 D012 E012 E013
	CCGT**32.5V3LSN**	CCGT09T3V3L-SN	.0012																		●												
	CCGT**32.50.2RSN**	CCGT09T301R-SN	.004																		●												
	CCGT**32.50.2LSN**	CCGT09T301L-SN	.004																		●												
	CCGT**32.50.5RSN**	CCGT09T302R-SN	.008																		●												
	CCGT**32.50.5LSN**	CCGT09T302L-SN	.008																		●												
	CCGT**32.51RSN**	CCGT09T304R-SN	.016																		●												
Medium Cutting	CCGT**32.51LSN**	CCGT09T304L-SN	.016																		●												
R/LW SN (With Wiper)	* CCET**21.5V3RWSN**	CCET0602V3RW-SN	.0012																		●												C030 D008 D012 E012 E013
	* CCET**21.5V3LWSN**	CCET0602V3LW-SN	.0012																		●												
	* CCET**32.5V3RWSN**	CCET09T3V3RW-SN	.0012																		●												
Medium Cutting	* CCET**32.5V3LWSN**	CCET09T3V3LW-SN	.0012																		●												
MSMG	**CCGT21.50.5MSMG**	CCGT060202M-SMG	.008																		●												
	CCGT**21.51MSMG**	CCGT060204M-SMG	.016																		●												C030 D008 D012 E012 E013
Medium Cutting																																	
Flat Top	**CCMW21.50.5**	CCMW060202	.008																												★		
	CCMW**21.51**	CCMW060204	.016												●	●	●	●											★		★		
	CCMW**32.51**	CCMW09T304	.016												●	●	●	●													★		C030 D008 D012 E012 E013
	CCMW**32.52**	CCMW09T308	.031												●	●	●	●											★		★		
	CCMW**431**	CCMW120404	.016												●	●	●	●													★		
	CCMW**432**	CCMW120408	.031												●	●	●	●													★		
	CCMW**433**	CCMW120412	.047															★															
Flat Top	**CCGW21.5V0**	CCGW060200	0																				●										
	CCGW**21.5V5**	CCGW0602V5	.002																				●										
	CCGW**32.5V0**	CCGW09T300	0																				●										C030 D008 D012 E012 E013
	CCGW**32.5V5**	CCGW09T3V5	.002																				●										

*Please refer to page A032 before using the R/LW SN breaker (wiper insert).

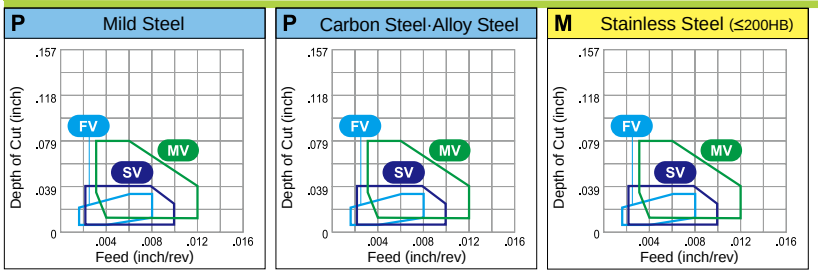
CHIP BREAKER ➤ A060
IDENTIFICATION ➤ A002

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 ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet			Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020 NEW	MC6015 NEW	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 NEW	MC5015 NEW	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
FV	**CPMH2.51.50.5FV**	CPMH080202-FV	.008			▲														●		●★	●						●			
	CPMH**2.51.51FV**	CPMH080204-FV	.016			▲														●		●★	●						●			
	CPMH**320.5FV**	CPMH090302-FV	.008			▲														●		●★	●						●			E006
	CPMH**321FV**	CPMH090304-FV	.016			▲														●		●★	●						●			
Finish Cutting	CPMH**322FV**	CPMH090308-FV	.031			▲														●		●★	●						●			
R/L F	**CPMH2.51.51RF**	CPMH080204R-F	.016																	●		★								●		
	CPMH**2.51.51LF**	CPMH080204L-F	.016																	●		★								●		
	CPMH**321RF**	CPMH090304R-F	.016																	●		★								●		E006
Finish Cutting	CPMH**321LF**	CPMH090304L-F	.016																	●		★			★					●		
R/L F	**CPGT2.51.51RF**	CPGT080204R-F	.016																			★										
	CPGT**2.51.51LF**	CPGT080204L-F	.016																			★										
	CPGT**320.5RF**	CPGT090302R-F	.008																			★										–
	CPGT**320.5LF**	CPGT090302L-F	.008																			★										
	CPGT**321RF**	CPGT090304R-F	.016																			★										
Finish Cutting	CPGT**321LF**	CPGT090304L-F	.016																			★										
SQ	**CPMT21.50.5SQ**	CPMT060202-SQ	.008										●																			
	CPMT**21.51SQ**	CPMT060204-SQ	.016		●								●																			
	CPMT**21.52SQ**	CPMT060208-SQ	.031										●																			
	CPMT**32.50.5SQ**	CPMT09T302-SQ	.008										●																			–
	CPMT**32.51SQ**	CPMT09T304-SQ	.016		●								●																			
Finish Cutting	CPMT**32.52SQ**	CPMT09T308-SQ	.031		●								●																			
Standard	**CPGT2.51.50.5**	CPGT080202	.008																											●		
	CPGT**2.51.51**	CPGT080204	.016																											●		
	CPGT**320.5**	CPGT090302	.008																											●		–
Finish Cutting	CPGT**321**	CPGT090304	.016																											●		
SV	**CPMH2.51.50.5SV**	CPMH080202-SV	.008			▲	●					▲	●							★		★●	●			●						
	CPMH**2.51.51SV**	CPMH080204-SV	.016			▲	●					▲	●							★		★●	●			●						
	CPMH**320.5SV**	CPMH090302-SV	.008			▲	●					▲	●							★		★●	●			●						E006
	CPMH**321SV**	CPMH090304-SV	.016			▲	●					▲	●							★		★●	●			●						
Light Cutting	CPMH**322SV**	CPMH090308-SV	.031			▲	●					▲	●							★		★●	●			●						

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✠ Unstable Cutting

Work Material		
P	Steel	● ◕ ✠ ◕ ✠ ✠
M	Stainless Steel	◕ ✠ ● ✠
K	Cast Iron	◕ ✠ ● ◕
N	Non-Ferrous Metal	◕ ✠ ✠
S	Heat-resistant Alloy, Titanium Alloy	● ◕ ✠

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet				Carbide					Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
Standard	**CPMX2.51.51**	CPMX080204	.016	●																★												–
	CPMX**2.51.52**	CPMX080208	.031	●																★												
	CPMX**321**	CPMX090304	.016	●																★	★						★					
	CPMX**322**	CPMX090308	.031	●	▲															★							★					
Medium Cutting																																
MV	**CPMH2.51.51MV**	CPMH080204-MV	.016		▲	●				▲	●								●		★	●	●	●		●						E006
	CPMH**2.51.52MV**	CPMH080208-MV	.031		▲	●				▲	●								●		★	●	●	●		●						
	CPMH**321MV**	CPMH090304-MV	.016		▲	●				▲	●								●		★	●	●	●		●						
	CPMH**322MV**	CPMH090308-MV	.031		▲	●				▲	●								●		★	●	●	●		●						
Medium Cutting																																
MQ	**CPMT21.51MQ**	CPMT060204-MQ	.016	●								●												●								–
	CPMT**21.52MQ**	CPMT060208-MQ	.031	●								●												●								
	CPMT**32.51MQ**	CPMT09T304-MQ	.016	●								●												●								
	CPMT**32.52MQ**	CPMT09T308-MQ	.031	●								●												●								
Medium Cutting																																

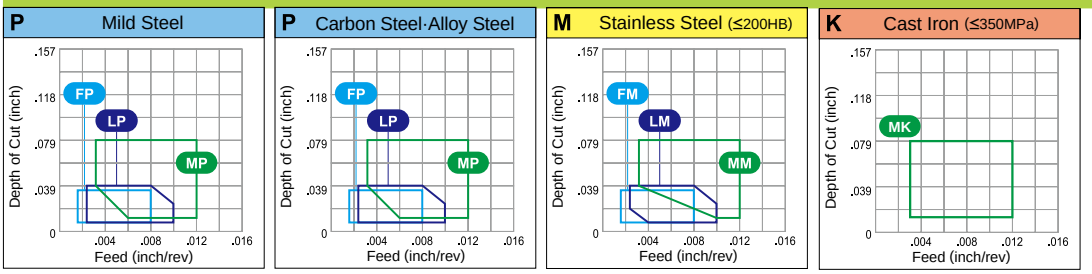
CHIP BREAKER ➤ A066
IDENTIFICATION ➤ A002

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



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
FP	**DCMT21.50.5FP**	DCMT070202-FP	.008	●			●	●															●		●									C031
	DCMT**21.51FP**	DCMT070204-FP	.016	●			●	●															●		●									C032
	DCMT**32.50.5FP**	DCMT11T302-FP	.008	●			●	●															●		●									D009
	DCMT**32.51FP**	DCMT11T304-FP	.016	●			●	●															●		●									D013
Finish Cutting	DCMT**32.52FP**	DCMT11T308-FP	.031	●			●	●															●		●									D040
																																		E008
																																		E013
																																		E014
FM	**DCMT21.50.5FM**	DCMT070202-FM	.008																		●													C031
	DCMT**21.51FM**	DCMT070204-FM	.016																		●													C032
	DCMT**32.50.5FM**	DCMT11T302-FM	.008																		●													D009
	DCMT**32.51FM**	DCMT11T304-FM	.016																		●													D013
Finish Cutting	DCMT**32.52FM**	DCMT11T308-FM	.031																		●													D040
																																		E008
																																		E013
																																		E014
FV	**DCMT21.50.5FV**	DCMT070202-FV	.008	★	▲																●		★	●		●								C031
	DCMT**21.51FV**	DCMT070204-FV	.016	★	▲																●		★	●		●								C032
	DCMT**21.52FV**	DCMT070208-FV	.031		▲																●		●	★										D009
	DCMT**32.50.5FV**	DCMT11T302-FV	.008		▲																●		●	★										D013
	DCMT**32.51FV**	DCMT11T304-FV	.016	★	▲																●		★	●		●								D040
Finish Cutting	DCMT**32.52FV**	DCMT11T308-FV	.031	★	▲																●		★	●		●								E008
																																		E013
																																		E014
FJ	**DCGT21.5V5FJ**	DCGT0702V5-FJ	.002																	●														C031
	DCGT**21.50.2FJ**	DCGT070201-FJ	.004																	●														C032
	DCGT**21.50.5FJ**	DCGT070202-FJ	.008																	●														D009
	DCGT**32.5V5FJ**	DCGT11T3V5-FJ	.002																	●														D013
	DCGT**32.50.2FJ**	DCGT11T301-FJ	.004																	●														D040
Finish Cutting	DCGT**32.50.5FJ**	DCGT11T302-FJ	.008																	●														E008
																																		E013
																																		E014
FJ-P	**DCGT21.5V5FJ-P**	DCGT0702V5-FJ-P	.002																														●	C031
	DCGT**21.50.2FJ-P**	DCGT070201-FJ-P	.004																														●	C032
	DCGT**21.50.5FJ-P**	DCGT070202-FJ-P	.008																														●	D009
	DCGT**32.5V5FJ-P**	DCGT11T3V5-FJ-P	.002																														●	D013
	DCGT**32.50.2FJ-P**	DCGT11T301-FJ-P	.004																														●	D040
Finish Cutting	DCGT**32.50.5FJ-P**	DCGT11T302-FJ-P	.008																														●	E008
																																		E013
																																		E014

