

GUIDE TO TURNING INSERTS

●Section organization

- ① Organized according to turning insert shape.
(Refer to the index on the next page.)
- ② Inserts are arranged in order of :
· Negative inserts (with hole→without hole)
· Positive inserts (with hole→without hole)
- ③ Breakers 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

PRODUCT SECTION

TITLE OF PRODUCT ACCORDING TO THE INSERT TYPE

TURNING INSERTS [NEGATIVE]

80° CN TYPE INSERTS WITH HOLE CNMG 4 3 0.5 FP
ISO 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

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

Shape	Order Number	(ISO) Number	Coated	Coated Carbide	Carbide	Holder Range
FP	CNMG430.FP	CNMG120402.FP	●●●●●	●●●●●	●●●●●	2000-4000
	CNMG431FP	CNMG120404.FP	●●●●●	●●●●●	●●●●●	301-324
	CNMG432FP	CNMG120408.FP	●●●●●	●●●●●	●●●●●	301-324
FH	CNMG430.FH	CNMG120402.FH	●●●●●	●●●●●	●●●●●	2000-4000
	CNMG431FH	CNMG120404.FH	●●●●●	●●●●●	●●●●●	301-324
	CNMG433FH	CNMG120412.FH	●●●●●	●●●●●	●●●●●	301-324
FS	CNMG431FS	CNMG120404.FS	●●●●●	●●●●●	●●●●●	2000-4000
	CNMG432FS	CNMG120408.FS	●●●●●	●●●●●	●●●●●	301-324
FY	CNMG431FY	CNMG120404.FY	●●●●●	●●●●●	●●●●●	2000-4000
	CNMG432FY	CNMG120408.FY	●●●●●	●●●●●	●●●●●	301-324
FJ	CNMG430.FJ	CNMG120402.FJ	●●●●●	●●●●●	●●●●●	2000-4000
	CNMG432.FJ	CNMG120404.FJ	●●●●●	●●●●●	●●●●●	301-324
	CNMG430.FJ	CNMG120402.FJ	●●●●●	●●●●●	●●●●●	301-324
FJ-P	CNMG430.FJ-P	CNMG120402.FJ-P	●●●●●	●●●●●	●●●●●	2000-4000
	CNMG432.FJ-P	CNMG120404.FJ-P	●●●●●	●●●●●	●●●●●	301-324
	CNMG430.FJ-P	CNMG120402.FJ-P	●●●●●	●●●●●	●●●●●	301-324

A102 ● Inventory maintained. ★ Inventory maintained in Japan. *10 inserts in one case*

INSERT GRADES

STOCK STATUS

TURNING INSERTS WITHOUT HOLE

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

Shape	Order Number	(ISO) Number	Coated	Coated Carbide	Carbide	Holder Range
RTG	RTG05A	RTG05A	●●●●●	●●●●●	●●●●●	2000-4000
	RTG06A	RTG06A	●●●●●	●●●●●	●●●●●	301-324
	RTG07A	RTG07A	●●●●●	●●●●●	●●●●●	301-324
	RTG08A	RTG08A	●●●●●	●●●●●	●●●●●	301-324
	RTG10A	RTG10A	●●●●●	●●●●●	●●●●●	301-324

CHIP BREAKER IDENTIFICATION → A075 → A002

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

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

PHOTO OF INSERT

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

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

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

INSERT CORNER RADIUS (RE)

INSERT NUMBER

●To Order: Please specify insert number and grade.

TURNING

INSERT STANDARDS INSERT GRADES

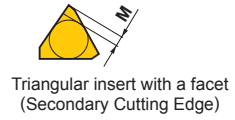
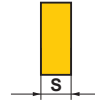
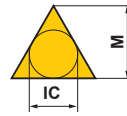
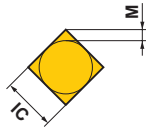
IDENTIFICATION	A002
HOLE GEOMETRY	A004
PRECISION BREAKER STANDARD	A008
TOOL NAVI	A013
CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING	A014
BREAKER SYSTEMS FOR SMALL SIZE INSERTS	A030
PRECISION BREAKER SYSTEM (NEGATIVE INSERTS)	A031
WIPER INSERT	A032
GRADES FOR TURNING	A034
TURNING APPLICATION 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	A080
STANDARD OF TURNING INSERTS	

● NEGATIVE INSERTS WITH HOLE

CN [○] ○ [○] TYPE ... RHOMBIC 80°	A102	SC [○] ○ [○] TYPE ... SQUARE 90°	A164
DN [○] ○ [○] TYPE ... RHOMBIC 55°	A110	SP [○] ○ [○] TYPE ... SQUARE 90°	A166
RN [○] ○ [○] TYPE ... ROUND	A117	TC [○] ○ [○] TYPE ... TRIANGULAR 60°	A167
SN [○] ○ [○] TYPE ... SQUARE 90°	A118	TE [○] ○ [○] TYPE ... TRIANGULAR 60°	A170
TN [○] ○ [○] TYPE ... TRIANGULAR 60°	A124	TP [○] ○ [○] TYPE ... TRIANGULAR 60°	A171
VN [○] ○ [○] TYPE ... RHOMBIC 35°	A132	VB [○] ○ [○] TYPE ... RHOMBIC 35°	A174
WN [○] ○ [○] TYPE ... TRIGON 80°	A136	VC [○] ○ [○] TYPE ... RHOMBIC 35°	A178
● NEGATIVE INSERTS WITHOUT HOLE		VD [○] ○ [○] TYPE ... RHOMBIC 35°	A181
KN [○] ○ [○] TYPE ... PARALLELOGRAM 55°	A141	VP [○] ○ [○] TYPE ... RHOMBIC 35°	A182
CN [○] ○ [○] TYPE ... RHOMBIC 80°	A142	WB [○] ○ [○] TYPE ... TRIGON 80°	A183
SN [○] ○ [○] TYPE ... SQUARE 90°	A143	WC [○] ○ [○] TYPE ... TRIGON 80°	A184
TN [○] ○ [○] TYPE ... TRIANGULAR 60°	A144	WP [○] ○ [○] TYPE ... TRIGON 80°	A185
● POSITIVE INSERTS WITH HOLE		XC [○] ○ [○] TYPE ... RHOMBIC 25°	A186
CC [○] ○ [○] TYPE ... RHOMBIC 80°	A145	● POSITIVE INSERTS WITHOUT HOLE	
CP [○] ○ [○] TYPE ... RHOMBIC 80°	A153	RTG TYPE	A187
DC [○] ○ [○] TYPE ... RHOMBIC 55°	A155	SP [○] ○ [○] TYPE ... SQUARE 90°	A188
DE [○] ○ [○] TYPE ... RHOMBIC 55°	A162	TC [○] ○ [○] TYPE ... TRIANGULAR 60°	A189
RC [○] ○ [○] TYPE ... ROUND	A163	TP [○] ○ [○] TYPE ... TRIANGULAR 60°	A190

IDENTIFICATION

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

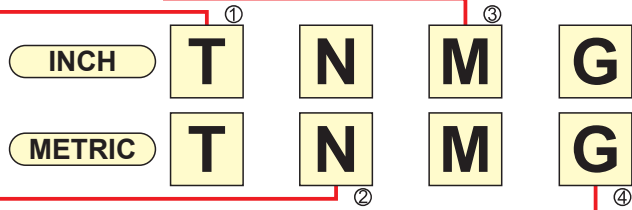


③ Symbol for Tolerance Class										
Symbol	Tolerance of Nose Height M (inch)	Tolerance of Inscribed Circle IC (inch)	Tolerance of Thickness S (inch)	Detail of M Class Insert Tolerance						
				● Tolerance of Nose Height M (inch)						
				I.C.	Triangular	Square	Rhombic 80°	Rhombic 55°	Rhombic 35°	Round
A	±.0002	±.001	±.001	.250	±.003	±.003	±.003	±.004	±.0063	-
F	±.0002	±.0005	±.001	.375	±.003	±.003	±.003	±.004	±.0063	-
C	±.0005	±.001	±.001	.500	±.005	±.005	±.005	±.006	-	-
H	±.0005	±.0005	±.001	.625	±.006	±.006	±.006	±.007	-	-
E	±.001	±.001	±.001	.750	±.006	±.006	±.006	±.007	-	-
G	±.001	±.001	±.005	1.000	-	±.007	-	-	-	-
J	±.002	±.002	±.005	1.250	-	±.008	-	-	-	-
K*	±.0005	±.002 - ±.006	±.001	● Tolerance of Inscribed Circle IC (inch)						
L*	±.001	±.002 - ±.006	±.001	I.C.	Triangular	Square	Rhombic 80°	Rhombic 55°	Rhombic 35°	Round
M*	±.003 - ±.007	±.002 - ±.006	±.005	.250	±.002	±.002	±.002	±.002	±.002	-
N*	±.003 - ±.007	±.002 - ±.006	±.001	.375	±.002	±.002	±.002	±.002	±.002	±.002
U*	±.005 - ±.015	±.003 - ±.01	±.005	.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

*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.

① Symbol for Insert Shape

③ Symbol for Tolerance Class



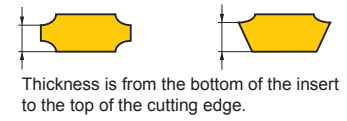
② Symbol for Relief Angle	
Symbol	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Other Relief Angle
Major Relief Angle	

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	No		A	With Hole	Cylindrical Hole	No		
	M	P	T	With Hole	One Countersink (40-60°)	One Sided		M	With Hole	Cylindrical Hole	One Sided		
	G	K	Q	With Hole	Cylindrical Hole	No		G	With Hole	Cylindrical Hole	Double Sided		
	N	E	U	With Hole	Double Countersink (40-60°)	Double Sided		N	Without Hole	-	No		
	R	S	B	With Hole	Cylindrical Hole	No		R	Without Hole	-	One Sided		
	F	L	H	With Hole	One Countersink (70-90°)	One Sided		F	Without Hole	-	Double Sided		
	X	X	C	With Hole	Cylindrical Hole	No		X	-	-	-		
			J	With Hole	Double Countersink (70-90°)	Double Sided							

Note: Dimension symbols conforming to ISO13399. See pages PR5-PR8 for details.

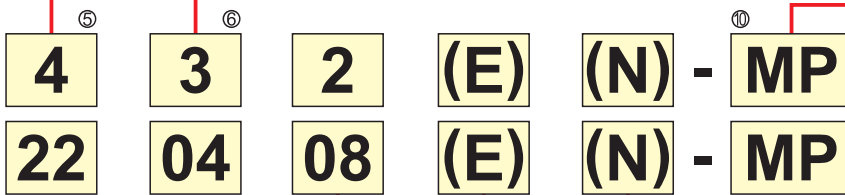
Inch		Diameter of Inscribed Circle (inch)	Metric						
I.C. .250" and over	I.C. under .250"								
	1.2 (5)	.156		02		04	03	03	06
	1.5 (6)	.187		L3		08	05	04	08
	1.8 (7)	.219		03	09	06	05	05	09
2		.250		04	11	07	06	06	11
2.5		.313		05	13	09	08	07	13
3		.375	09	06	16	11	09	09	16
4		.500	12	08	22	15	12	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



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



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

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

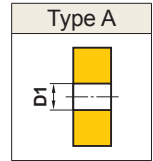
Figure	Cutting Edge	Symbol
	Sharp Cutting Edges	F
	Round Cutting Edges	E
	Chamfered Cutting Edges	T
	Chamfered and Rounded Cutting Edges	S

Mitsubishi Materials omit the honing symbol.