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◔ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet				Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 NEW	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 NEW	MC5015 NEW	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
AZ	**DCGT21.50.5AZ**	DCGT070202-AZ	.008																										●			C031
	DCGT**21.51AZ**	DCGT070204-AZ	.016																										●			C032 D009
	DCGT**32.50.5AZ**	DCGT11T302-AZ	.008																										●			D013 D040
Medium-Finish Cutting	DCGT**32.51AZ**	DCGT11T304-AZ	.016																										●			E008 E013
	DCGT**32.52AZ**	DCGT11T308-AZ	.031																										●			E014
R/L F	**DCGT21.50.5RF**	DCGT070202R-F	.008																	●		★							●			
	DCGT**21.50.5LF**	DCGT070202L-F	.008																	●		★			●				●			C031
	DCGT**21.51RF**	DCGT070204R-F	.016																	●		★							●			C032 D009
	DCGT**21.51LF**	DCGT070204L-F	.016																	●		★			●				●			D013
	DCGT**32.50.5RF**	DCGT11T302R-F	.008																	●		★							●			D040 E008
	DCGT**32.50.5LF**	DCGT11T302L-F	.008																	●		★			●				●			E013
	DCGT**32.51RF**	DCGT11T304R-F	.016																	●		★							●			E014
Finish Cutting	DCGT**32.51LF**	DCGT11T304L-F	.016																	●		★			●				●			
LP	**DCMT21.51LP**	DCMT070204-LP	.016	●			●	●														●		●								C031
	DCMT**21.52LP**	DCMT070208-LP	.031	●			●	●														●		●								C032 D009
	DCMT**32.51LP**	DCMT11T304-LP	.016	●			●	●														●		●								D013 D040
Light Cutting	DCMT**32.52LP**	DCMT11T308-LP	.031	●			●	●														●		●								E008 E013
																																E014
LM	**DCMT21.51LM**	DCMT070204-LM	.016							●	●									●												C031
	DCMT**21.52LM**	DCMT070208-LM	.031							●	●									●												C032 D009
	DCMT**32.51LM**	DCMT11T304-LM	.016							●	●									●												D013 D040
Light Cutting	DCMT**32.52LM**	DCMT11T308-LM	.031							●	●									●												E008 E013
																																E014
SV	**DCMT21.50.5SV**	DCMT070202-SV	.008		▲						▲	●								●		★	●			●						C031
	DCMT**21.51SV**	DCMT070204-SV	.016	★	▲						▲	●								●		★	●			●						C032 D009
	DCMT**21.52SV**	DCMT070208-SV	.031	★	▲						▲	●								●		★	●			●						D013
	DCMT**32.50.5SV**	DCMT11T302-SV	.008	★	▲						▲	●								●		★	●			●						D040 E008
	DCMT**32.51SV**	DCMT11T304-SV	.016	★	▲						▲	●								●		★	●			●						E013
Light Cutting	DCMT**32.52SV**	DCMT11T308-SV	.031	★	▲						▲	●								●		★	●			★						E014
R/L SS	**DCGT21.5V3RSS**	DCGT0702V3R-SS	.0012																	●												
	DCGT**21.5V3LSS**	DCGT0702V3L-SS	.0012																	●												
	DCGT**21.50.2RSS**	DCGT070201R-SS	.004																	●												C031
	DCGT**21.50.2LSS**	DCGT070201L-SS	.004																	●												C032 D009
	DCGT**21.50.5RSS**	DCGT070202R-SS	.008																	●												D013 D040
	DCGT**21.50.5LSS**	DCGT070202L-SS	.008																	●												E008 E013
	DCGT**32.5V3RSS**	DCGT11T3V3R-SS	.0012																	●												E014
	DCGT**32.50.2RSS**	DCGT11T301R-SS	.004																	●												
Light Cutting	DCGT**32.50.5RSS**	DCGT11T302R-SS	.008																	●												

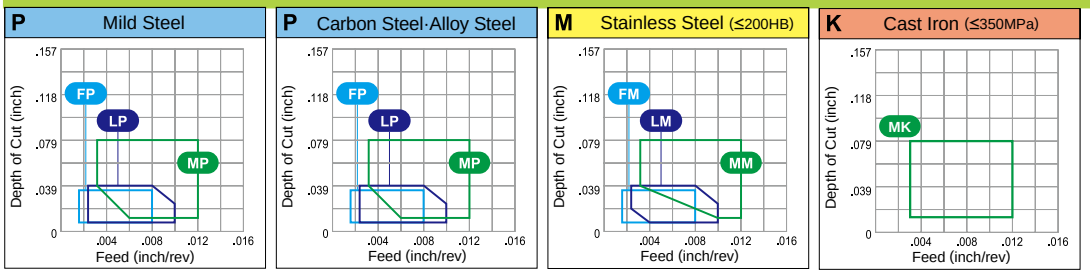
CHIP BREAKER ➤ A066
IDENTIFICATION ➤ A002

55° DC TYPE INSERTS WITH HOLE

DCGT 2 1.5 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 ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
MJ	**DCGT21.51MJ**	DCGT070204-MJ	.016																	●														C031 C032 D009 D013 D040 E008 E013 E014
	DCGT**32.51MJ**	DCGT11T304-MJ	.016																	●														
	DCGT**32.52MJ**	DCGT11T308-MJ	.031																	●														
Light Cutting																																		
MJ-P	**DCGT21.51MJ-P**	DCGT070204-MJ-P	.016																													●		C031 C032 D009 D013 D040 E008 E013 E014
	DCGT**32.51MJ-P**	DCGT11T304-MJ-P	.016																													●		
	DCGT**32.52MJ-P**	DCGT11T308-MJ-P	.031																													●		
Light Cutting																																		
MP	**DCMT21.51MP**	DCMT070204-MP	.016	●			●	●															●		●								C031 C032 D009 D013 D040 E008 E013 E014
	DCMT**21.52MP**	DCMT070208-MP	.031	●			●	●															●		●								
	DCMT**32.51MP**	DCMT11T304-MP	.016	●			●	●															●		●								
	DCMT**32.52MP**	DCMT11T308-MP	.031	●			●	●															●		●								
	DCMT**431MP**	DCMT150404-MP	.016	●			●	●															●		●								
	DCMT**432MP**	DCMT150408-MP	.031	●			●	●															●		●								
Medium Cutting																																		
MM	**DCMT21.51MM**	DCMT070204-MM	.016							●	●										●													C031 C032 D009 D013 D040 E008 E013 E014
	DCMT**21.52MM**	DCMT070208-MM	.031							●	●										●													
	DCMT**32.51MM**	DCMT11T304-MM	.016							●	●										●													
	DCMT**32.52MM**	DCMT11T308-MM	.031							●	●										●													
	DCMT**431MM**	DCMT150404-MM	.016							●	●										●													
	DCMT**432MM**	DCMT150408-MM	.031							●	●										●													
Medium Cutting																																		
NEW **MK**	**DCMT32.51MK**	DCMT11T304-MK	.016												●	●																		C031 C032 D009 D013 D040 E008 E013 E014
	DCMT**32.52MK**	DCMT11T308-MK	.031												●	●																		
Medium Cutting																																		

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◐ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
Standard	**DCMT21.50.5**	DCMT070202	.008	●	▲							●											★	●	●	●			★					
	DCMT**21.51**	DCMT070204	.016	●	●	▲						●					★				●		★	●	●	●			★					
	DCMT**21.52**	DCMT070208	.031		★							★					●						★	●	●	●								
	DCMT**32.50.5**	DCMT11T302	.008		●	▲						●											★	●	●	●			★					C031 C032 D009 D013 D040 E008 E013 E014
	DCMT**32.51**	DCMT11T304	.016	●	●	▲						●					●				●		★	●	●	●			★		●			
	DCMT**32.52**	DCMT11T308	.031	●	●	▲						●					●				●		★	●	●	●			★					
	DCMT**32.53**	DCMT11T312	.047		★																												
	DCMT**431**	DCMT150404	.016		●	▲						●					★						★	●	●	★			★					
Medium Cutting	DCMT**432**	DCMT150408	.031		●	▲						●					★						★	●	●				★					
	DCMT**433**	DCMT150412	.047		★																												
MV	**DCMT21.50.5MV**	DCMT070202-MV	.008		★	▲		●			▲	●									●		★	●	●	●	●						C031 C032 D009 D013 D040 E008 E013 E014
	DCMT**21.51MV**	DCMT070204-MV	.016		★	▲		●			▲	●									●		★	●	●	●	★						
	DCMT**21.52MV**	DCMT070208-MV	.031		★	▲		●			▲	●									●		★	●	●	●	★						
	DCMT**32.50.5MV**	DCMT11T302-MV	.008		★	▲		●			▲	●									●		★	●	●	●	●						
Medium Cutting	DCMT**32.51MV**	DCMT11T304-MV	.016		★	▲		●			▲	●									●		★	●	●	●	●						
	DCMT**32.52MV**	DCMT11T308-MV	.031		★	▲		●			▲	●									●		★	●	●	●	★						
R/L SR	**DCET21.5V3RSR**	DCET0702V3R-SR	.0012																		●		★							●			C031 C032 D009 D013 D040 E008 E013 E014
	DCET**21.5V3LSR**	DCET0702V3L-SR	.0012																		●		★							●			
	DCET**21.50.2RSR**	DCET070201R-SR	.004																		●		★							●			
	DCET**21.50.2LSR**	DCET070201L-SR	.004																		●		★							●			
	DCET**21.50.5RSR**	DCET070202R-SR	.008																		●		★							●			
	DCET**21.50.5LSR**	DCET070202L-SR	.008																		●		★							●			
	DCET**21.51RSR**	DCET070204R-SR	.016																		●		★							●			
	DCET**21.51LSR**	DCET070204L-SR	.016																		●		★							●			
	DCET**32.5V3RSR**	DCET11T3V3R-SR	.0012																		●		★							●			
	DCET**32.5V3LSR**	DCET11T3V3L-SR	.0012																		●		★							●			
	DCET**32.50.2RSR**	DCET11T301R-SR	.004																		●		★							●			
	DCET**32.50.2LSR**	DCET11T301L-SR	.004																		●		★							●			
	DCET**32.50.5RSR**	DCET11T302R-SR	.008																		●		★							●			
	DCET**32.50.5LSR**	DCET11T302L-SR	.008																		●		★							●			
	DCET**32.51RSR**	DCET11T304R-SR	.016																		●		★							●			
Medium Cutting	DCET**32.51LSR**	DCET11T304L-SR	.016																		●		★							●			
R/L SN	**DCET21.5V0RSN**	DCET070200R-SN	0																		●		★							●			C031 C032 D009 D013 D040 E008 E013 E014
	DCET**21.5V0LSN**	DCET070200L-SN	0																		●		★							●			
	DCET**21.5V3RSN**	DCET0702V3R-SN	.0012																		●		★							●			
	DCET**21.5V3LSN**	DCET0702V3L-SN	.0012																		●		★							●			
	DCET**21.50.2RSN**	DCET070201R-SN	.004																		●		★							●			
	DCET**21.50.2LSN**	DCET070201L-SN	.004																		●		★							●			
	DCET**21.50.5RSN**	DCET070202R-SN	.008																		●		★							●			
Medium Cutting	DCET**21.50.5LSN**	DCET070202L-SN	.008																		●		★							●			

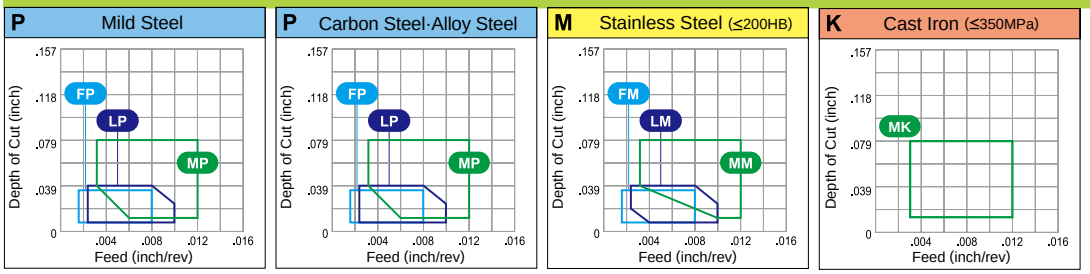
CHIP BREAKER ➤ A060
IDENTIFICATION ➤ A002

55° DC TYPE INSERTS WITH HOLE

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

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting Light Cutting Medium Cutting



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3335	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
R/L SN	DCET21.51RSN	DCET070204R-SN	.016																	●		★								●			
	DCET21.51LSN	DCET070204L-SN	.016																	●		★								●			
	DCET32.5V0RSN	DCET11T300R-SN	0																	●		★								●			
	DCET32.5V0LSN	DCET11T300L-SN	0																	●		★								●			
	DCET32.5V3RSN	DCET11T3V3R-SN	.0012																	●		★								●			C031 C032 D009 D013 D040 E008 E013 E014
	DCET32.5V3LSN	DCET11T3V3L-SN	.0012																	●		★								●			
	DCET32.50.2RSN	DCET11T301R-SN	.004																	●		★								●			
	DCET32.50.2LSN	DCET11T301L-SN	.004																	●		★								●			
	DCET32.50.5RSN	DCET11T302R-SN	.008																	●		★								●			
	DCET32.50.5LSN	DCET11T302L-SN	.008																	●		★								●			
Medium Cutting	DCET32.51RSN	DCET11T304R-SN	.016																	●		★								●			
	DCET32.51LSN	DCET11T304L-SN	.016																	●		★								●			
R/L SN	DCGT21.5V3RSN	DCGT0702V3R-SN	.0012																	●													
	DCGT21.50.2RSN	DCGT070201R-SN	.004																	●													
	DCGT21.50.5RSN	DCGT070202R-SN	.008																	●													
	DCGT21.50.5LSN	DCGT070202L-SN	.008																	●													
	DCGT32.5V3RSN	DCGT11T3V3R-SN	.0012																	●													C031 C032 D009 D013 D040 E008 E013 E014
	DCGT32.5V3LSN	DCGT11T3V3L-SN	.0012																	●													
	DCGT32.50.2RSN	DCGT11T301R-SN	.004																	●													
	DCGT32.50.2LSN	DCGT11T301L-SN	.004																	●													
	DCGT32.50.5RSN	DCGT11T302R-SN	.008																	●													
	DCGT32.50.5LSN	DCGT11T302L-SN	.008																	●													
Medium Cutting	DCGT32.51RSN	DCGT11T304R-SN	.016																	●													
	DCGT32.51LSN	DCGT11T304L-SN	.016																	●													
R/LW SN (With Wiper)	* DCET21.5V3RWSN	DCET0702V3RW-SN	.0012																	●													C031 C032 D009 D013 D040 E008 E013 E014
	* DCET21.5V3LWSN	DCET0702V3LW-SN	.0012																	●													
	* DCET32.5V3RWSN	DCET11T3V3RW-SN	.0012																	●													
Medium Cutting	* DCET32.5V3LWSN	DCET11T3V3LW-SN	.0012																	●													

*Please refer to page A032 before using the R/LW SN breaker (wiper insert).

● : Inventory maintained. ★ : Inventory maintained in Japan.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet				Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
MSMG	**DCGT21.50.5MSMG**	DCGT070202M-SMG	.008																	●												C031
	DCGT**21.51MSMG**	DCGT070204M-SMG	.016																	●												C032 D009
	DCGT**32.50.5MSMG**	DCGT11T302M-SMG	.008																	●												D013 D040
	DCGT**32.51MSMG**	DCGT11T304M-SMG	.016																	●												E008 E013
Medium Cutting																																E014
Flat Top	**DCMW21.51**	DCMW070204	.016														★	★												★		C031
	DCMW**32.51**	DCMW11T304	.016												●	●	★	★											●	★		C032 D009
	DCMW**32.52**	DCMW11T308	.031												●	●	★	★												★		D013 D040
	DCMW**431**	DCMW150404	.016																											★		E008
	DCMW**432**	DCMW150408	.031																											★		E013 E014
Flat Top	**DCGW21.5V0**	DCGW070200	0																				★									C031
	DCGW**21.5V5**	DCGW0702V5	.002																				★									C032 D009
	DCGW**32.5V0**	DCGW11T300	0																				★									D013 D040
	DCGW**32.5V5**	DCGW11T3V5	.002																				★									E008
																																E013 E014

CHIP BREAKER ➤ A060
IDENTIFICATION ➤ A002

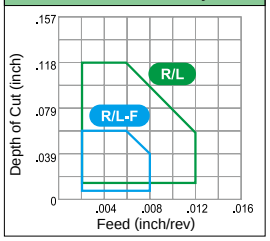
55° DE TYPE INSERTS WITH HOLE

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



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	MC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
R/L F	**DEGX430.5RF**	DEGX150402R-F	.008																											★			
	DEGX**430.5LF**	DEGX150402L-F	.008																											★			
	DEGX**431RF**	DEGX150404R-F	.016																											★			C041
	DEGX**431LF**	DEGX150404L-F	.016																											★			
Finish Cutting																																	
R/L	**DEGX430.5R**	DEGX150402R	.008																											●			
	DEGX**430.5L**	DEGX150402L	.008																											●			
	DEGX**431R**	DEGX150404R	.016																											●			C041
	DEGX**431L**	DEGX150404L	.016																											●			
Medium Cutting	DEGX**432R**	DEGX150408R	.031																											●			

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

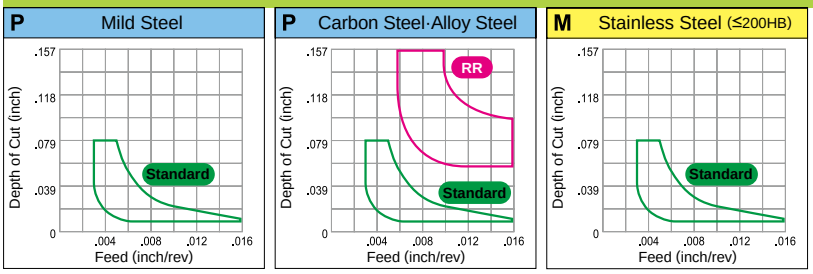
CHIP BREAKER ➤ A070

RC TYPE INSERTS WITH HOLE

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

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting ··· Heavy Cutting ···



Cutting Conditions : ● Stable Cutting ◕ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet			Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	MC6400	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	VP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
AZ	**RCGT0803M0-AZ**	RCGT0803M0-AZ	—																										●				
 Medium-Finish Cutting	RCGT**10T3M0-AZ**	RCGT10T3M0-AZ	—																										●				C033
Standard	**RCMT0602M0**	RCMT0602M0	—		●																			★	●	●			★				
 Medium Cutting	RCMT**0803M0**	RCMT0803M0	—		●									★										★	●	●			★				C033
Standard	**RCMX1003M0**	RCMX1003M0	—		● ▲									★						★				★	★	●							
 Medium Cutting	RCMX**1204M0**	RCMX1204M0	—		● ● ▲									● ★					★	★	★			★	●	●							
	RCMX**1606M0**	RCMX1606M0	—		★ ● ▲					★				★ ★						★	★												
	RCMX**2006M0**	RCMX2006M0	—		★ ● ▲					★				★																			H012
	RCMX**2507M0**	RCMX2507M0	—		★ ★ ▲																												
	RCMX**3209M0**	RCMX3209M0	—		★ ★ ▲																												
RR	**RCMX1606M0-RR**	RCMX1606M0-RR	—		★ ▲					★				★																			
 Heavy Cutting	RCMX**2006M0-RR**	RCMX2006M0-RR	—		★ ▲					★				★																			–
	RCMX**2507M0-RR**	RCMX2507M0-RR	—		★ ▲					★				★																			
	RCMX**3209M0-RR**	RCMX3209M0-RR	—		★ ▲																												

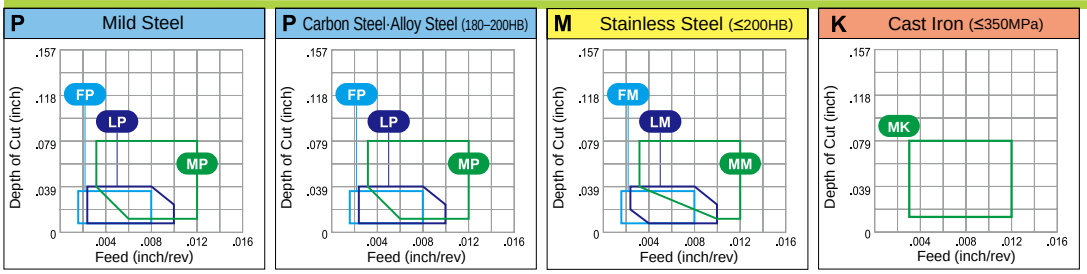
CHIP BREAKER ➤ A060
IDENTIFICATION ➤ A002

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



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet			Carbide					Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
FP	**SCMT32.51FP**	SCMT09T304-FP	.016	●		●	●															●		●								
	SCMT**32.52FP**	SCMT09T308-FP	.031	●		●	●															●		●								C034 E015
Finish Cutting																																
FM	**SCMT32.51FM**	SCMT09T304-FM	.016																	●												
	SCMT**32.52FM**	SCMT09T308-FM	.031																	●												C034 E015
Finish Cutting																																
FV	**SCMT32.51FV**	SCMT09T304-FV	.016			▲																	★	●		●		★					
Finish Cutting																																C034 E015
LP	**SCMT32.51LP**	SCMT09T304-LP	.016	●		●	●															●		●								
	SCMT**32.52LP**	SCMT09T308-LP	.031	●		●	●															●		●								C034 E015
Light Cutting																																
LM	**SCMT32.51LM**	SCMT09T304-LM	.016							●	●										●											
	SCMT**32.52LM**	SCMT09T308-LM	.031							●	●										●											C034 E015
Light Cutting																																
MP	**SCMT32.51MP**	SCMT09T304-MP	.016	●		●	●															●		●								
	SCMT**32.52MP**	SCMT09T308-MP	.031	●		●	●															●		●								
	SCMT**431MP**	SCMT120404-MP	.016	●		●	●															●		●								C034 E015
	SCMT**432MP**	SCMT120408-MP	.031	●		●	●															●		●								
Medium Cutting																																