⑨ Symbol for Cutting Direction

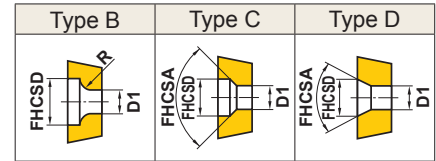
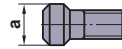
Figure	Hand	Symbol
	Right	R
	Left	L
	Neutral	N

HOLE GEOMETRY



NEGATIVE

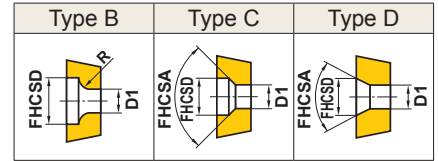
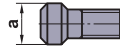
Insert Number	(ISO) Number	Dimension (inch)		Hole Type	
		D1			
CNGA CNGG CNMA CNMG CNMM CNMP	32 \odot	CNGA	0903$\odot\odot$	.150	A
	33 \odot	CNGG	0904$\odot\odot$	.150	A
	43 \odot	CNMA	1204$\odot\odot$	.203	A
	54 \odot	CNMG	1606$\odot\odot$	.250	A
	64 \odot	CNMM	1906$\odot\odot$	.312	A
	86 \odot	CNMP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



POSITIVE

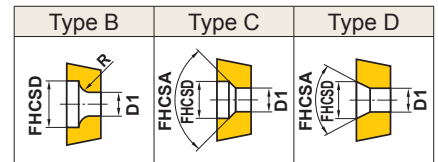
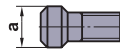
Insert Number		(ISO) Number		Dimension (inch)			Applicable Screw	Hole Type
				D1	FHCS D	FHCS A (°)		
CCET CCGT CCGW	21.5	CCET CCGT CCGW	0602	.110	.148	R	TS (M2.5) with a = .130"	B
	32.5		09T3	.173	.236	R	TS (M4) with a = .213"	B
	43		1204	.217	.295	R	TS (M5) with a = .268"	B
CCGH CCMH	21.5	CCGH CCMH	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	FHCS D	FHCSA (°)		
RCMX	1606M0-∅	RCMX	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
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	FHCS D	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	1.81.5L	TPMX	0902L	.126	.169	88°	TS (M2.5) with a = .146"	C
	22L		1103L	.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	.173	.238	R	TS (M4) with a = .213"	B
VCGT	1.51.5	VCGT	0802	.097	.126	R	TS (M2) with a = .106"	B
	22		1103	.115	.149	R	TS (M2.5) with a = .130"	B
	2.520		1303	.134	.177	R	TS (M3) with a = .154"	B
	33		1604	.173	.236	R	TS (M4) with a = .213"	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

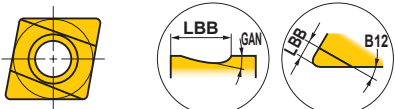


NEGATIVE INSERTS

Unit : inch

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

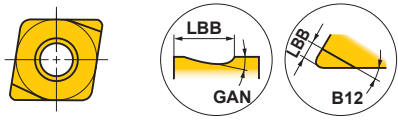

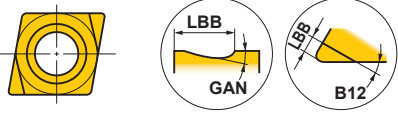

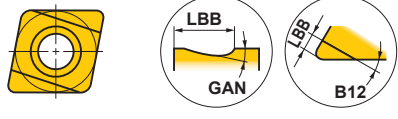
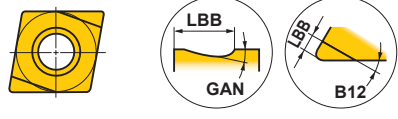
POSITIVE INSERTS

Unit : inch

Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 <p>Right hand insert shown.</p>	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°
 <p>Right hand insert shown.</p>	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°	—
 <p>Right hand insert shown.</p>	CCET21.5V3R/LWSN	CCET0602V3R/LW-SN	.039	—	20°	—
	CCET32.5V3R/LWSN	CCET09T3V3R/LW-SN	.059	—	20°	—

POSITIVE INSERTS

Unit : inch

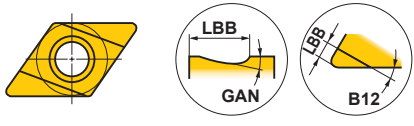



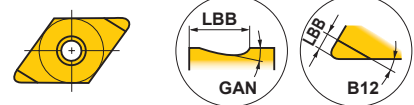
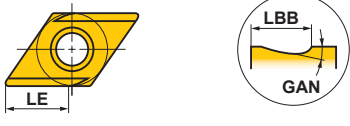
Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 <p>Right hand insert shown.</p>	CCGH21.50.5R/LF	CCGH060202R/L-F	.047	—	15°	20°
	CCGH21.51R/LF	CCGH060204R/L-F	.055	—	15°	20°
 <p>Right hand insert shown.</p>	CCGT21.5V3RSN	CCGT0602V3R-SN	.039	.118	20°	—
	CCGT21.50.2R/LSN	CCGT060201R/L-SN	.039	.118	20°	—
	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°	—
 <p>Left hand insert only.</p>	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°
 <p>Right hand insert shown.</p>	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°	—
 <p>Right hand insert shown.</p>	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°
 <p>Right hand insert shown.</p>	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


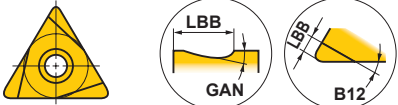

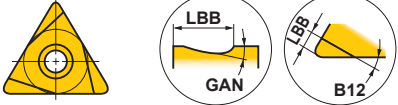
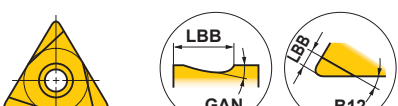

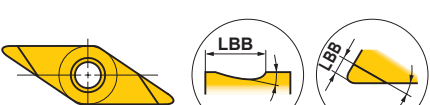
● POSITIVE INSERTS

Unit : inch

Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 <p>Right hand insert shown.</p>	DCET21.5V3R/LSR	DCET0702V3R/L-SR	.098	—	30°	20°
	DCET21.50.2R/LSR	DCET070201R/L-SR	.098	—	30°	20°
	DCET21.50.5R/LSR	DCET070202R/L-SR	.098	—	30°	20°
	DCET21.51R/LSR	DCET070204R/L-SR	.098	—	30°	20°
	DCET32.5V3R/LSR	DCET11T3V3R/L-SR	.146	—	30°	20°
	DCET32.50.2R/LSR	DCET11T301R/L-SR	.146	—	30°	20°
	DCET32.50.5R/LSR	DCET11T302R/L-SR	.146	—	30°	20°
	DCET32.51R/LSR	DCET11T304R/L-SR	.146	—	30°	20°
 <p>Right hand insert shown.</p>	DCET21.5V0R/LSN	DCET070200R/L-SN	.039	—	20°	—
	DCET21.5V3R/LSN	DCET0702V3R/L-SN	.039	—	20°	—
	DCET21.50.2R/LSN	DCET070201R/L-SN	.039	—	20°	—
	DCET21.50.5R/LSN	DCET070202R/L-SN	.039	—	20°	—
	DCET21.51R/LSN	DCET070204R/L-SN	.039	—	20°	—
	DCET32.5V0R/LSN	DCET11T300R/L-SN	.059	—	20°	—
	DCET32.5V3R/LSN	DCET11T3V3R/L-SN	.059	—	20°	—
	DCET32.50.2R/LSN	DCET11T301R/L-SN	.059	—	20°	—
 <p>Right hand insert shown.</p>	DCET21.5V3R/LWSN	DCET0702V3R/LW-SN	.039	—	20°	—
	DCET32.5V3R/LWSN	DCET11T3V3R/LW-SN	.059	—	20°	—
 <p>Right hand insert shown.</p>	DCGT21.5V3RSN	DCGT0702V3R-SN	.039	.138	20°	—
	DCGT21.50.2RSN	DCGT070201R-SN	.039	.138	20°	—
	DCGT21.50.5R/LSN	DCGT070202R/L-SN	.039	.138	20°	—
	DCGT32.5V3R/LSN	DCGT11T3V3R/L-SN	.059	.256	20°	—
	DCGT32.50.2R/LSN	DCGT11T301R/L-SN	.059	.256	20°	—
	DCGT32.50.5R/LSN	DCGT11T302R/L-SN	.059	.256	20°	—
 <p>Right hand insert shown.</p>	DCGT21.50.5R/LF	DCGT070202R/L-F	.039	—	17°	20°
	DCGT21.51R/LF	DCGT070204R/L-F	.039	—	17°	20°
	DCGT32.50.5R/LF	DCGT11T302R/L-F	.039	—	14°	20°
	DCGT32.51R/LF	DCGT11T304R/L-F	.039	—	14°	20°
 <p>Right hand insert shown.</p>	DCGT21.5V3R/LSS	DCGT0702V3R/L-SS	.039	.138	14°	—
	DCGT21.50.2R/LSS	DCGT070201R/L-SS	.039	.138	14°	—
	DCGT21.50.5R/LSS	DCGT070202R/L-SS	.039	.138	14°	—
	DCGT32.5V3RSS	DCGT11T3V3R-SS	.039	.256	14°	—
	DCGT32.50.2RSS	DCGT11T301R-SS	.039	.256	14°	—
	DCGT32.50.5RSS	DCGT11T302R-SS	.039	.256	14°	—

POSITIVE INSERTS

Unit : inch

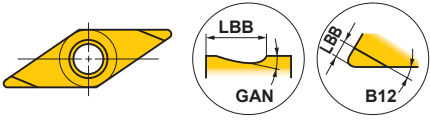
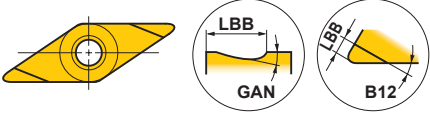
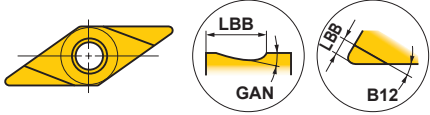


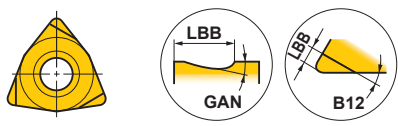
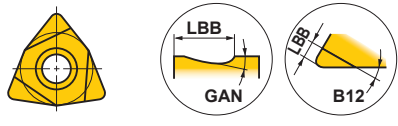
Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 <p>Right hand insert shown.</p>	DEGX430.5R/L	DEGX150402R/L	.110	—	20°	—
	DEGX431R/L	DEGX150404R/L	.110	—	20°	—
	DEGX432R/L	DEGX150408R/L	.110	—	20°	—
 <p>Left hand insert only.</p>	TCGT1.21V3LF	TCGT0601V3L-F	.039	—	14°	20°
	TCGT1.210.2LF	TCGT060101L-F	.039	—	14°	20°
	TCGT1.210.5LF	TCGT060102L-F	.039	—	14°	20°
	TCGT1.211LF	TCGT060104L-F	.039	—	14°	20°
 <p>Right hand insert shown.</p>	TEGX320.5R/L	TEGX160302R/L	.079	.236	20°	—
	TEGX321R/L	TEGX160304R/L	.079	.236	20°	—
 <p>Right hand insert shown.</p>	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°
 <p>Right hand insert shown.</p>	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°
 <p>Right hand insert shown.</p>	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°
 <p>Right hand insert shown.</p>	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

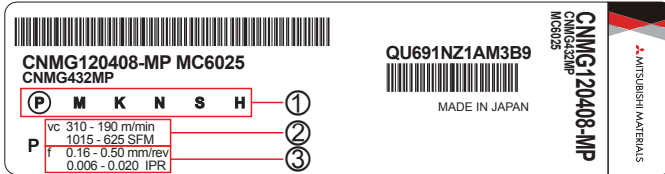
Geometry	Insert Number	(ISO) Number	LBB	LE	GAN	B12
 <p>Right hand insert shown.</p>	VDGX320.5R/L	VDGX160302R/L	.079	—	25°	20°
	VDGX321R/L	VDGX160304R/L	.079	—	25°	20°
 <p>Right hand insert shown.</p>	VBGT220.5R/LF	VBGT110302R/L-F	.039	—	13°	20°
	VBGT221R/LF	VBGT110304R/L-F	.039	—	13°	20°
	VBGT330.5R/LF	VBGT160402R/L-F	.059	—	13°	20°
	VBGT331R/LF	VBGT160404R/L-F	.059	—	13°	20°
 <p>Right hand insert shown.</p>	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°
 <p>Right hand insert shown.</p>	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°	—
 <p>Right hand insert shown.</p>	VBET22V3R/LWSN	VBET1103V3R/LW-SN	.039	—	20°	—
 <p>Left hand insert shown.</p>	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°
 <p>Right hand insert shown.</p>	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.

① Workpiece 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

② Cutting 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

- *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

③ Feed rate

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

TOOL LIFE

Cutting speed has a large affect on tool life. **TOOL NAVI** is based on Taylor's equation (relationship $vc \times T_n = C$ between tool grade, cutting conditions, and tool life). Therefore, performance speed and tool life is found for each work material. When the customer requires 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
MC6035	1.00	0.88	0.82	0.78	0.73
MP3025	1.00	0.85	0.77	0.72	0.65
NX2525	1.00	0.87	0.80	0.76	0.70

● 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 : $vc = 1017\text{SFM}$
(Tool life : 15min.)



Tool life required by the customer : 30min.
 $1017 \times 0.83 = 843\text{SFM}$

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

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

HARDNESS OF WORKPIECE

Hardness of the 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	(Hardness of workpiece)											
	Soft	120HB	140HB	160HB	180HB	200HB	220HB	240HB	260HB	280HB	300HB	320HB	Hard
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

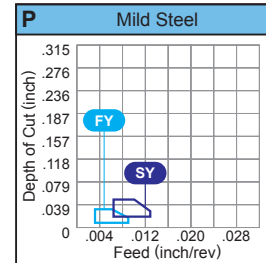
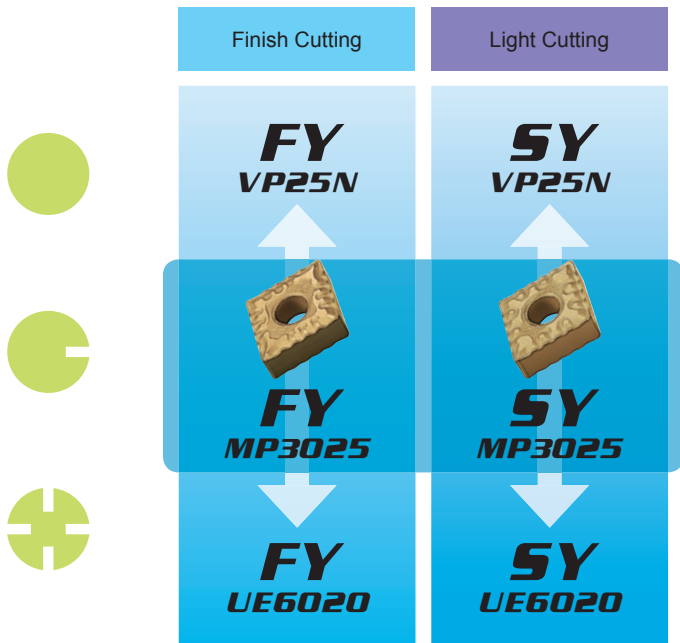
The following diagrams show for each work material, the optimal combination of suitable grades and chip breakers for each application area in turning.