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet				Carbide					Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
MM	**SCMT32.51MM**	SCMT09T304-MM	.016							●	●									●													
	SCMT**32.52MM**	SCMT09T308-MM	.031							●	●									●													
	SCMT**431MM**	SCMT120404-MM	.016							●	●									●													C034 E015
Medium Cutting	SCMT**432MM**	SCMT120408-MM	.031							●	●									●													
NEW **MK**	**SCMT32.51MK**	SCMT09T304-MK	.016												●	●																	
	SCMT**32.52MK**	SCMT09T308-MK	.031												●	●																	
	SCMT**432MK**	SCMT120408-MK	.031												●	●																	C034 E015
Medium Cutting																																	
Standard	**SCMT32.51**	SCMT09T304	.016	★	●	▲						●					●					★	●	●	●			●					
	SCMT**32.52**	SCMT09T308	.031	●	●	▲						●					●					★	●	●	●			★					
	SCMT**431**	SCMT120404	.016	★	●	▲						●					★					★	●	●									C034 E015
	SCMT**432**	SCMT120408	.031	●	●	▲						●					★					★	●	●	●			★					
Medium Cutting	SCMT**433**	SCMT120412	.047		★																												
Flat Top	**SCMW32.51**	SCMW09T304	.016												●	●		★											★		★		
	SCMW**32.52**	SCMW09T308	.031												●	●	★	★															
	SCMW**432**	SCMW120408	.031												●	●	★	★															C034 E015

POSI 7°
WITH HOLE
C
D
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T
V
W
X

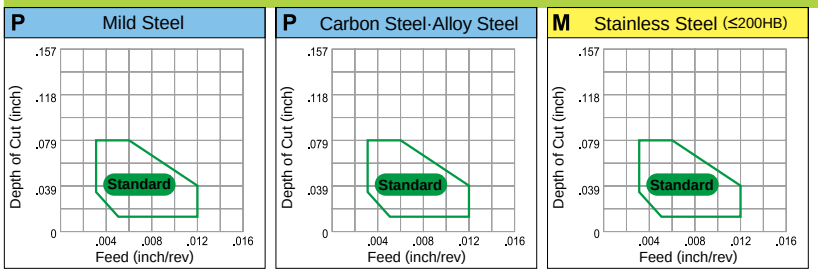
CHIP BREAKER ➤ A060
IDENTIFICATION ➤ A002

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



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet			Carbide					Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	VP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
Standard	**SPMT321**	SPMT090304	.016																			★										
	SPMT**322**	SPMT090308	.031																			★										
	SPMT**422**	SPMT120308	.031																			★						★				–
Medium Cutting																																
Flat Top	**SPMW321**	SPMW090304	.016																	● ★		★						★		★		
	SPMW**322**	SPMW090308	.031																	★ ★		★						★		★		
	SPMW**421**	SPMW120304	.016																	● ●		★						●		●		–
	SPMW**422**	SPMW120308	.031																	● ●		★						●		●		
Flat Top	**SPGX321**	SPGX090304	.016																			★								★		
	SPGX**322**	SPGX090308	.031																											★		
	SPGX**421**	SPGX120304	.016																											★		–
	SPGX**422**	SPGX120308	.031																											★		

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

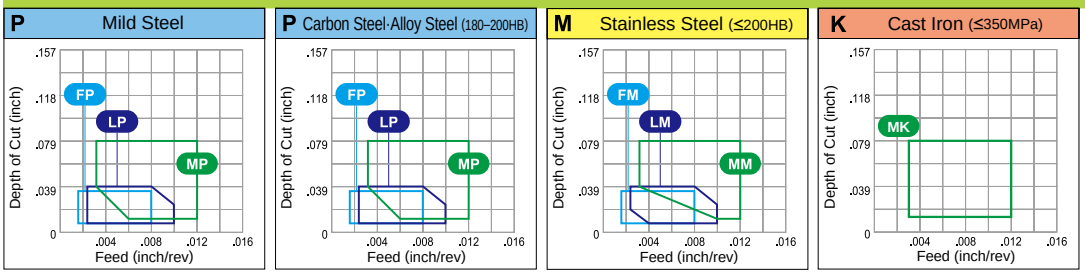
CHIP BREAKER ➤ A066

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 ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet			Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	VP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
FP	**TCMT1.81.50.5FP**	TCMT090202-FP	.008	●		●	●															●		●								
	**TCMT1.81.51FP**	TCMT090204-FP	.016	●		●	●															●		●								C035 E015 E016
	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																		●											C035 E015 E016
	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			▲																	★ ●		●							C035 E015 E016
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																												●	C035 E015 E016
	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																											●		C035 E015 E016
	TCGT32.50.5AZ	TCGT16T302-AZ	.008																											●		
	TCGT32.51AZ	TCGT16T304-AZ	.016																											●		
Medium-Finish Cutting	**TCGT32.52AZ**	TCGT16T308-AZ	.031																											●		

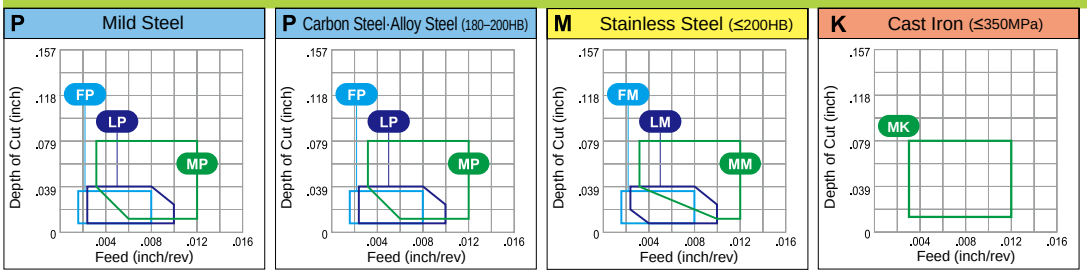
CHIP BREAKER ➤ A060
IDENTIFICATION ➤ A002

60° TC TYPE INSERTS WITH HOLE

TCGT 1.2 1 V3 LF
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
R/L F	**TCGT1.21V3LF**	TCGT0601V3L-F	.0012																				★											
	TCGT**1.210.2LF**	TCGT060101L-F	.004																		●		★											
	TCGT**1.210.5RF**	TCGT060102R-F	.008																		★		★								★			
	TCGT**1.210.5LF**	TCGT060102L-F	.008																		●		★								●			
	TCGT**1.211RF**	TCGT060104R-F	.016																				★								★			
	TCGT**1.211LF**	TCGT060104L-F	.016																		●		★								●			
LP	**TCMT1.81.51LP**	TCMT090204-LP	.016	●			●	●															●		●									
	TCMT**1.81.52LP**	TCMT090208-LP	.031	●			●	●															●		●									
	TCMT**21.51LP**	TCMT110204-LP	.016	●			●	●															●		●									
	TCMT**21.52LP**	TCMT110208-LP	.031	●			●	●															●		●									
	TCMT**32.51LP**	TCMT16T304-LP	.016	●			●	●															●		●									
	TCMT**32.52LP**	TCMT16T308-LP	.031	●			●	●															●		●									
LM	**TCMT1.81.51LM**	TCMT090204-LM	.016							●	●										●													
	TCMT**1.81.52LM**	TCMT090208-LM	.031							●	●										●													
	TCMT**21.51LM**	TCMT110204-LM	.016							●	●										●													
	TCMT**21.52LM**	TCMT110208-LM	.031							●	●										●													
	TCMT**32.51LM**	TCMT16T304-LM	.016							●	●										●													
	TCMT**32.52LM**	TCMT16T308-LM	.031							●	●										●													
MJ	**TCGT21.51MJ**	TCGT110204-MJ	.016																	●														
	TCGT**32.51MJ**	TCGT16T304-MJ	.016																	●														
	TCGT**32.52MJ**	TCGT16T308-MJ	.031																	●														
MJ-P	**TCGT21.51MJ-P**	TCGT110204-MJ-P	.016																														●	
	TCGT**32.51MJ-P**	TCGT16T304-MJ-P	.016																														●	
	TCGT**32.52MJ-P**	TCGT16T308-MJ-P	.031																														●	

Applicable Holder Page: E030 / C035 E015 E016 / C035 E015 E016 / C035 E015 E016 / C035 E015 E016

Finish Cutting / Light Cutting / Light Cutting / Light Cutting / Light Cutting

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet				Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
MP	**TCMT1.81.51MP**	TCMT090204-MP	.016	●			●●																●	●								
	TCMT**1.81.52MP**	TCMT090208-MP	.031	●			●●																●	●								
	TCMT**21.51MP**	TCMT110204-MP	.016	●			●●																●	●								
	TCMT**21.52MP**	TCMT110208-MP	.031	●			●●																●	●								C035 E015 E016
	TCMT**2.521MP**	TCMT130304-MP	.016	●			●●																●	●								
	TCMT**32.51MP**	TCMT16T304-MP	.016	●			●●																●	●								
	TCMT**32.52MP**	TCMT16T308-MP	.031	●			●●																●	●								
Medium Cutting	TCMT**32.53MP**	TCMT16T312-MP	.047	●			●●																●	●								
MM	**TCMT1.81.51MM**	TCMT090204-MM	.016							●●											●											
	TCMT**1.81.52MM**	TCMT090208-MM	.031							●●											●											
	TCMT**21.51MM**	TCMT110204-MM	.016							●●											●											
	TCMT**21.52MM**	TCMT110208-MM	.031							●●											●											C035 E015 E016
	TCMT**2.521MM**	TCMT130304-MM	.016							●●											●											
	TCMT**32.51MM**	TCMT16T304-MM	.016							●●											●											
	TCMT**32.52MM**	TCMT16T308-MM	.031							●●											●											
Medium Cutting	TCMT**32.53MM**	TCMT16T312-MM	.047							●●											●											
(NEW) **MK**	**TCMT32.51MK**	TCMT16T304-MK	.016												●●																	
	TCMT**32.52MK**	TCMT16T308-MK	.031												●●																	
	TCMT**32.53MK**	TCMT16T312-MK	.047												●●																	E015
Medium Cutting																																
Standard	**TCMT1.51.51**	TCMT080204	.016																				●	●				★				
	TCMT**1.81.51**	TCMT090204	.016		●▲							★											★	●●				★		●		
	TCMT**21.50.5**	TCMT110202	.008		●▲							●									●		★	●●								
	TCMT**21.51**	TCMT110204	.016	●●	▲							●					★				●		★	●●				●		●		
	TCMT**21.52**	TCMT110208	.031	●●																	●			●								C035 E015 E016
	TCMT**2.520.5**	TCMT130302	.008																					●●								
	TCMT**2.521**	TCMT130304	.016		●							●											●	●								
	TCMT**32.51**	TCMT16T304	.016	●●	▲							●					●				●		★	●●				●		●		
Medium Cutting	TCMT**32.52**	TCMT16T308	.031	●●	▲							●					●				●		★	●●				●		●		
	TCMT**32.53**	TCMT16T312	.047	★																												
Flat Top	**TCMW21.51**	TCMW110204	.016														★★													★		
	TCMW**2.521**	TCMW130304	.016																											★		C035 E015 E016
	TCMW**32.51**	TCMW16T304	.016												●●	●●														★		
	TCMW**32.52**	TCMW16T308	.031												●●	●●														★		