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

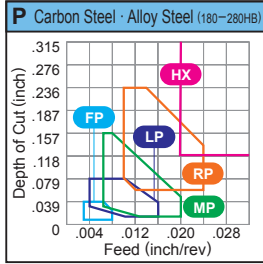
F	Finish Cutting
L	Light Cutting
M	Medium Cutting
R	Rough Cutting
H	Heavy Cutting



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

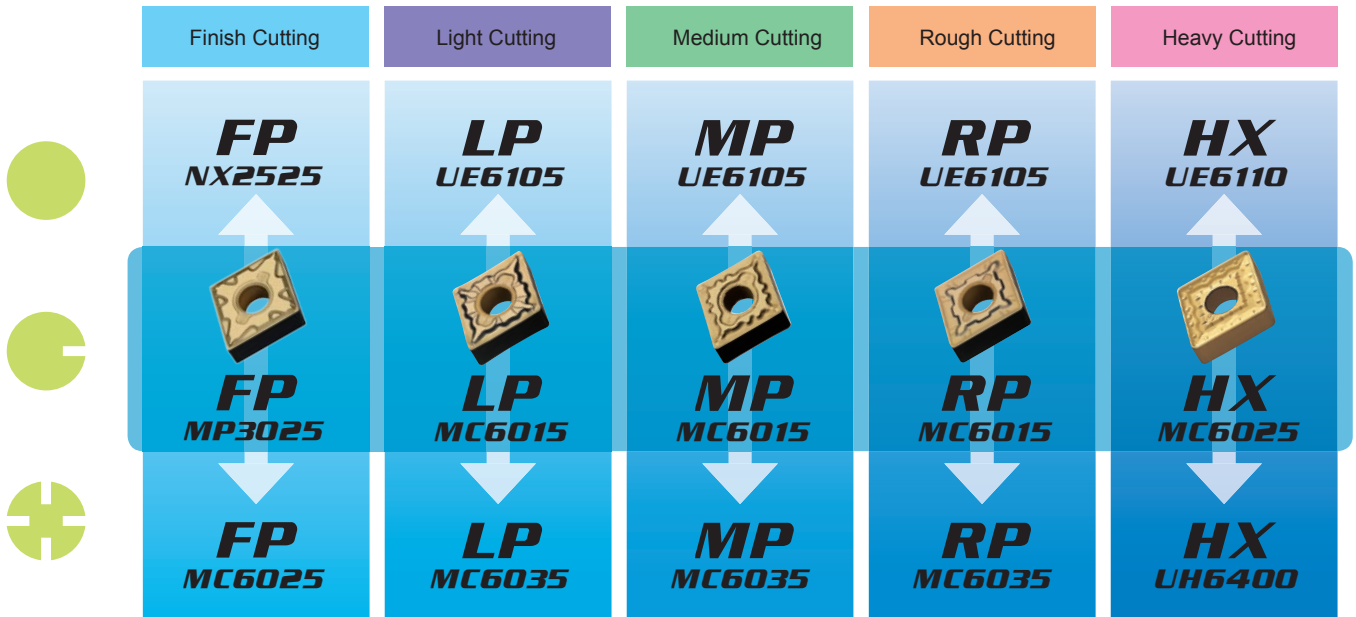
vc : Cutting speed
f : Feed
ap : Depth of cut.

	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
- General Cutting
- Unstable Cutting

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

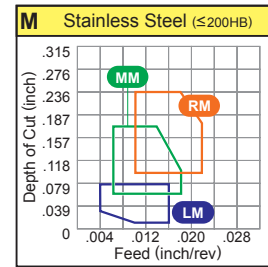
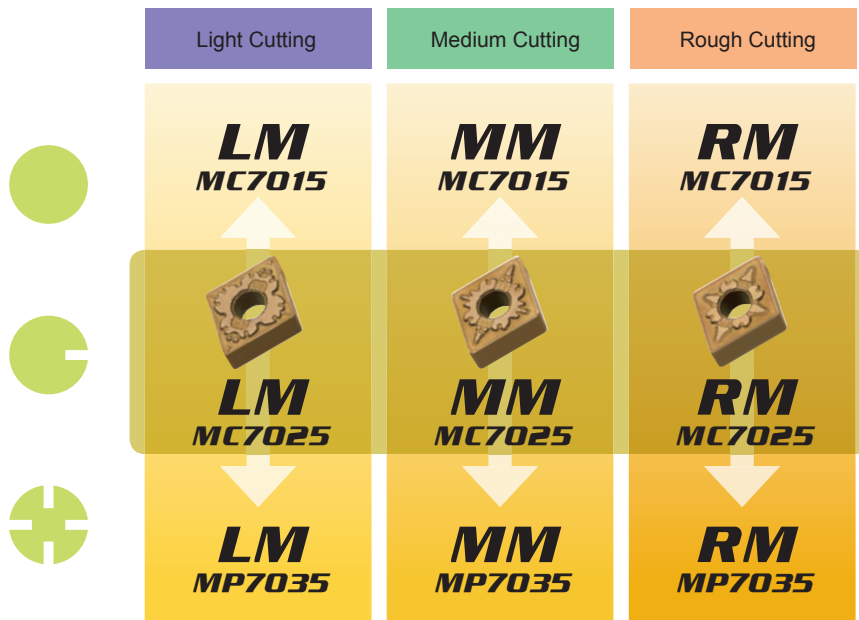
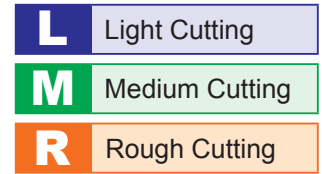
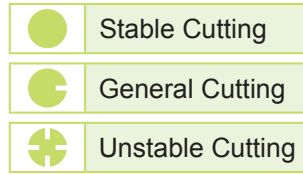


P Carbon Steel · Alloy Steel (EX. : AISI 1045, AISI 4140)
NEGATIVE INSERTS

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

	Cutting Area	Chip Breaker	Grade	1st Recommendation		
				vc (SFM)	f (IPR)	ap (inch)
	F	FP	NX2525	705-1115	.004-.010	.004-.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
	F	FP	MP3025	690-1065	.004-.010	.004-.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	MC6025	510-820	.020-.050	.119-.434
	F	FP	MC6025	755-1280	.004-.010	.004-.040
	L	LP	MC6035	690-1115	.004-.016	.012-.079
	M	MP	MC6025	620-1015	.007-.020	.012-.158
	R	RP	MC6035	590-970	.010-.024	.060-.237
	H	HX	UH6400	440-640	.020-.050	.119-.434

CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING

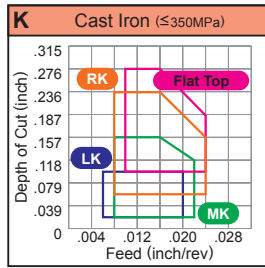


M Stainless Steel (EX. : AISI 304, AISI 306)

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
- General Cutting
- Unstable Cutting

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

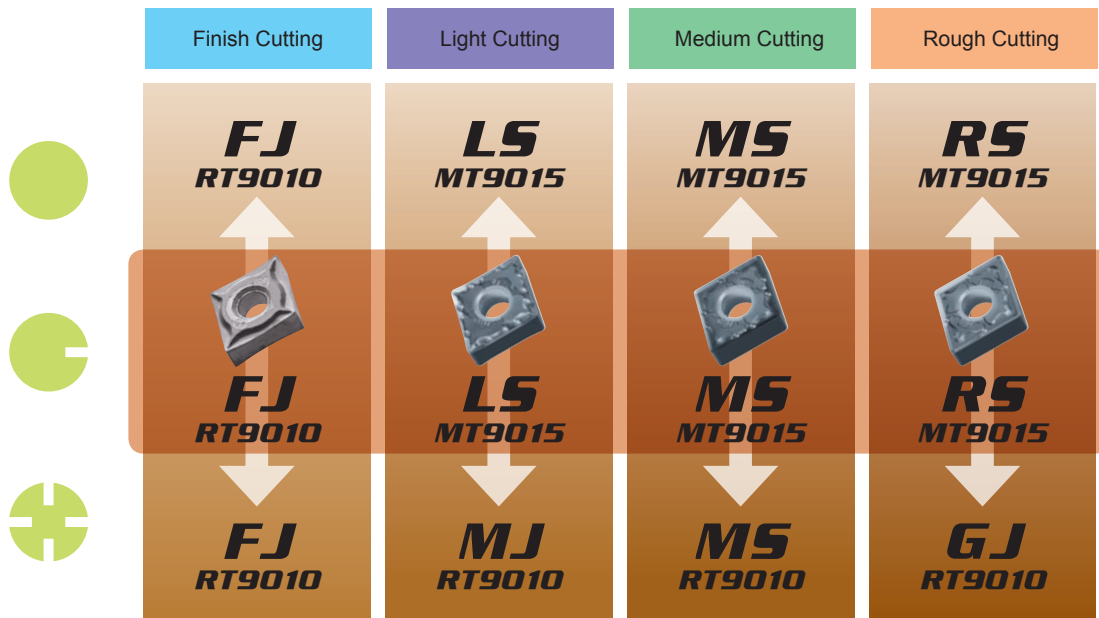
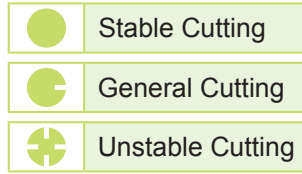
	Light Cutting	Medium Cutting	Rough Cutting	Heavy Cutting
	LK <i>MC5005</i>	MK <i>MC5005</i>	RK <i>MC5005</i>	Flat Top <i>MC5005</i>
	 LK <i>MC5015</i>	 MK <i>MC5015</i>	 RK <i>MC5015</i>	 Flat Top <i>MC5015</i>
	LK <i>MC5015</i>	MK <i>MC5015</i>	RK <i>MC5015</i>	Flat Top <i>MC5015</i>

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



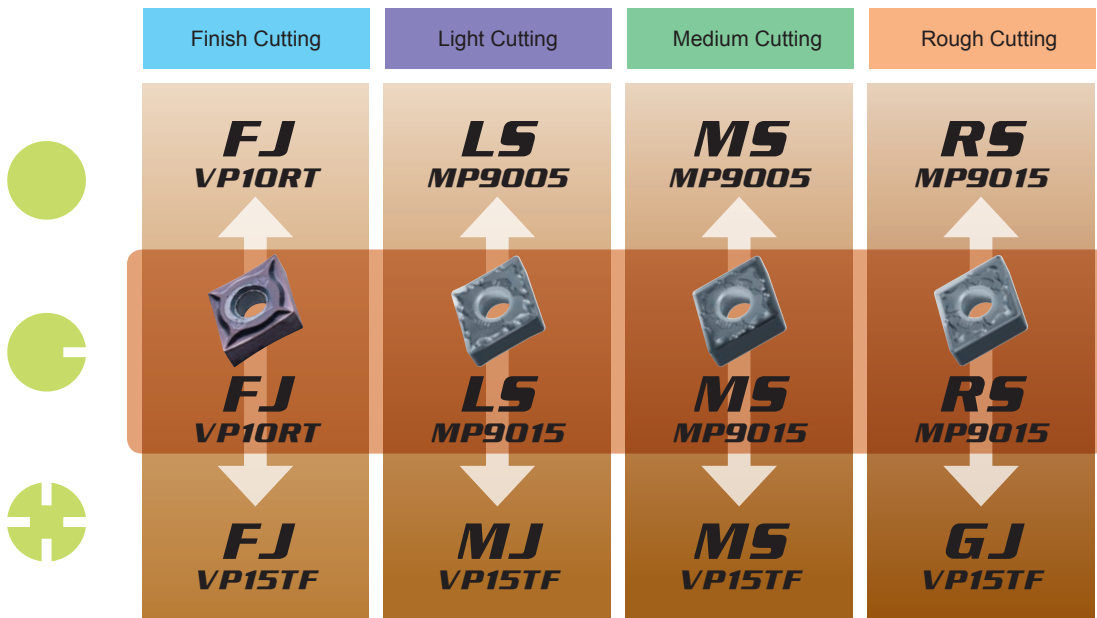
S Titanium Alloy (EX. : Ti-6Al-4V) NEGATIVE INSERTS

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
	General Cutting
	Unstable Cutting