CHIP BREAKER ➤ A060
IDENTIFICATION ➤ A002

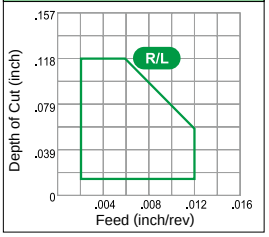
60° TE TYPE INSERTS WITH HOLE

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



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	MC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
R/L	**TEGX320.5R**	TEGX160302R	.008																											●			
	TEGX**320.5L**	TEGX160302L	.008																											●			
	TEGX**321R**	TEGX160304R	.016																											●			C042 E028
	TEGX**321L**	TEGX160304L	.016																											●			
Medium Cutting																																	

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

CHIP BREAKER ➤ A070

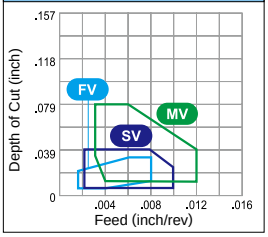
60° TP TYPE INSERTS WITH HOLE

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

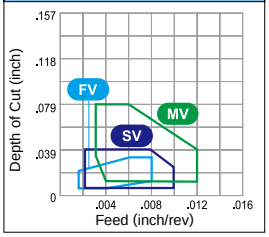
CHIP CONTROL RANGE FOR WORK MATERIALS

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

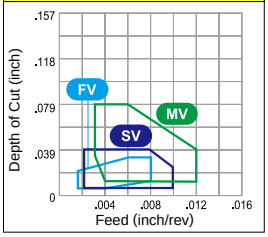
P Mild Steel



P Carbon Steel·Alloy Steel



M Stainless Steel (≤200HB)



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✲ Unstable Cutting

Work Material		
P	Steel	● ◐ ✲ ◐ ✲ ✲
M	Stainless Steel	◐ ✲ ○ ✲
K	Cast Iron	◐ ✲ ● ◐
N	Non-Ferrous Metal	◐ ✲
S	Heat-resistant Alloy, Titanium Alloy	●

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet			Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020 NEW	MC6015 NEW	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 NEW	MC5015 NEW	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
FV	**TPMH1.51.50.5FV**	TPMH080202-FV	.008			▲														●		●	★	●								
	TPMH**1.51.51FV**	TPMH080204-FV	.016			▲														●		●	★	●								
	TPMH**1.81.50.5FV**	TPMH090202-FV	.008			▲														●		●	★	●								
	TPMH**1.81.51FV**	TPMH090204-FV	.016			▲														●		●	★	●								
	TPMH**220.5FV**	TPMH110302-FV	.008			▲														●		●	★	●								
	TPMH**221FV**	TPMH110304-FV	.016			▲														●		●	★	●								
	TPMH**222FV**	TPMH110308-FV	.031			▲														●		●	★	●								
	TPMH**320.5FV**	TPMH160302-FV	.008			▲														●		●	★	●								
	TPMH**321FV**	TPMH160304-FV	.016			▲														●		●	★	●								
Finish Cutting	TPMH**322FV**	TPMH160308-FV	.031			▲														●		●	★	●								
R/L FS	**TPGH1.51.50.5RFS**	TPGH080202R-FS	.008																	●		★								●		
	TPGH**1.51.50.5LFS**	TPGH080202L-FS	.008																	●		★		●	★					●		
	TPGH**1.51.51RFS**	TPGH080204R-FS	.016																	●		★								●		
	TPGH**1.51.51LFS**	TPGH080204L-FS	.016																	●		★		●	★					●		
	TPGH**1.81.50.5RFS**	TPGH090202R-FS	.008																	●		★								●		
	TPGH**1.81.50.5LFS**	TPGH090202L-FS	.008																	●		★		●	★					●		
	TPGH**1.81.51RFS**	TPGH090204R-FS	.016																	●		★								●		
	TPGH**1.81.51LFS**	TPGH090204L-FS	.016																	●		★		●	★					●		
	TPGH**220.5RFS**	TPGH110302R-FS	.008																	●		★								●		
	TPGH**220.5LFS**	TPGH110302L-FS	.008																	●		★		●	★					●		
	TPGH**221RFS**	TPGH110304R-FS	.016																	●		★								●		
	TPGH**221LFS**	TPGH110304L-FS	.016																	●		★		●	★					●		
	TPGH**321RFS**	TPGH160304R-FS	.016																	●		★								●		
	TPGH**321LFS**	TPGH160304L-FS	.016																	●		★		●						●		
	TPGH**322RFS**	TPGH160308R-FS	.031																	●		★								●		
Finish Cutting	TPGH**322LFS**	TPGH160308L-FS	.031																	●		★		●						●		
SQ	**TPMT1.81.51SQ**	TPMT090204-SQ	.016										●																			
	TPMT**21.50.5SQ**	TPMT110202-SQ	.008	●									●																			
	TPMT**21.51SQ**	TPMT110204-SQ	.016	●									●																			
	TPMT**21.52SQ**	TPMT110208-SQ	.031	●									●																			
	TPMT**32.51SQ**	TPMT16T304-SQ	.016										●																			
Finish Cutting	TPMT**32.52SQ**	TPMT16T308-SQ	.031										●																			

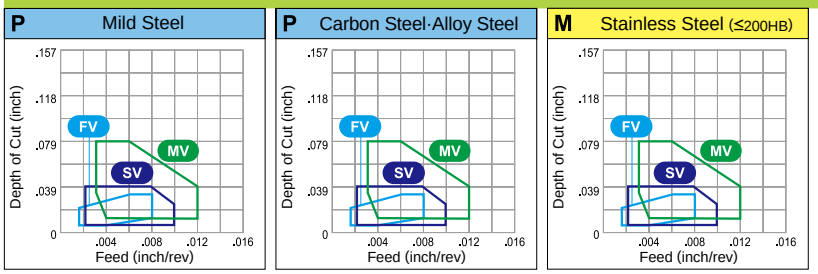
CHIP BREAKER ➤ A066
IDENTIFICATION ➤ A002

60° TP TYPE INSERTS WITH HOLE

TPGX 1.5 1.5 0.5 R
Size / Thickness / Corner Radius / R/L
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
R/L	**TPGX1.51.50.5R**	TPGX080202R	.008																				★											
	TPGX**1.51.50.5L**	TPGX080202L	.008																				★						★		●			
	TPGX**1.51.51R**	TPGX080204R	.016																				★								★			
	TPGX**1.51.51L**	TPGX080204L	.016																			★	★						★		●			
	TPGX**1.81.50.5R**	TPGX090202R	.008																				★											
	TPGX**1.81.50.5L**	TPGX090202L	.008																				★						★		●			
	TPGX**1.81.51R**	TPGX090204R	.016																				★								●			
	TPGX**1.81.51L**	TPGX090204L	.016																			★	★						★		●			E007
	TPGX**1.81.52R**	TPGX090208R	.031																												★			
	TPGX**1.81.52L**	TPGX090208L	.031																				★								★			
	TPGX**220.5L**	TPGX110302L	.008																				★						★		★			
	TPGX**221R**	TPGX110304R	.016																			★	★								★			
	TPGX**221L**	TPGX110304L	.016																			★	★						★		★			
	TPGX**222R**	TPGX110308R	.031																				★								★			
Finish Cutting	TPGX**222L**	TPGX110308L	.031																			★	★						★	★	●			
L	**TPMX1.81.51L**	TPMX090204L	.016																				★											
	TPMX**221L**	TPMX110304L	.016																				★											
Finish Cutting																																		E007
SV	**TPMH1.51.50.5SV**	TPMH080202-SV	.008			▲	●					▲	●								★		★	●	●									
	TPMH**1.51.51SV**	TPMH080204-SV	.016			▲	●					▲	●								★		★	●	●			●						
	TPMH**1.81.50.5SV**	TPMH090202-SV	.008			▲	●					▲	●								★		★	●	●									
	TPMH**1.81.51SV**	TPMH090204-SV	.016			▲	●					▲	●								★		★	●	●			●						
	TPMH**220.5SV**	TPMH110302-SV	.008			▲	●					▲	●								★		★	●	●			●						
	TPMH**221SV**	TPMH110304-SV	.016			▲	●					▲	●								★		★	●	●			●						
	TPMH**222SV**	TPMH110308-SV	.031			▲	●					▲	●								★		★	●	●			●						
	TPMH**320.5SV**	TPMH160302-SV	.008			▲	●					▲	●								★		★	★	●			★						
	TPMH**321SV**	TPMH160304-SV	.016			▲	●					▲	●								★		★	★	●			★						
Light Cutting	TPMH**322SV**	TPMH160308-SV	.031			▲	●					▲	●								★		★	★	●			●						

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◐ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet				Carbide					Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
Standard	**TPMX221**	TPMX110304	.016																			★	●	●								
	TPMX**222**	TPMX110308	.031																			★	●	●								
Medium Cutting																																E007
MV	**TPMH1.51.50.5MV**	TPMH080202-MV	.008			▲	●					▲	●								●		★	●	●								
	TPMH**1.51.51MV**	TPMH080204-MV	.016			▲	●					▲	●								●		★	●	●	●	●						
	TPMH**1.81.50.5MV**	TPMH090202-MV	.008			▲	●					▲	●								●		★	●	●								
	TPMH**1.81.51MV**	TPMH090204-MV	.016			▲	●					▲	●								●		★	●	●	●	●						
	TPMH**1.81.52MV**	TPMH090208-MV	.031			▲	●														●			●	●								
	TPMH**220.5MV**	TPMH110302-MV	.008			▲	●					▲	●								★		★	●	●		★						
	TPMH**221MV**	TPMH110304-MV	.016			▲	●					▲	●								●		★	●	●		●						
	TPMH**222MV**	TPMH110308-MV	.031			▲	●					▲	●								●		★	●	●		●						
	TPMH**321MV**	TPMH160304-MV	.016			▲	●					▲	●								●		★	★	●	●	★						
Medium Cutting	TPMH**322MV**	TPMH160308-MV	.031			▲	●					▲	●								●		★	★	●	●	●						
MQ	**TPMT21.51MQ**	TPMT110204-MQ	.016	●								●																				
	TPMT**21.52MQ**	TPMT110208-MQ	.031	●								●													●								
	TPMT**32.51MQ**	TPMT16T304-MQ	.016	●								●																				
Medium Cutting	TPMT**32.52MQ**	TPMT16T308-MQ	.031	●								●																				
																																	–
Flat Top	**TPGX1.51.50.5**	TPGX080202	.008																									●		●			
	TPGX**1.51.51**	TPGX080204	.016																		★	★	★					●		●			
	TPGX**1.51.52**	TPGX080208	.031																				★					●		★			
	TPGX**1.81.50.5**	TPGX090202	.008																											●			
	TPGX**1.81.51**	TPGX090204	.016																			★	★					●		●			
	TPGX**1.81.52**	TPGX090208	.031																			★	★					●		●			
	TPGX**220.5**	TPGX110302	.008																											●			
	TPGX**221**	TPGX110304	.016																		★	★	★					●	★	●			
	TPGX**222**	TPGX110308	.031																			★	★					●	★	●			
	TPGX**321**	TPGX160304	.016																				★					★		●			
	TPGX**322**	TPGX160308	.031																									★		●			
																																	E007

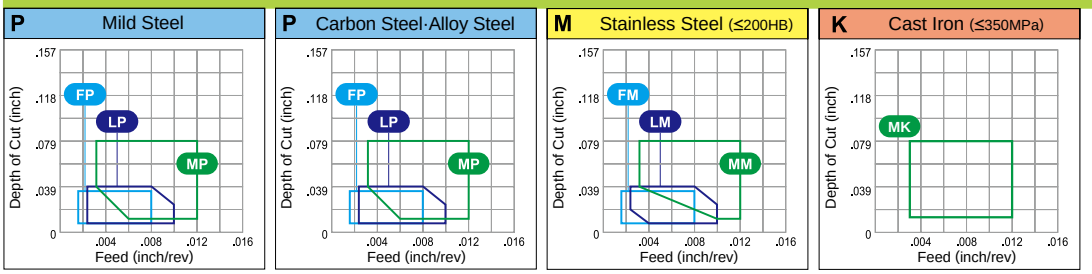
CHIP BREAKER ➤ A066
IDENTIFICATION ➤ A002

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 ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet		Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
FP	**VBMT220.5FP**	VBMT110302-FP	.008	●		●	●															●		●								C028 C029 D010 D011 D014 D015 E009 E010 H013
	VBMT**221FP**	VBMT110304-FP	.016	●		●	●															●		●								
	VBMT**222FP**	VBMT110308-FP	.031	●		●	●															●		●								
	VBMT**331FP**	VBMT160404-FP	.016	●		●	●															●		●								
	VBMT**332FP**	VBMT160408-FP	.031	●		●	●															●		●								
FM	**VBMT220.5FM**	VBMT110302-FM	.008																	●												C028 C029 D010 D011 D014 D015 E009 E010 H013
	VBMT**221FM**	VBMT110304-FM	.016																	●												
	VBMT**222FM**	VBMT110308-FM	.031																	●												
	VBMT**331FM**	VBMT160404-FM	.016																	●												
	VBMT**332FM**	VBMT160408-FM	.031																	●												
FV	**VBMT221FV**	VBMT110304-FV	.016			▲														●		● ★										C028 C029 D010 D011 D014 D015 E009 E010 H013
	VBMT**222FV**	VBMT110308-FV	.031			▲														●		● ★										
	VBMT**331FV**	VBMT160404-FV	.016			▲														●		● ★										
	VBMT**332FV**	VBMT160408-FV	.031			▲														●		● ★										
FJ	**VBGT33V5FJ**	VBGT1604V5-FJ	.002																	●												C028 C029 H013
	VBGT**330.2FJ**	VBGT160401-FJ	.004																	●												
	VBGT**330.5FJ**	VBGT160402-FJ	.008																	●												
FJ-P	**VBGT33V5FJ-P**	VBGT1604V5-FJ-P	.002																												●	C028 C029 H013
	VBGT**330.2FJ-P**	VBGT160401-FJ-P	.004																												●	
	VBGT**330.5FJ-P**	VBGT160402-FJ-P	.008																												●	

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◔ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated															Cermet		Coated Cermet				Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 NEW	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 NEW	MC5015 NEW	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
R/L F	**VBGT220.5RF**	VBGT110302R-F	.008																	●	★		●	★					●			
	VBGT**220.5LF**	VBGT110302L-F	.008																	●	★		●	★					●			C028
	VBGT**221RF**	VBGT110304R-F	.016																	●	★			★					●			C029
	VBGT**221LF**	VBGT110304L-F	.016																	●	★			★					●			D010 D011
	VBGT**330.5RF**	VBGT160402R-F	.008																	★	★			★					★			D014
	VBGT**330.5LF**	VBGT160402L-F	.008																	★	★			★					★			D015
	VBGT**331RF**	VBGT160404R-F	.016																	★	★			★					★			E009 E010
Finish Cutting	VBGT**331LF**	VBGT160404L-F	.016																	★	★			★					★			
LP	**VBMT221LP**	VBMT110304-LP	.016		●		●●																●		●								C028
	VBMT**222LP**	VBMT110308-LP	.031		●		●●																●		●								C029 D010
	VBMT**331LP**	VBMT160404-LP	.016		●		●●																●		●								D011 D014
	VBMT**332LP**	VBMT160408-LP	.031		●		●●																●		●								D015 E009
Light Cutting																																	E010 H013
LM	**VBMT221LM**	VBMT110304-LM	.016							●●											●												C028
	VBMT**222LM**	VBMT110308-LM	.031							●●											●												C029 D010
	VBMT**331LM**	VBMT160404-LM	.016							●●											●												D011 D014
	VBMT**332LM**	VBMT160408-LM	.031							●●											●												D015 E009
Light Cutting																																	E010 H013
SV	**VBMT221SV**	VBMT110304-SV	.016			▲															●			●									C028
	VBMT**222SV**	VBMT110308-SV	.031			▲															●			●									C029 D010
	VBMT**331SV**	VBMT160404-SV	.016			▲															●			●									D011 D014
	VBMT**332SV**	VBMT160408-SV	.031			▲															●			●									D015 E009
Light Cutting																																	E010 H013
MJ	**VBGT331MJ**	VBGT160404-MJ	.016																	●													C028
	VBGT**332MJ**	VBGT160408-MJ	.031																	●													C029 H013
Light Cutting																																	
MJ-P	**VBGT331MJ-P**	VBGT160404-MJ-P	.016																													●	C028
	VBGT**332MJ-P**	VBGT160408-MJ-P	.031																													●	C029 H013
Light Cutting																																	
MP	**VBMT331MP**	VBMT160404-MP	.016		●		●●																●		●								C028
	VBMT**332MP**	VBMT160408-MP	.031		●		●●																●		●								C029 H013
Medium Cutting																																	

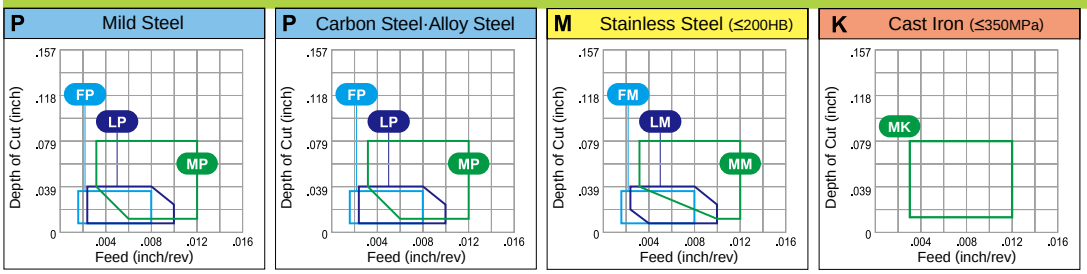
CHIP BREAKER ➤ A056
IDENTIFICATION ➤ A002

35° VB TYPE INSERTS WITH HOLE

VBMT 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 ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
MM	**VBMT331MM**	VBMT160404-MM	.016							●	●										●												
	VBMT**332MM**	VBMT160408-MM	.031							●	●										●													C028 C029 H013
Medium Cutting																																	
Standard	**VBMT331**	VBMT160404	.016		●																												
	VBMT**332**	VBMT160408	.031		●								●																					C028 C029 H013
Medium Cutting																																	
MV	**VBMT221MV**	VBMT110304-MV	.016			▲		●				▲	●								●		★	●	●	●		★						C028 C029 D010 D011 D014 D015 E009 E010 H013
	VBMT**222MV**	VBMT110308-MV	.031			▲		●				▲	●								●		★	●	●	●		★						
	VBMT**331MV**	VBMT160404-MV	.016			▲		●				▲	●								●		★	●	●	●		★						
	VBMT**332MV**	VBMT160408-MV	.031			▲		●				▲	●								●		★	●	●	●		★						
Medium Cutting																																	
R/L SR	**VBET22V3RSR**	VBET1103V3R-SR	.0012																		●		★								●		
	VBET**22V3LSR**	VBET1103V3L-SR	.0012																		●		★								●		C028 C029 D010 D011 D014 D015 E009 E010
	VBET**220.2RSR**	VBET110301R-SR	.004																		●		★								●		
	VBET**220.2LSR**	VBET110301L-SR	.004																		●		★								●		
	VBET**220.5RSR**	VBET110302R-SR	.008																		●		★								●		
	VBET**220.5LSR**	VBET110302L-SR	.008																		●		★								●		
	VBET**221RSR**	VBET110304R-SR	.016																		●		★								●		
Medium Cutting	VBET**221LSR**	VBET110304L-SR	.016																		●		★								●		

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet				Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
R/L SN	VBET22V0RSN	VBET110300R-SN	0																	●	★								●			
	VBET22V0LSN	VBET110300L-SN	0																	●	★								●			
	VBET22V3RSN	VBET1103V3R-SN	.0012																	●	★								●			C028
	VBET22V3LSN	VBET1103V3L-SN	.0012																	●	★								●			C029 D010
	VBET220.2RSN	VBET110301R-SN	.004																	●	★								●			D011
	VBET220.2LSN	VBET110301L-SN	.004																	●	★								●			D014
	VBET220.5RSN	VBET110302R-SN	.008																	●	★								●			D015
	VBET220.5LSN	VBET110302L-SN	.008																	●	★								●			E009
	VBET221RSN	VBET110304R-SN	.016																	●	★								●			E010
Medium Cutting	VBET221LSN	VBET110304L-SN	.016																	●	★								●			
R/LW SN (With Wiper)	* VBET22V3RWSN	VBET1103V3RW-SN	.0012																	●												C028
	* VBET22V3LWSN	VBET1103V3LW-SN	.0012																	●												C029 D010
Medium Cutting																																D011 D014 D015 E009 E010

*Please refer to page A032 before using the R/LW SN breaker (wiper insert).

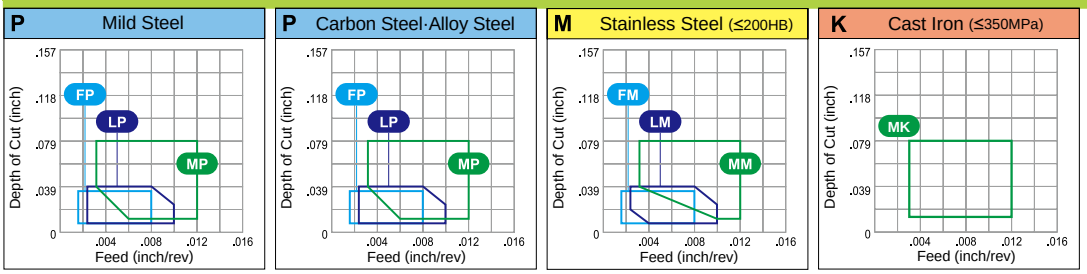
CHIP BREAKER ➤ A056
IDENTIFICATION ➤ A002

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



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
FP	**VCMT220.5FP**	VCMT110302-FP	.008		●			●	●														●		●								
	VCMT**221FP**	VCMT110304-FP	.016		●			●	●														●		●								C036 E016 E017
	VCMT**331FP**	VCMT160404-FP	.016		●			●	●														●		●								
	VCMT**332FP**	VCMT160408-FP	.031		●			●	●														●		●								
Finish Cutting																																	
FM	**VCMT220.5FM**	VCMT110302-FM	.008																		●												
	VCMT**221FM**	VCMT110304-FM	.016																		●												C036 E016 E017
	VCMT**331FM**	VCMT160404-FM	.016																		●												
	VCMT**332FM**	VCMT160408-FM	.031																		●												
Finish Cutting																																	
FV	**VCMT1.51.50.5FV**	VCMT080202-FV	.008			▲		○													●		●★		●								
	VCMT**1.51.51FV**	VCMT080204-FV	.016			▲		○													●		●★		●								C036 E009 E010 E016 E017
	VCMT**331FV**	VCMT160404-FV	.016		★▲																		★●			●							
	VCMT**332FV**	VCMT160408-FV	.031		★▲																		★●			●							
Finish Cutting																																	
AZ	**VCGT331AZ**	VCGT160404-AZ	.016																											●			
	VCGT**332AZ**	VCGT160408-AZ	.031																											●			C036 E016 E017
	VCGT**333AZ**	VCGT160412-AZ	.047																											●			
Finish Cutting																																	
R/L F	**VCGT1.51.50.5RF**	VCGT080202R-F	.008																		●		★			●					●		
	VCGT**1.51.50.5LF**	VCGT080202L-F	.008																		●		★			●					●		
	VCGT**1.51.51RF**	VCGT080204R-F	.016																		●		★			●					●		E009 E010
	VCGT**1.51.51LF**	VCGT080204L-F	.016																		●		★			●					●		
Finish Cutting																																	
LP	**VCMT221LP**	VCMT110304-LP	.016		●			●	●														●		●								
	VCMT**222LP**	VCMT110308-LP	.031		●			●	●														●		●								C036 E016 E017
	VCMT**331LP**	VCMT160404-LP	.016		●			●	●														●		●								
	VCMT**332LP**	VCMT160408-LP	.031		●			●	●														●		●								
Light Cutting																																	