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



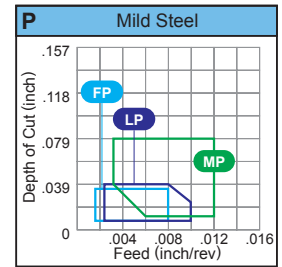
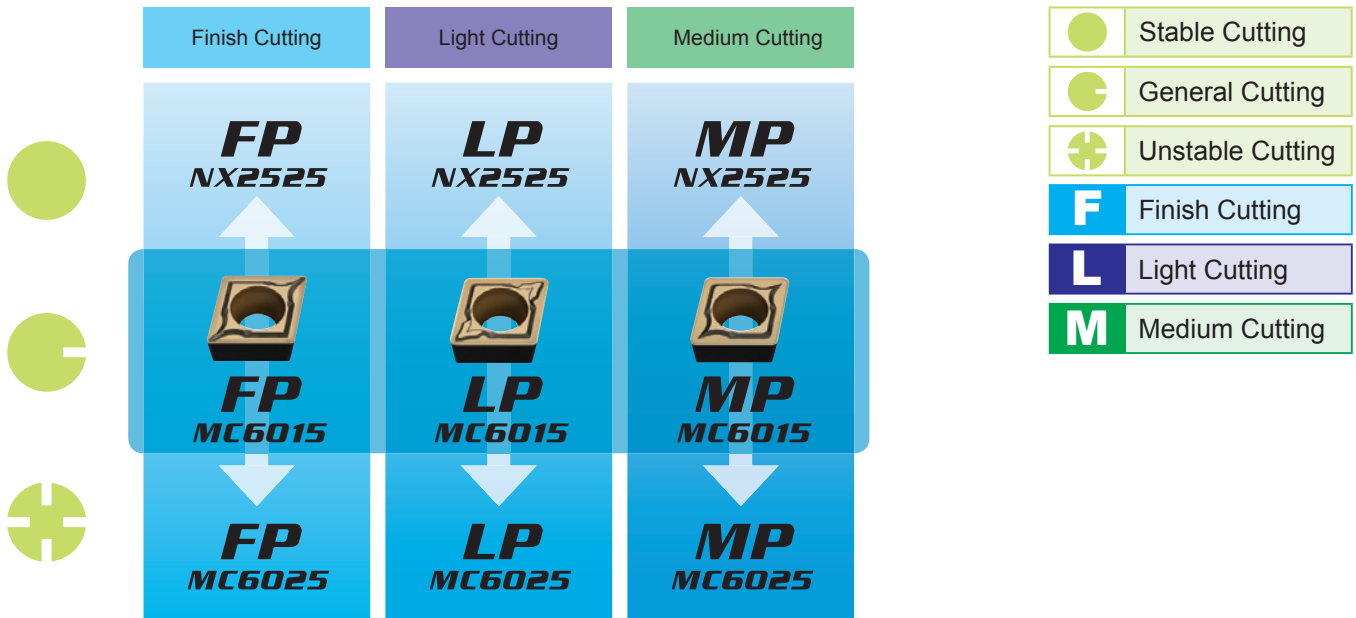
S Ni, Co-Based Alloy (EX. : Inconel®718)

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

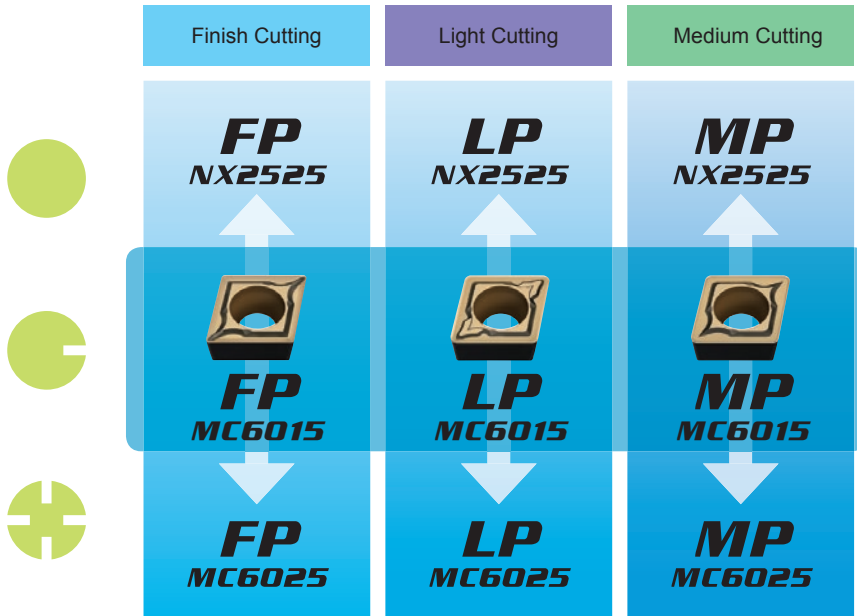
CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING



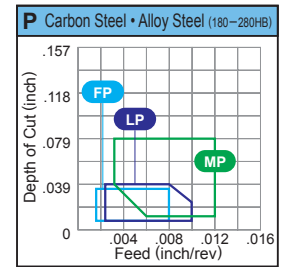
P Mild Steel (EX. : ASTM A283, AISI 1010)
7° POSITIVE INSERTS WITH HOLE

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

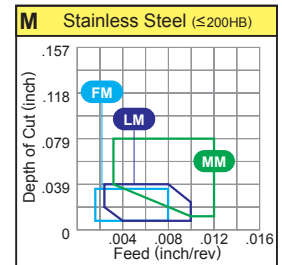
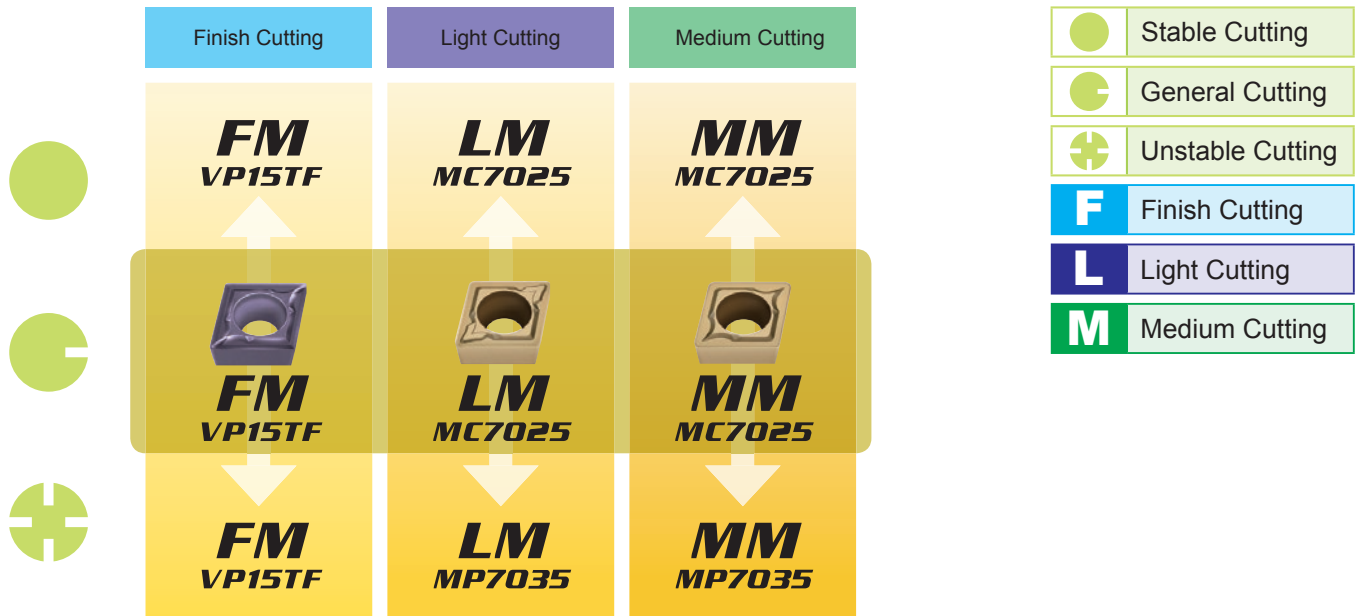


P Carbon Steel • Alloy Steel (EX. : AISI 1045, AISI 4140)
7° POSITIVE INSERTS WITH HOLE

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

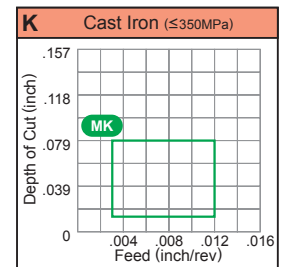


M Stainless Steel (EX. : AISI 304, AISI 306)

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



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

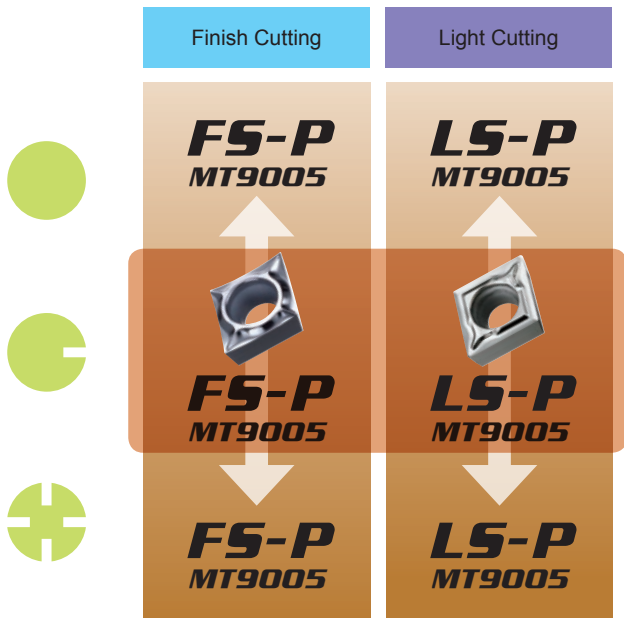
CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING



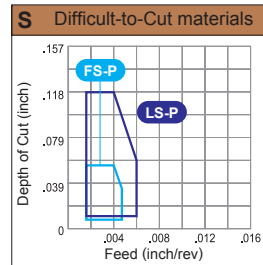
N Aluminum Alloy (EX. : A6061, A7075)
7° POSITIVE INSERTS WITH HOLE

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

	Cutting Area	Chip Breaker	Grade	1st Recommendation		
				vc (SFM)	f (IPR)	ap (inch)
● Stable Cutting	F	AZ	HTi10	985—2295	.004—.016	.008—.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
- L** Light Cutting



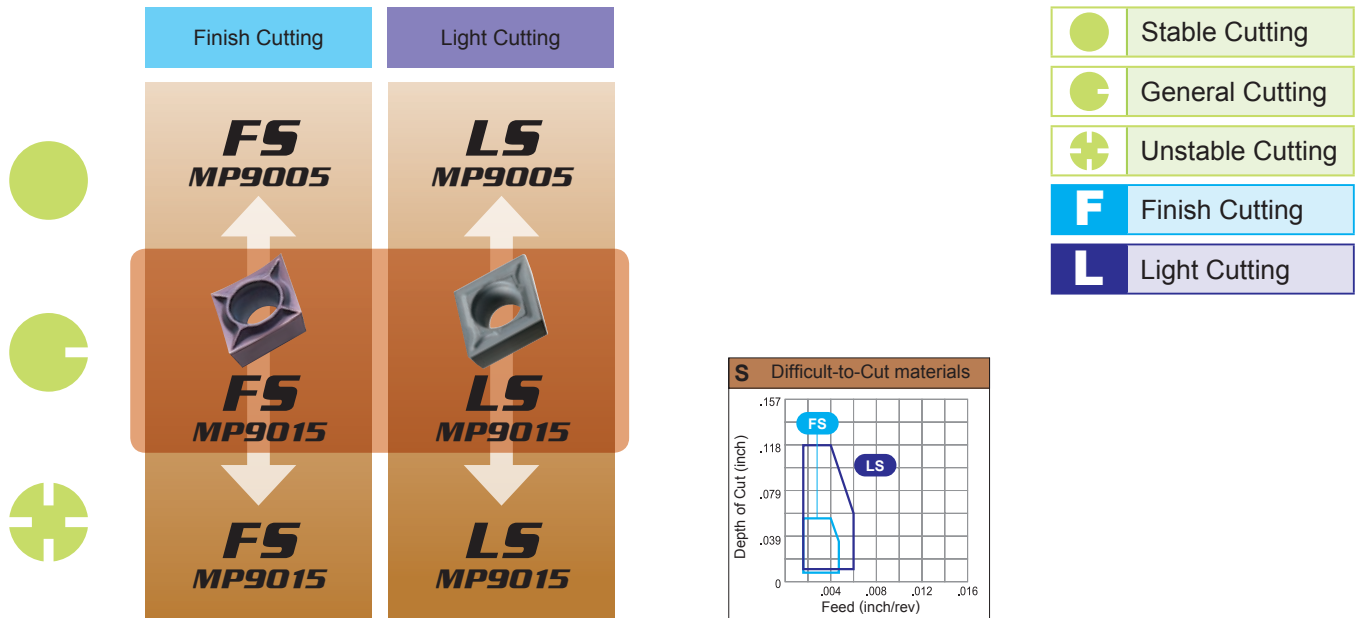
S Titanium Alloy (EX. : Ti-6Al-4V)
7° POSITIVE INSERTS WITH HOLE

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

	Cutting Area	Chip Breaker	Grade	1st Recommendation		
				vc (SFM)	f (IPR)	ap (inch)
● Stable Cutting	F	FS-P	MT9005	131-263	.002-.005	.008-.056
	L	LS-P	MT9005	131-263	.003-.008	.012-.119
● General Cutting	F	FS-P	MT9005	131-263	.002-.005	.008-.056
	L	LS-P	MT9005	131-263	.003-.008	.012-.119
⊕ Unstable Cutting	F	FS-P	MT9005	131-263	.002-.005	.008-.056
	L	LS-P	MT9005	131-263	.003-.008	.012-.119

* FS-P, LS-P : G class inserts.

CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING

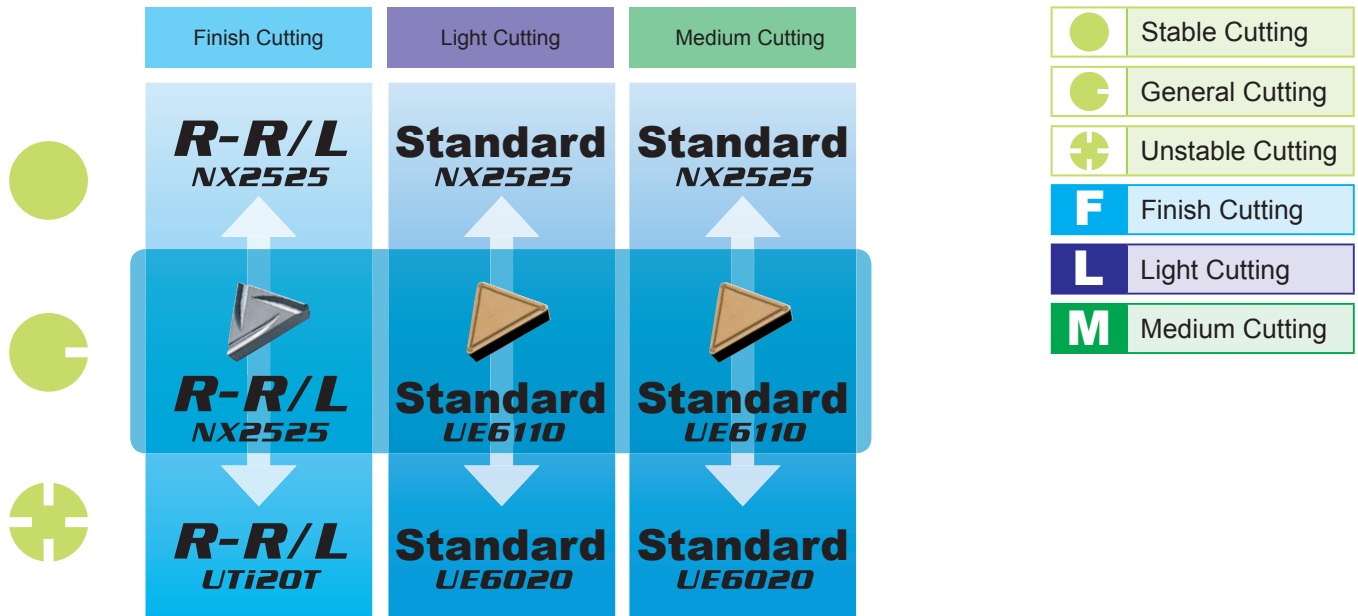


S Ni, Co-Based Alloy (EX. : Inconel®718)
7° POSITIVE INSERTS WITH HOLE

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	FS	MP9005	80—310	.002— .005	.008— .056
	L	LS	MP9005	80—310	.003— .008	.012— .119
● General Cutting	F	FS	MP9015	65—245	.002— .005	.008— .056
	L	LS	MP9015	65—245	.003— .008	.012— .119
⊕ Unstable Cutting	F	FS	MP9015	65—245	.002— .005	.008— .056
	L	LS	MP9015	65—245	.003— .008	.012— .119

* FS, LS : G class inserts.

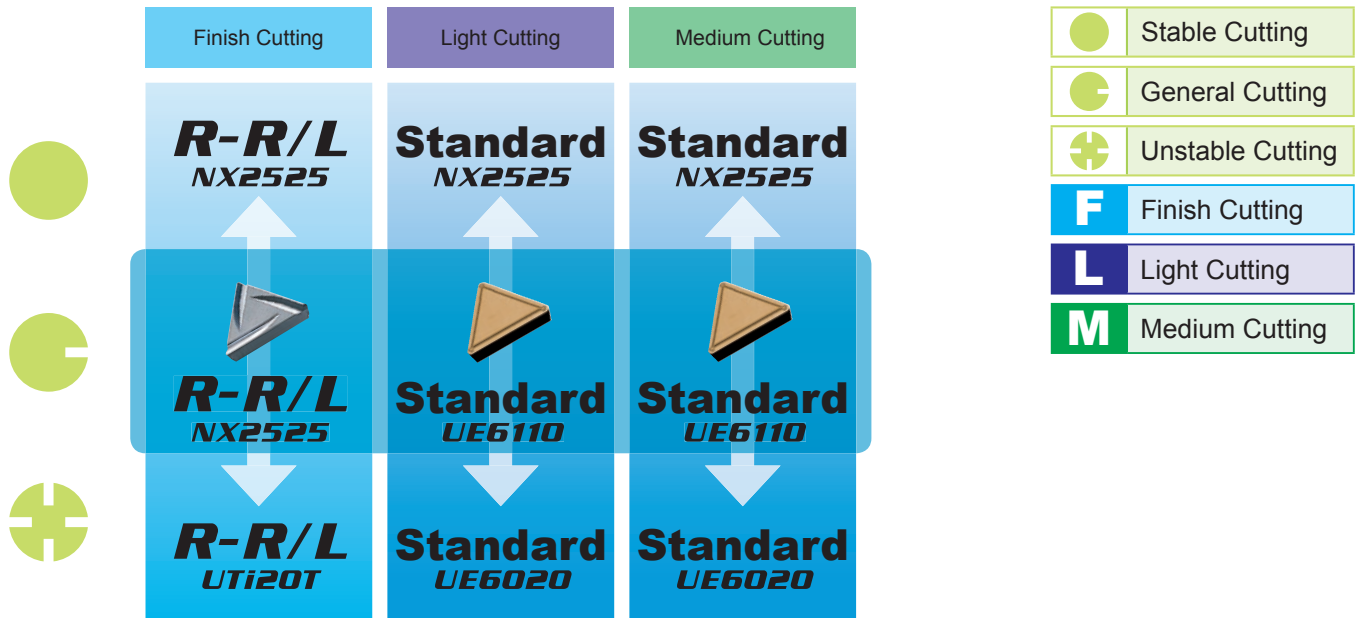


P Mild Steel (EX. : AISI ASTM A283, AISI 1010)
11° POSITIVE INSERTS WITHOUT HOLE

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

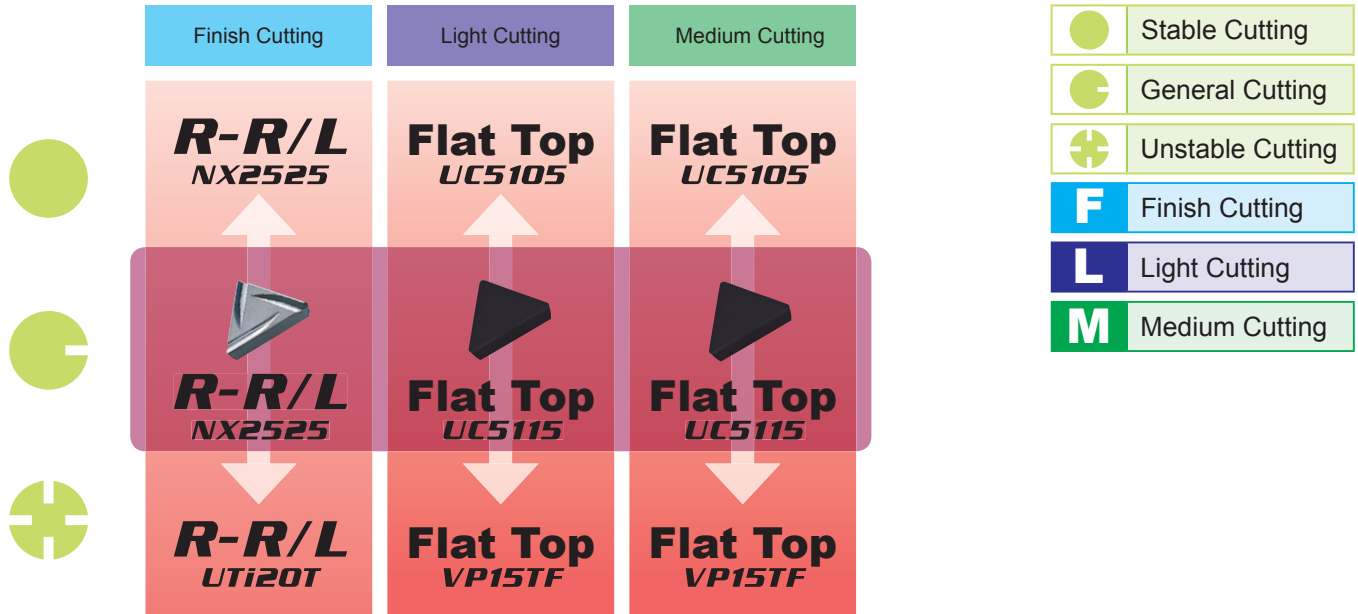
CLASSIFICATION OF GRADES AND CHIP BREAKERS FOR TURNING



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



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.

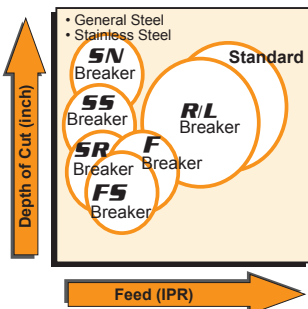
	Cutting Area	Chip Breaker	Grade	1st Recommendation		
				vc (SFM)	f (IPR)	ap (inch)
Stable Cutting	F	R-R/L	NX2525	490—670	.002— .005	.008— .024
	L	Flat Top	UC5105	440—820	.004— .012	.012— .079
	M	Flat Top	UC5105	440—820	.004— .012	.012— .079
General Cutting	F	R-R/L	NX2525	490—670	.002— .005	.008— .024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

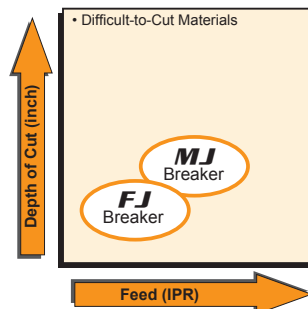
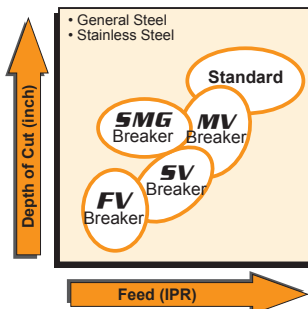
ANGULAR AND PARALLEL CHIP BREAKER

3-DIMENSIONAL CHIP BREAKER

CHIP CONTROL RANGES



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)	<ul style="list-style-type: none"> For medium cutting. 3D molded chipbreaker provides good chip control. Breaker geometry appropriate for copying and back turning. 		—	—		—	—	—	—	—
FV (M class)	<ul style="list-style-type: none"> 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)	<ul style="list-style-type: none"> For light cutting. The double design dots promote chip discharge for mild steel machining and at low depth of cut machining. 	—			—	—				—
MV (M class)	<ul style="list-style-type: none"> 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)	<ul style="list-style-type: none"> For medium cutting. Balance of edge strength and sharpness due to a combination of a flat land and large rake angle. 	—			—		—			—
FJ	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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. 		—	—			—	—	—	

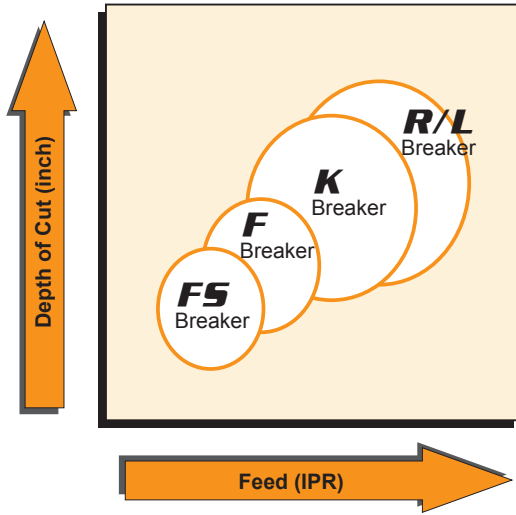
Breaker	Features	CCGH/CCGT Type	CPGT Type	DCGT Type	TPGH Type	TPGV/TPGT Type	TCGT Type	VBGT/VCGT Type	WBGT Type	WCGT Type	WPGT Type
FS	<ul style="list-style-type: none"> For precision finishing. Narrow angled breaker provides optimal chip control. Sharp cutting edge generates excellent surface finish. 	—	—	—		—	—	—	—	—	
F	<ul style="list-style-type: none"> For finish cutting. Angled breaker controls chip flow. Sharp cutting edge generates excellent surface finish. 				—					—	—
R/L	<ul style="list-style-type: none"> Angled breaker for light cutting. Good chip control at low to medium feed rates. 	—	—	—	—	—	—	—	—		—
Standard	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> The wide angled breaker for medium cutting is suitable for Swiss type lathe machining. The insert design for low resistance controls chip flow. 		—		—	
SS	<ul style="list-style-type: none"> The parallel breaker for light cutting is suitable for Swiss type lathe machining. Excellent chip control at low feed rate. 	—		—		—
SN	<ul style="list-style-type: none"> 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