● : Inventory maintained. ○ : Inventory maintained. (Available Summer 2015)
★ : Inventory maintained in Japan. ▲ : This item to be discontinued within two years.
<10 inserts in one case>

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✣ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet				Carbide					Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
LM	**VCMT221LM**	VCMT110304-LM	.016							●	●									●												
	VCMT**222LM**	VCMT110308-LM	.031							●	●									●												C036 E016 E017
	VCMT**331LM**	VCMT160404-LM	.016							●	●									●												
Light Cutting	VCMT**332LM**	VCMT160408-LM	.031							●	●									●												
SV	**VCMT1.51.50.5SV**	VCMT080202-SV	.008			▲		○												●		●	●									
	VCMT**1.51.51SV**	VCMT080204-SV	.016			▲		○												●		●	●									E009 E010
Light Cutting																																
MP	**VCMT331MP**	VCMT160404-MP	.016	●		●	●															●		●								
	VCMT**332MP**	VCMT160408-MP	.031	●		●	●															●		●								C036 E016 E017
	VCMT**333MP**	VCMT160412-MP	.047	●		●	●															●		●								
Medium Cutting																																
MM	**VCMT331MM**	VCMT160404-MM	.016							●	●									●												
	VCMT**332MM**	VCMT160408-MM	.031							●	●									●												C036 E016 E017
	VCMT**333MM**	VCMT160412-MM	.047							●	●									●												
Medium Cutting																																
NEW **MK**	**VCMT331MK**	VCMT160404-MK	.016												●	●																
	VCMT**332MK**	VCMT160408-MK	.031												●	●																C036 E016 E017
Medium Cutting																																
Standard	**VCMT221**	VCMT110304	.016		●	▲						●									●	★	●	●			★		★		
	VCMT**331**	VCMT160404	.016	●	●	▲						●					★				●	★	●	●			●		●		C036 E016 E017
	VCMT**332**	VCMT160408	.031	●	●	▲						●					●				●	★	●	●			●				
Medium Cutting	VCMT**333**	VCMT160412	.047		●	▲						●										★	●								
MV	**VCMT1.51.50.5MV**	VCMT080202-MV	.008			▲		●			▲	●									●	★	●	●		★					
	VCMT**1.51.51MV**	VCMT080204-MV	.016			▲		●			▲	●									●	★	●	●		★					E009 E010
Medium Cutting																																
Flat Top	**VCMW221**	VCMW110304	.016																										★			
	VCMW**331**	VCMW160404	.016														★	★											★			C036 E016 E017
	VCMW**332**	VCMW160408	.031														★	★											★			

CHIP BREAKER ➤ A060
IDENTIFICATION ➤ A002

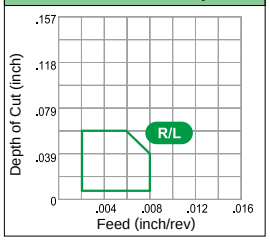
35° VD TYPE INSERTS WITH HOLE

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



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	MC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
R/L	**VDGX320.5R**	VDGX160302R	.008																											●			
	VDGX**320.5L**	VDGX160302L	.008																											●			
	VDGX**321R**	VDGX160304R	.016																											●			C043
	VDGX**321L**	VDGX160304L	.016																											●			
Medium Cutting																																	

● : Inventory maintained.
<10 inserts in one case>

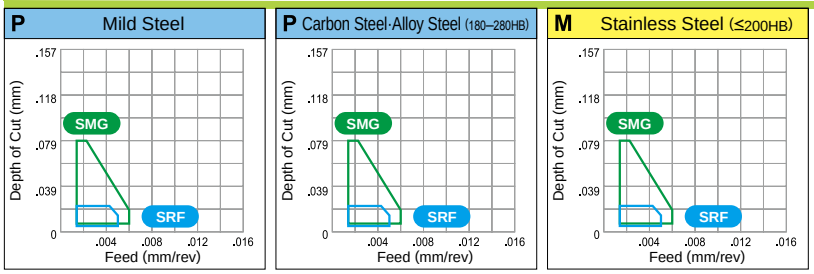
CHIP BREAKER ➤ A070

35° VP TYPE INSERTS WITH HOLE

VPET 1.5 1.5 0.2 RSRF
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting ··· Medium Cutting ···



Cutting Conditions : ● Stable Cutting ◕ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet			Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
L/R SRF	**VPET1.51.50.2RSRF**	VPET080201R-SRF	.004																	●													
	VPET**1.51.50.2LSRF**	VPET080201L-SRF	.004																	●													
	VPET**1.51.50.5RSRF**	VPET080202R-SRF	.008																	●													
	VPET**1.51.50.5LSRF**	VPET080202L-SRF	.008																	●													
	VPET**22V3RSRF**	VPET1103V3R-SRF	.0012																	●													D010 D014 D015
	VPET**22V3LSRF**	VPET1103V3L-SRF	.0012																	●													
	VPET**220.2RSRF**	VPET110301R-SRF	.004																	●													
	VPET**220.2LSRF**	VPET110301L-SRF	.004																	●													
	VPET**220.5RSRF**	VPET110302R-SRF	.008																	●													
Finish Cutting	VPET**220.5LSRF**	VPET110302L-SRF	.008																	●													
SMG	**VPGT1.51.50.2MSMG**	VPGT080201M-SMG	.004																	●													
	VPGT**1.51.50.5MSMG**	VPGT080202M-SMG	.008																	●													
	VPGT**220.2MSMG**	VPGT110301M-SMG	.004																	●													D010 D014 D015
	VPGT**220.5MSMG**	VPGT110302M-SMG	.008																	●													
Medium Cutting																																	

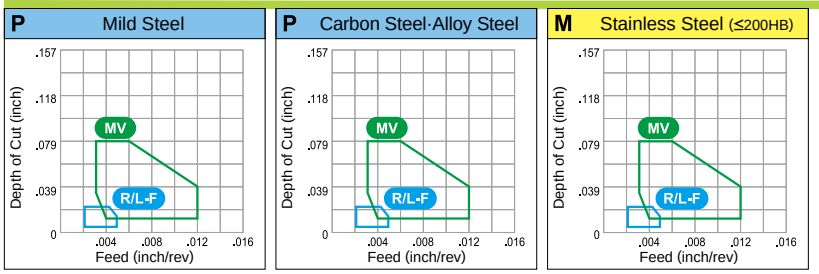
CHIP BREAKER ➤ A066
IDENTIFICATION ➤ A002

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



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
R/L F	WBGT1.21V3LF	WBGT0201V3L-F	.0012																		●		★											
	WBGT1.210.2LF	WBGT020101L-F	.004																		●		★											
	WBGT1.210.5LF	WBGT020102L-F	.008																		●		★		●									
	WBGT1.211LF	WBGT020104L-F	.016																		●		★		●									
	WBGT1.51.5V3LF	WBGTL302V3L-F	.0012																		●		★											E009 E029
	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			▲		●			▲										★		★	●	●			★						E009 E029
	WBMT1.51.51RMV	WBMTL30204R-MV	.016			▲		●			▲										★		★	●	●			★						
Medium Cutting	WBMT1.51.51LMV	WBMTL30204L-MV	.016			▲		●			▲										★		★	●	●			★						

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

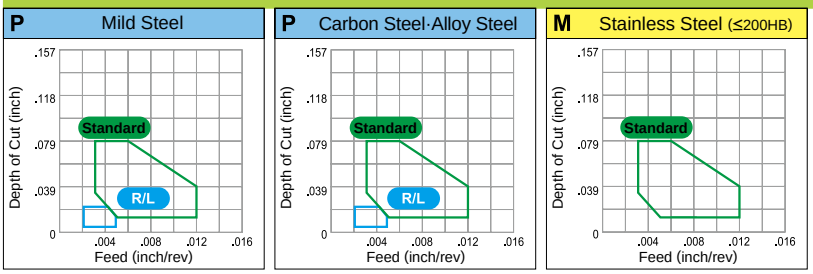
CHIP BREAKER ➤ A056

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



Cutting Conditions : ● Stable Cutting ◔ General Cutting ✲ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet				Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	VP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
FJ-P	**WCGT21.5V5FJ-P**	WCGT0402V5-FJ-P	.002																											●		
	WCGT**21.50.2FJ-P**	WCGT040201-FJ-P	.004																											●		
	WCGT**21.50.5FJ-P**	WCGT040202-FJ-P	.008																											●		C037 E017 −020
	WCGT**32.5V5FJ-P**	WCGT06T3V5-FJ-P	.002																											●		
	WCGT**32.50.2FJ-P**	WCGT06T301-FJ-P	.004																											●		
Finish Cutting	WCGT**32.50.5FJ-P**	WCGT06T302-FJ-P	.008																											●		
R/L	**WCGT1.210.5R**	WCGT020102R	.008																			★										
	WCGT**1.210.5L**	WCGT020102L	.008																			★								●		
	WCGT**1.211R**	WCGT020104R	.016																			★										E017 −020
	WCGT**1.211L**	WCGT020104L	.016																			★								●		
Finish Cutting	WCGT**1.51.50.5L**	WCGT L30202L	.008																			★										
	WCGT**1.51.51L**	WCGT L30204L	.016																			★										
MJ	**WCGT21.51MJ**	WCGT040204-MJ	.016																	●												
	WCGT**32.51MJ**	WCGT06T304-MJ	.016																	●												C037 E017 −020
	WCGT**32.52MJ**	WCGT06T308-MJ	.031																	●												
Light Cutting																																
MJ-P	**WCGT21.51MJ-P**	WCGT040204-MJ-P	.016																											●		
	WCGT**32.51MJ-P**	WCGT06T304-MJ-P	.016																											●		C037 E017 −020
	WCGT**32.52MJ-P**	WCGT06T308-MJ-P	.031																											●		
Light Cutting																																
Standard	**WCMT1.210.5**	WCMT020102	.008		●	▲						●										★	●	●	●			●			●	
	WCMT**1.211**	WCMT020104	.016		●	▲						●										★	●	●	●			●			●	
	WCMT**1.51.50.5**	WCMT L30202	.008		●							●										★	●	●	●			●			●	
	WCMT**1.51.51**	WCMT L30204	.016		●							●										★	●	●	●			●			●	C037 E017 −020
	WCMT**21.50.5**	WCMT040202	.008		●	▲						●										★	●	●	●			●				
	WCMT**21.51**	WCMT040204	.016		●	▲						●										★	●	●	●			●			●	
	WCMT**21.52**	WCMT040208	.031			▲																										
Medium Cutting	WCMT**32.51**	WCMT06T304	.016		●	▲						●										★	●	●	●			●				
	WCMT**32.52**	WCMT06T308	.031		●	▲						●										★	●	●	●			●				

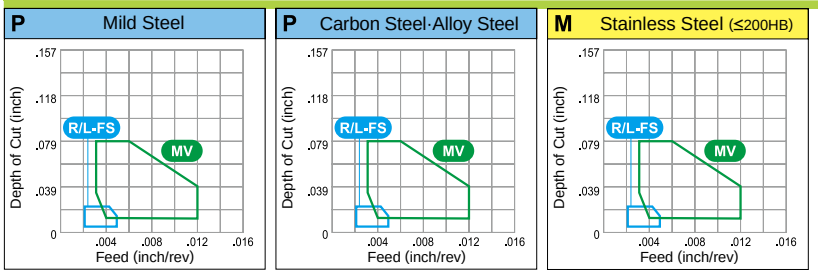
CHIP BREAKER ➤ A060
IDENTIFICATION ➤ A002

80° WP TYPE INSERTS WITH HOLE

WPGT 2 1.5 1 RFS
Size Thickness Corner Radius Chip Breaker
★Please refer to page A002.