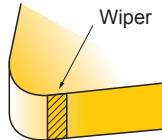
FEATURES OF CHIP BREAKER

Breaker	Features	DNGG Type	SNGG Type	TNGG Type	VNGG Type
FS	<ul style="list-style-type: none"> For precision finishing. Narrow width angled breaker for good chip control. Sharp cutting edge produces excellent surface finish. 	—	—		—
F	<ul style="list-style-type: none"> Finish cutting. Angled breaker controls chip flow. Sharp cutting edge produces excellent surface finish. 	—	—		—
K	<ul style="list-style-type: none"> Parallel breaker for light cutting. Excellent chip control at low to medium feed rates. 	—	—		—
R/L	<ul style="list-style-type: none"> 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

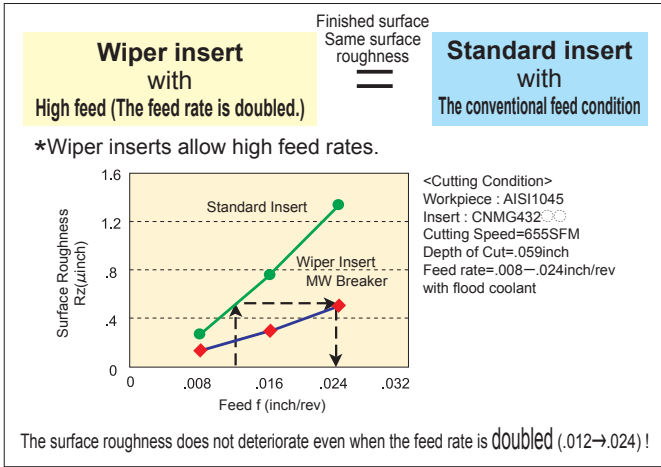
High feed rates not only shorten machining times but employing a wiper also makes it possible to combine roughing and finishing operations.

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 + 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.)

↓

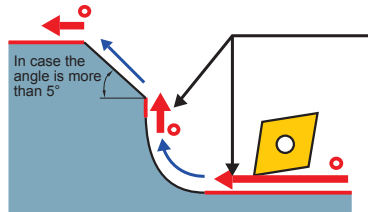
- Reducing cost
- Increased productivity
- Reduced machine down time

<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.



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

Rz(W) = Finished surface roughness when using a wiper insert.

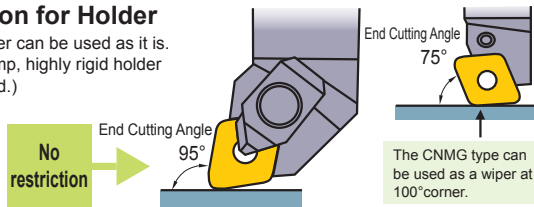
Rz: Finished surface roughness in conventional conditions. (When using a standard insert)

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

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

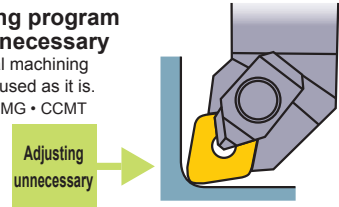
No Restriction for Holder

The standard holder can be used as it is. (*The double clamp, highly rigid holder is recommended.)



No machining program adjustment necessary

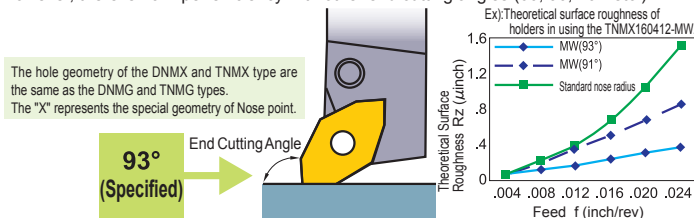
The conventional machining program can be used as it is. (The CNMG • WNMG • CCMT types are based on ISO/ANSI standards.)



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

Restriction for Holder

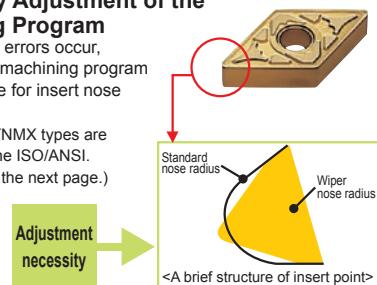
Use a holder with an end cutting angle of 93° to improve wiper efficiency. A holder with a cutting edge angle of 91° can marginally improve wiper efficiency (see the figure below), however, there is no wiper efficiency with other end cutting angles (60° 90° 107° etc.).



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.

Adjusting toward X-axis

Standard insert

DNMX, TNMX type

Nose radius .016, .031: **.0016 inch**
 Nose radius .047 : **.0020 inch**

Adjusting toward Z-axis

Standard insert

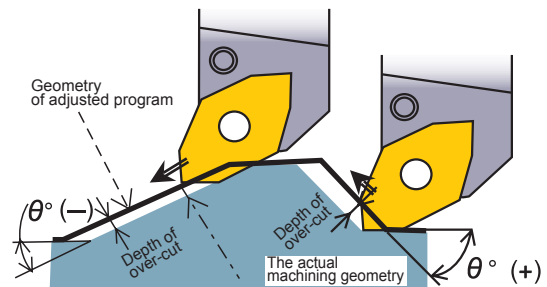
DNMX, TNMX type

(Not dependent on the nose radius)
.0004 inch

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 ($\theta=60^\circ-70^\circ$) 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)

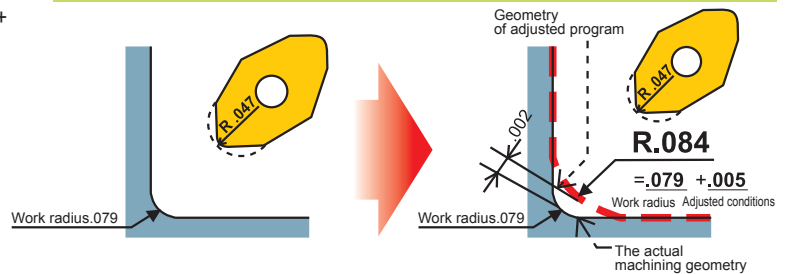
C) Compensation when machining a corner radius

1) Tool path adjustment method

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

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

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

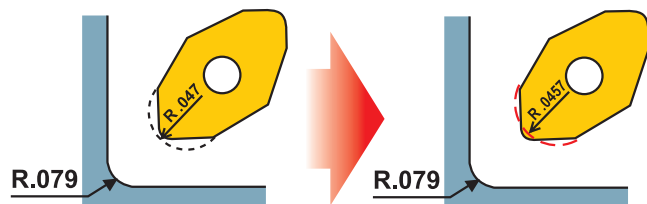


2) Nose radius adjustment method

Machining 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.

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

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



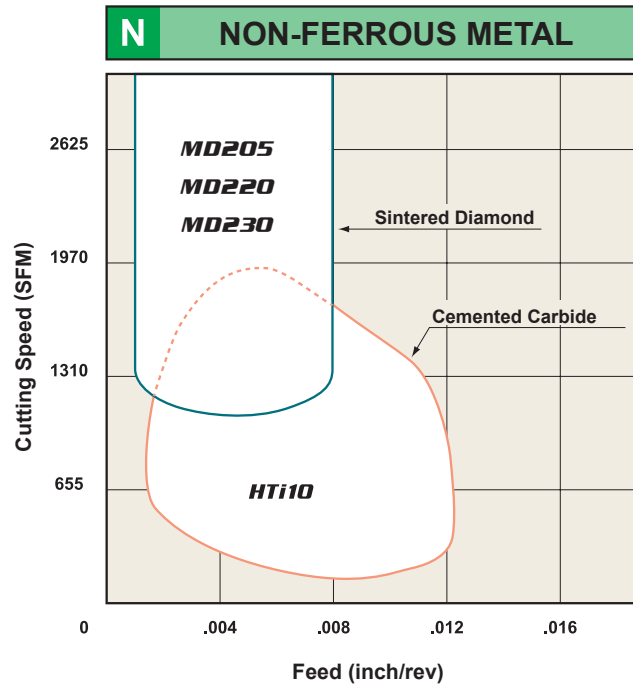
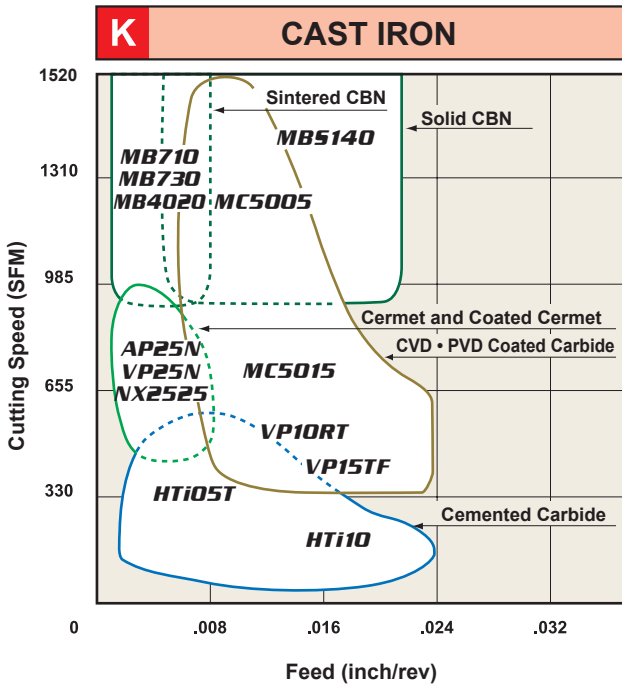
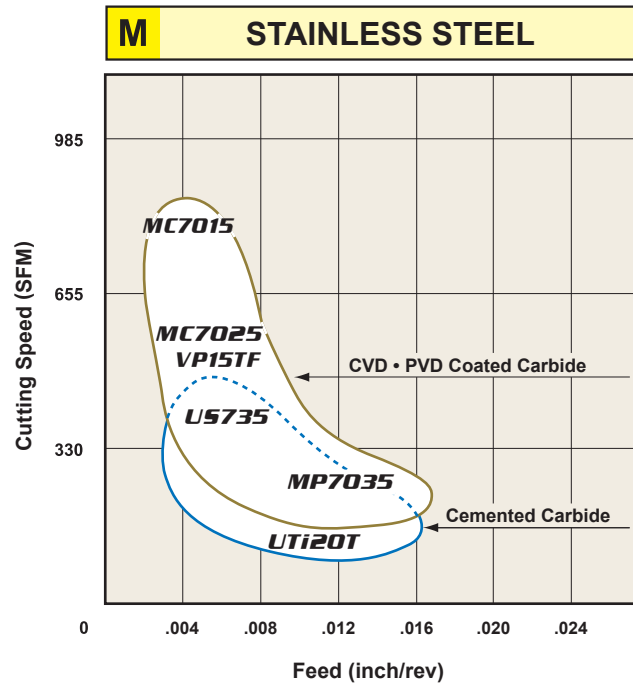
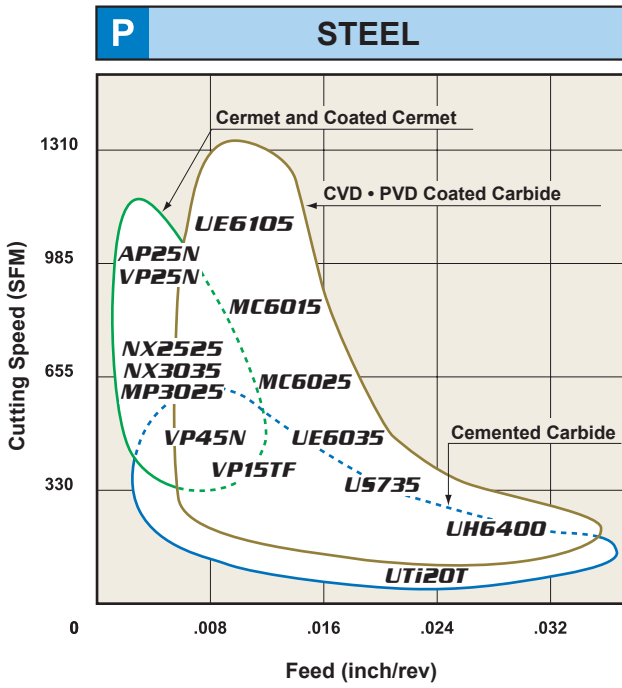
(Note) The correction value is the same for both DNMX and TNMX inserts. Differentiate between them only by the different nose radius.

GRADES FOR TURNING

INDEXABLE INSERT GRADES FOR TURNING

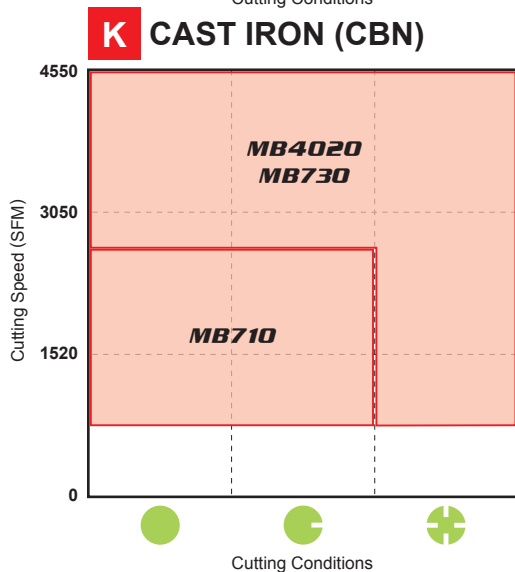
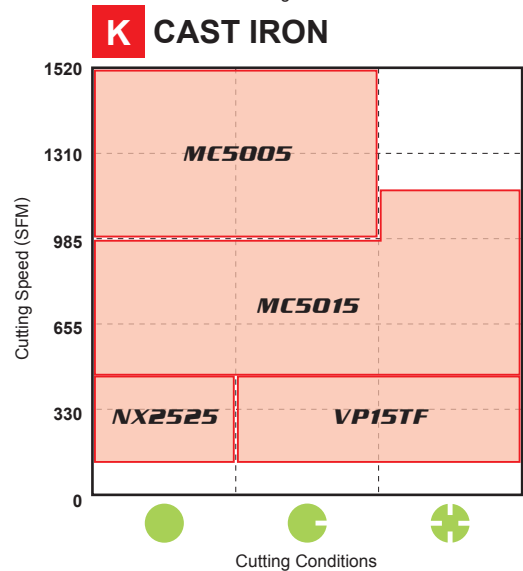
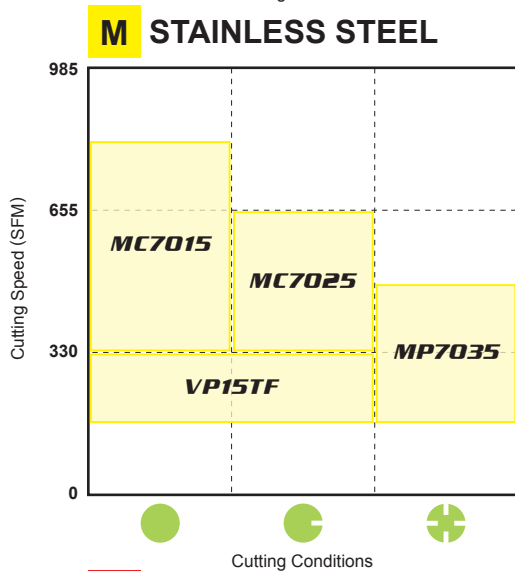
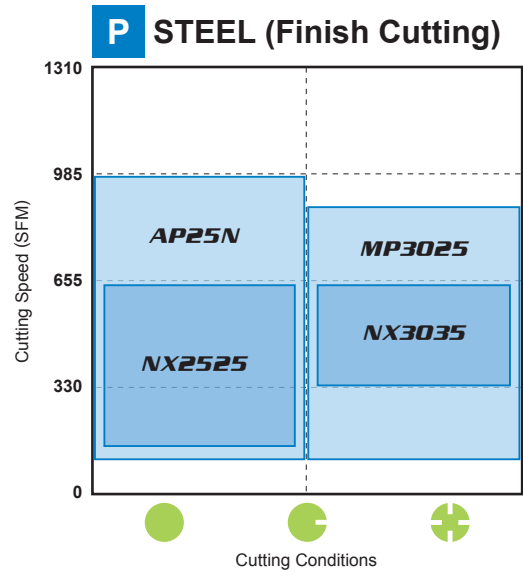
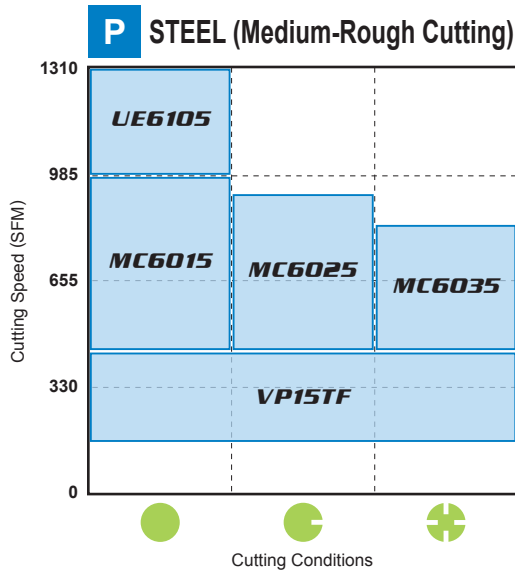
ISO	Coated Carbide		Cermet	Coated Cermet	Cemented Carbide	Coated CBN	CBN	PCD (Sintered Diamond)
	CVD	PVD						
P Steel	P01	UE610S, MC601S						
	P10	UE6110, MY501S						
	P20	MC602S, UE6020	VP10RT, MS601S	NX252S, NX303S	VP25N, AP25N			
	P30	MC603S, LH6400	VP15TF, VP20MF, VP20RT, LP20M		MP302S, VP45N			
	P40					UT120T		
M Stainless Steel	M01	MC701S, US7020						
	M10		VP10RT	NX252S	VP25N, AP25N			
	M20	MC702S	VP15TF, VP20MF, VP20RT, LP20M					
	M30	US73S	MP703S					
	M40					UT120T		
K Cast Iron	K01	MC500S, LC510S						
	K10	MC501S, LC511S, MY501S	VP10RT	NX252S	VP25N, AP25N	HT105T, HT110	MB710	
	K20		VP15TF, VP20RT				MB730, MB4020	
	K30					UT120T	MB5140	
N Non-Ferrous Metal	N01							MD20S, MD220, MD230
	N10					HT110		
	N20							
	N30							
S Heat Resistant Alloy • Ti Alloy	S01	US90S	VP05RT, MP900S				MB730	
	S10		VP10RT, MP901S			MT900S, MT901S		
	S20		VP15TF, VP20RT			TF15		
	S30							
H Hardened Steel	H01							
	H10					BC810S/BC810, BC8120, MBC010	MB810	
	H20					NEW BC8130, MB8020, MB802S	MB825	
	H30						MB835	

TURNING APPLICATION RANGE



TURNING APPLICATION RANGE

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

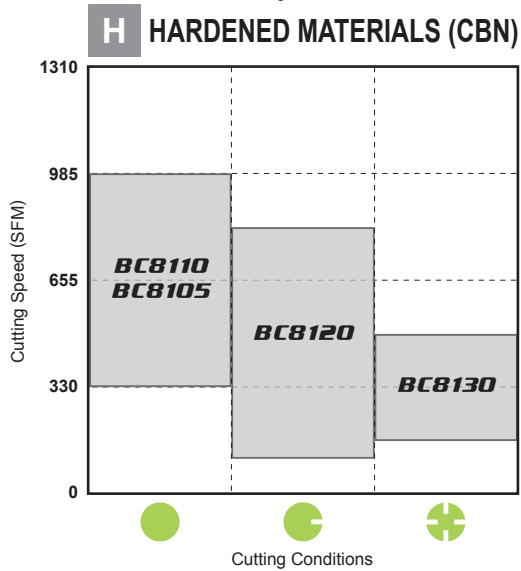
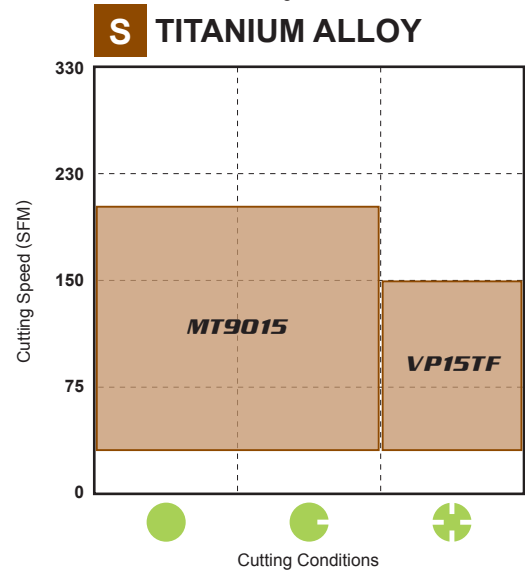
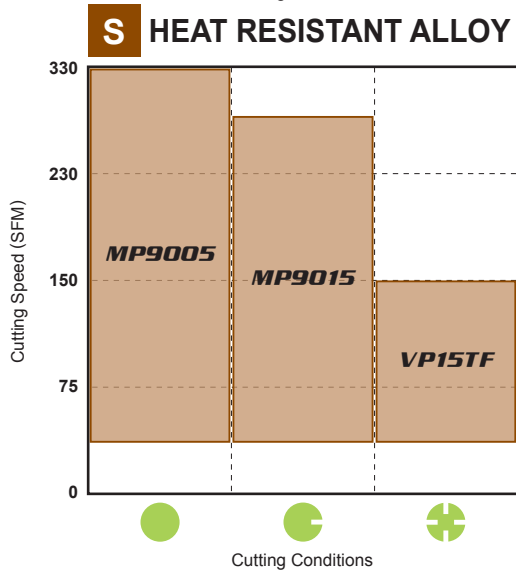
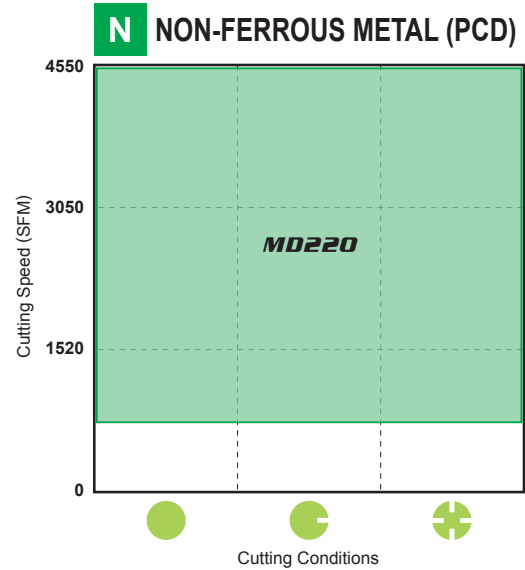
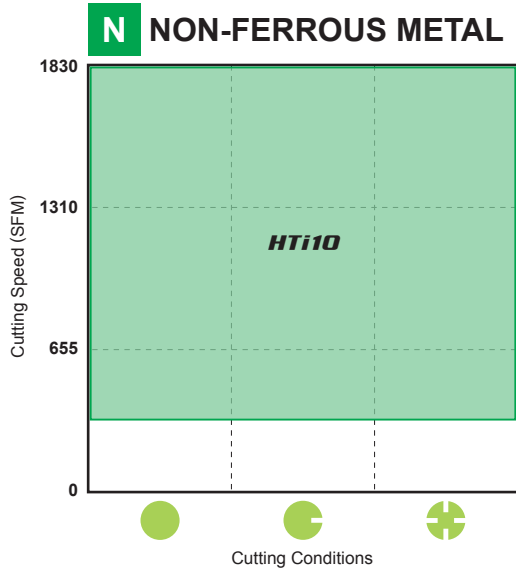


CUTTING CONDITIONS

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



TURNING INSERTS

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	
		MC6015	820 (495 – 1315)	P10	
		MC6025	655 (330 – 920)	P20	
	Interrupted Cutting	MC6035	490 (260 – 655)	P30	
				P40	
M Stainless Steel	Continuous Cutting	MC7015	655 (525 – 820)	M01	
		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	
		MC5015	820 (490 – 985)	K10	
	Interrupted Cutting			K20	
				K30	
S Heat Resistant Alloys	Continuous and Interrupted	US905	260 (165 – 330)	S01	

High reliability for a wide range of steel machining.