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting ··· Medium Cutting ···



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
R/L FS	**WPGT21.51RFS**	WPGT040204R-FS	.016																		★		★											
	WPGT**21.51LFS**	WPGT040204L-FS	.016																		★		★											
	WPGT**321RFS**	WPGT060304R-FS	.016																		★		★											–
	WPGT**321LFS**	WPGT060304L-FS	.016																		★		★											
Finish Cutting																																		
MV	**WPMT21.50.5MV**	WPMT040202-MV	.008			▲	●					▲	●								★		★	●	●									
	WPMT**21.51MV**	WPMT040204-MV	.016			▲	●					▲	●								★		★	●	●		★							
	WPMT**321MV**	WPMT060304-MV	.016			▲	●					▲	●								●		★	●	●									E009
	WPMT**322MV**	WPMT060308-MV	.031			▲	●					▲	●								●		★	●	●		★							
Medium Cutting																																		

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

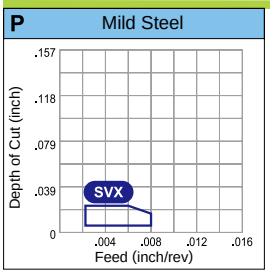
CHIP BREAKER ➤ A066

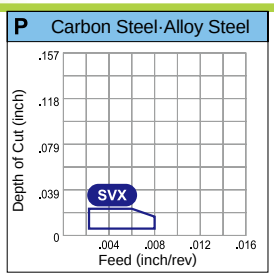
25° XC TYPE INSERTS WITH HOLE

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

CHIP CONTROL RANGE FOR WORK MATERIALS

Light Cutting





Cutting Conditions : ● Stable Cutting ◕ General Cutting ✲ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	MC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
SVX	XCMT220.5SVX	XCMT150302-SVX	.008																		●													
	XCMT221SVX	XCMT150304-SVX	.016			▲															●													
	XCMT222SVX	XCMT150308-SVX	.031			▲															●													C038
Light Cutting																																		

CHIP BREAKER ➤ A060
IDENTIFICATION ➤ A002

RTG TYPE INSERTS WITHOUT HOLE

Cutting Conditions : ● Stable Cutting ◕ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet			Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
	**RTG05A**	RTG05A	–																									●		●			–
	RTG**06A**	RTG06A	–																									●		●			
	RTG**07A**	RTG07A	–																									●					
	RTG**08A**	RTG08A	–																									●		●			
	RTG**10A**	RTG10A	–																									●		●			

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

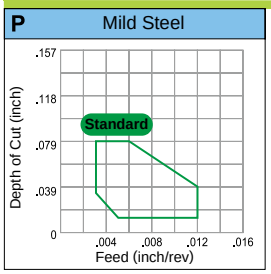
CHIP BREAKER ➤ A073

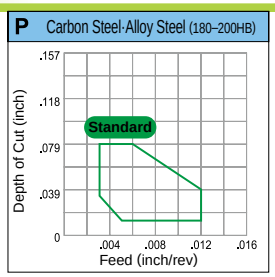
90° SP TYPE INSERTS WITHOUT HOLE

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

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting





Cutting Conditions : ● Stable Cutting ◐ General Cutting ✲ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet			Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	VP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
R	**SPGR321R**	SPGR090304R	.016																									★					–
Finish Cutting																																	
Standard	**SPMR321**	SPMR090304	.016		●▲																	★●	●										
	SPMR**322**	SPMR090308	.031		●▲																	★●	●										
	SPMR**421**	SPMR120304	.016		●▲																	★★	●										–
	SPMR**422**	SPMR120308	.031		●▲																	●★	●										
Light to Medium Cutting																																	
Flat Top	**SPMN321**	SPMN090304	.016																			★						★		★			
	SPMN**322**	SPMN090308	.031		●																	★						★		●			
	SPMN**421**	SPMN120304	.016		★															★								★		★			
	SPMN**422**	SPMN120308	.031		●															●★								●		●			
	SPMN**423**	SPMN120312	.047		★▲															★								★		★			
	SPMN**432**	SPMN120408	.031																									★		★			–
	SPMN**433**	SPMN120412	.047																									●					
	SPMN**532**	SPMN150408	.031																									★					
	SPMN**533**	SPMN150412	.047																									●					
	SPMN**631**	SPMN190404	.016																									●					
	SPMN**632**	SPMN190408	.031																									★					
	SPMN**633**	SPMN190412	.047																									●					
Flat Top	**SPG321**	SPGN090304	.016																			★						●		★			
	SPG**322**	SPGN090308	.031																											★			
	SPG**421**	SPGN120304	.016																			●						●		●			
	SPG**422**	SPGN120308	.031																		●●							●		●			
	SPG**423**	SPGN120312	.047																											★			–
	SPG**431**	SPGN120404	.016																											●			
	SPG**432**	SPGN120408	.031																									●		★			
	SPG**531**	SPGN150404	.016																									★					
	SPG**532**	SPGN150408	.031																											★			

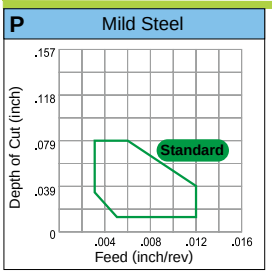
CHIP BREAKER ➤ A072
IDENTIFICATION ➤ A002

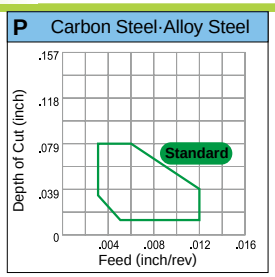
60° TC TYPE INSERTS WITHOUT HOLE

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

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting





Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet		Coated Cermet			Carbide				Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	VP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
Flat Top	**TCG1.211**	TCGN060104	.016																										★			
	TCG**1.81.51**	TCGN090204	.016																										★			
																																–

● : Inventory maintained. ★ : Inventory maintained in Japan.
▲ : This item to be discontinued within two years.
<10 inserts in one case>

60° TP TYPE INSERTS WITHOUT HOLE

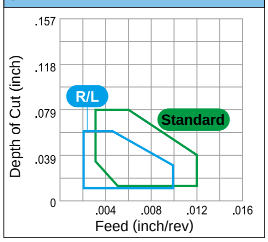
TPGR 2 2 1 R — Size, Thickness, Corner Radius, R/L

*Please refer to page A002.

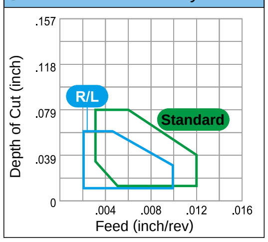
CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting··· (blue) Medium Cutting··· (green)

P Mild Steel

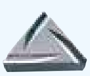
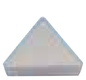


P Carbon Steel·Alloy Steel



Cutting Conditions : ● Stable Cutting ◐ General Cutting ✤ Unstable Cutting

Work Material		UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005	MC5015	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010
P	Steel	●	◐	✤	◐	✤	✤												✤	✤	●	◐	◐	●	●	◐	✤				
M	Stainless Steel							◐	✤	●	✤							◐	✤	✤	●			●	●		✤				
K	Cast Iron												◐	✤	●	◐		◐	✤		●			●	●		✤	●	◐		
N	Non-Ferrous Metal																												◐	●	
S	Heat-resistant Alloy, Titanium Alloy											●					●	◐	✤										◐	●	◐

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																			Cermet		Coated Cermet				Carbide					Applicable Holder Page
				UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTi20T	HTi05T	HTi10	RT9005	RT9010	
R/L  Finish Cutting	TPGR221R	TPGR110304R	.016																				★								★			–
	TPGR221L	TPGR110304L	.016																				★						★		★			
	TPGR321R	TPGR160304R	.016																				★						★		★			
	TPGR321L	TPGR160304L	.016																				★						★		★			
	TPGR322R	TPGR160308R	.031																				★											
	TPGR322L	TPGR160308L	.031																				★						★		★			
Standard  Light to Medium Cutting	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		●	▲																	★	●	●									
	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		●																★								●		●			

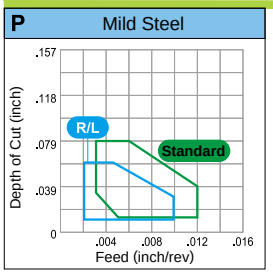
CHIP BREAKER ➤ A072
IDENTIFICATION ➤ A002

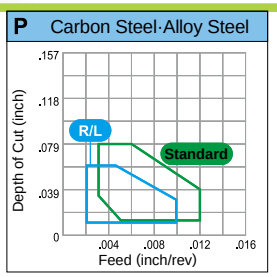
60° TP TYPE INSERTS WITHOUT HOLE

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

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting··· Medium Cutting···





Cutting Conditions : ● Stable Cutting ◐ General Cutting ✠ Unstable Cutting

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

Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated: UE6105	UE6110	UE6020	MC6015 (NEW)	MC6025	UH6400	MC7025	MP7035	US7020	US735	US905	MC5005 (NEW)	MC5015 (NEW)	UC5105	UC5115	VP05RT	VP10RT	VP15TF	UP20M	Cermet: NX2525	NX3035	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Carbide: UTi20T	HTi05T	HTi10	RT9005	RT9010	Applicable Holder Page
Flat Top	**TPG220.5**	TPGN110302	.008																			●								●			
	TPG**221**	TPGN110304	.016																			★							★	★	●			
	TPG**222**	TPGN110308	.031																			●								●			
	TPG**320.5**	TPGN160302	.008																											★			
	TPG**321**	TPGN160304	.016																			●	★						★	★	●			
	TPG**322**	TPGN160308	.031																			●	★						●	★	●			–
	TPG**323**	TPGN160312	.047																												●			
	TPG**324**	TPGN160316	.063																												●			
	TPG**332**	TPGN160408	.031																											★				
	TPG**431**	TPGN220404	.016																			●									●			
	TPG**432**	TPGN220408	.031																			●									●			

● : Inventory maintained. ★ : Inventory maintained in Japan.
<10 inserts in one case>

CHIP BREAKER ➤ A072
IDENTIFICATION ➤ A002

Memo