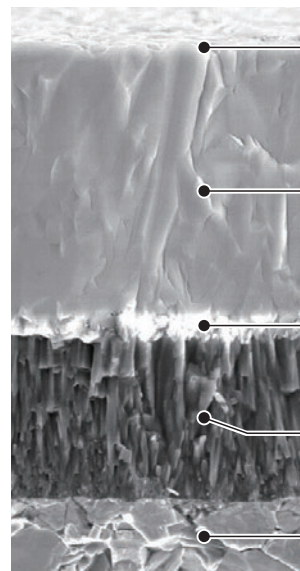
MC6015

■ 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 Al₂O₃

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 ₂ O ₃	Thick
MC5005	91.0	2.2	—	TiCN-Al ₂ O ₃	Thick
UC5115	91.0	2.2	—	TiCN-Al ₂ O ₃	Thick
MC5015	91.0	2.2	—	TiCN-Al ₂ O ₃	Thick
UE6105	90.8	1.8	Tough	Accumulated TiCN-Al ₂ O ₃ -Ti Compound	Thick
UE6110	90.3	2.0	Tough	Accumulated TiCN-Al ₂ O ₃ -Ti Compound	Thick
UE6020	90.0	2.2	Tough	Accumulated TiCN-Al ₂ O ₃ -Ti Compound	Thick
MC6015	90.2	2.2	Tough	Accumulated TiCN-Al ₂ O ₃ -Ti Compound	Thick
MC6025	90.2	2.2	Tough	Accumulated TiCN-Al ₂ O ₃ -Ti Compound	Thick
NEW MC6035	89.5	2.3	Tough	Accumulated TiCN-Al ₂ O ₃ -Ti Compound	Thick
UE6035	89.5	2.3	Tough	TiCN-Al ₂ O ₃ -TiN	Thick
UH6400	89.5	2.3	Tough	Accumulated TiCN-Al ₂ O ₃ -Ti Compound	Thick
MC7015	90.7	2.0	Tough	TiCN-Al ₂ O ₃ -TiN	Thin
US7020	90.5	2.0	Tough	TiCN-Al ₂ O ₃ -TiN	Thin
MC7025	89.4	2.4	—	TiCN-Al ₂ O ₃ -TiN	Thin
US735	89.0	2.6	—	Ti Compound	Thin
US905	92.2	2.0	—	TiCN-Al ₂ O ₃ -TiN	Thin
MY5015	91.2	2.4	—	TiCN-Al ₂ O ₃ -TiN	Thin

* 1GPa=102kg/mm²

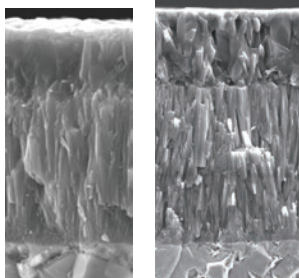
For interrupted cutting, medium to low surface speeds

NEW

MC6035

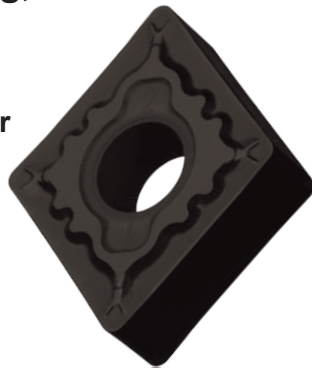
Prevents severe damage for increased stability

By dispersing an impact stress during interrupted machining, MC6035 controls crack development and achieves a good balance between fracture and welding resistance during low speed cutting.



MC6035 MC6025

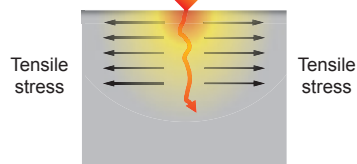
The smooth coating surface provides excellent welding resistance. With the thickened TiCN, MC6035 also achieves superior wear resistance for increased stability.



Reducing the effect of severe fracturing

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

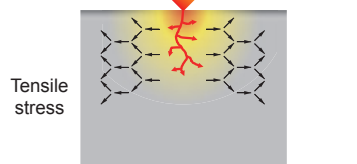
Impact stress when interrupted cutting



Conventional coating

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

Impact stress when interrupted cutting



MC6035

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

COATED CARBIDE (PVD)

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

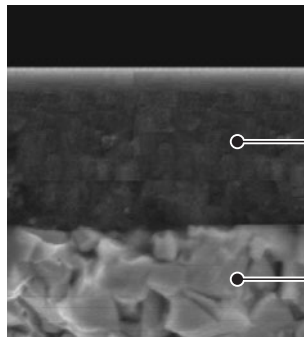
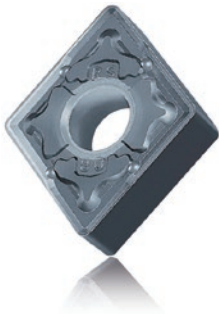
SELECTION STANDARD

● TURNING

Work Material	Recommended Grade	Recommended Cutting Speed (SFM)	ISO	Application Range
P Steel	VP10RT	390 (330 – 490)	P01	
	MS6015	390 (330 – 490)	P10	VP10RT MS6015
	VP15TF	390 (330 – 490)	P20	VP15TF
	VP20MF	390 (330 – 490)	P30	VP20MF
	VP20RT	390 (330 – 490)	P40	VP20RT
	UP20M	390 (330 – 490)		UP20M
M Stainless Steel	VP10RT	390 (330 – 490)	M01	
	VP15TF	390 (330 – 490)	M10	VP10RT
	VP20MF	390 (330 – 490)	M20	VP15TF VP20MF
	VP20RT	390 (330 – 490)	M30	VP20RT
	UP20M	390 (330 – 490)	M40	UP20M MP7035
K Cast Iron	VP10RT	390 (330 – 490)	K01	
	VP15TF	390 (330 – 490)	K10	VP10RT
	VP20RT	390 (330 – 490)	K20 K30	VP15TF VP20RT
S Heat Resistant Alloy	MP9005	180 (90 – 260)	S01	MP9005
	MP9015	150 (75 – 245)	S10	MP9015
	VP15TF	130 (65 – 165)	S20	VP10RT
	VP20RT	130 (65 – 165)	S30	VP15TF VP20RT

ISO Turning Inserts for Difficult to Cut Materials

MP9005/MP9015



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

Special carbide substrate

ISO Grade	Grade	Concept	Application
S01	MP9005	Top-quality grade focusing on wear resistance	Heat resistant alloy Finish - Medium cutting
S10	MP9015	First recommendation for general applications	Heat resistant alloy Medium - Rough cutting

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	
	Interrupted Cutting			NX3035		590 (330 – 820)	P10
		P20			
K Cast Iron Ductile Cast Iron	Finishing	NX2525	690 (555 – 755)	K01	
				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/mm², 1W/m·K=2.39 x 10⁻³cal/cm·sec·°C

COATED CERMET

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

SELECTION STANDARD

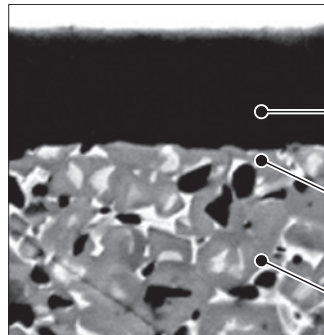
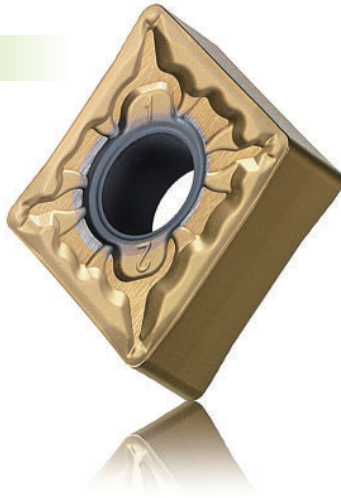
● TURNING

Work Material	Cutting Mode	Recommended Grade	Recommended Cutting Speed (SFM)	ISO	Application Range
P Steel	Continuous Cutting	VP25N AP25N	920 (655 – 1050)	P01	
				P10	
	Interrupted Cutting	MP3025	590 (460 – 655)	P20	
				P30	
K Cast Iron Ductile Cast Iron	Finishing	VP25N AP25N	720 (555 – 820)	K01	
				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	
M Stainless Steel	UTi20T	330 (195 – 425)	M10	
			M20	
			M30	
K Cast Iron	HTi05T	390 (260 – 490)	K01	
	HTi10	330 (165 – 490)	K10	
	UTi20T	330 (165 – 490)	K20	
N Non-Ferrous Metal	HTi10	1970 (1210 – 2630)	K30	
			N01	
			N10	
			N20	
S Heat-resistant Alloy Ti Alloy	MT9005 RT9005	230 (165 – 330)	S01	
	MT9015 RT9010	195 (130 – 260)	S10	
	TF15	165 (130 – 230)	S20	
			S30	

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	MT9005/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/mm², 1W/m·K = 2.39 x 10⁻³cal/cm·sec·°C

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	◎	○	◎


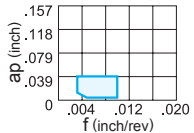



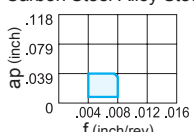



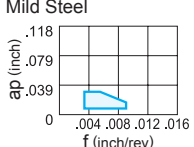



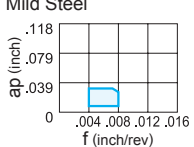



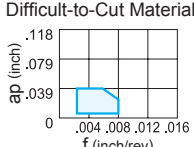



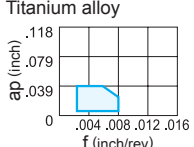

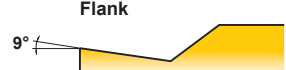
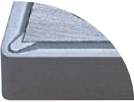
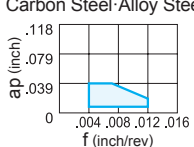


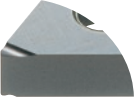
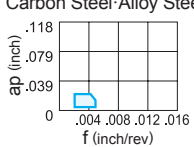


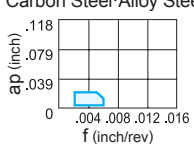
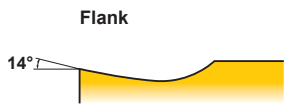
* 1GPa=102kg/mm²































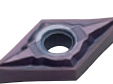

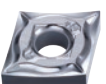




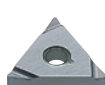
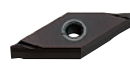
Memo

A series of horizontal dotted lines for writing.

CLASSIFICATION


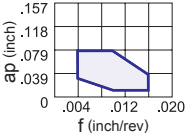
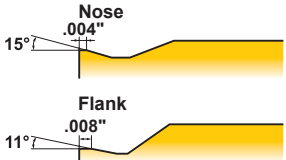

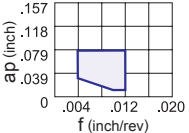
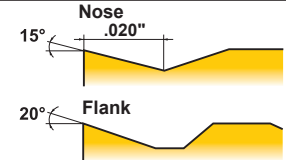

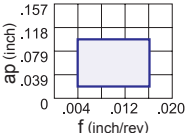
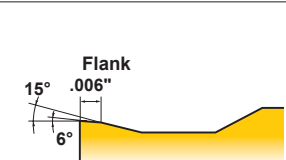

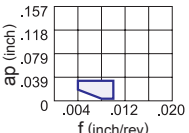
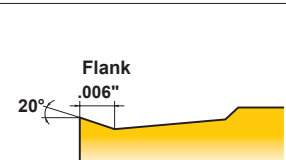

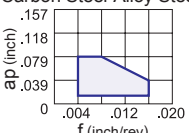
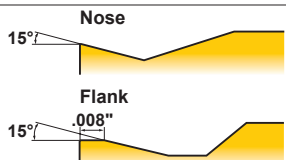

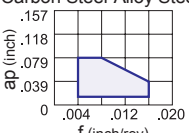
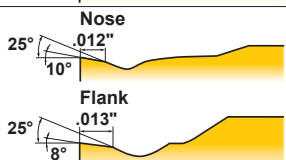

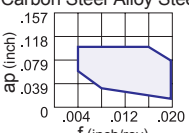
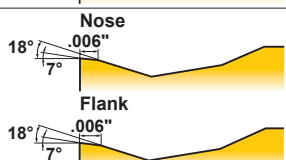

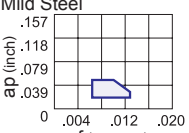
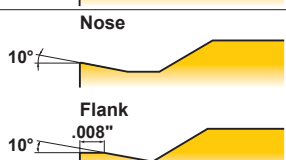

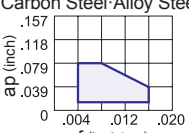
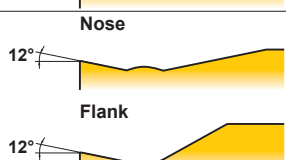
NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
Finish Cutting	M Class	NEW FP 	For finish cutting of steel Offers good chip control in wide cutting conditions Stable chip control in wide range. Available to both general and low carbon steel cuttings. A good surface finish through the 20° positive high rake angle.	Carbon Steel-Alloy Steel 	Nose  Flank 
		FH 	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 	Nose  Flank 
		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 	Nose  Flank 
		FY 	Recommendation for finishing mild steel Double sided chipbreaker. Effectively controls chips. Suitable for mild steel finishing.	Mild Steel 	Nose  Flank 
	G Class	FJ 	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 	Nose  Flank 
		FJ-P 	Recommendation for finishing titanium alloy Double sided chipbreaker. Ideal for aluminum and copper. The sharp edge produces excellent surface finishes. The curved edge allows smooth chip discharge. The polished insert face prevents built up edge.	Titanium alloy 	Nose  Flank 
		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 	Nose  Flank 
		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 	Flank 
		R/L F 	Finishing Double sided chipbreaker. Angled chipbreaker controls chip flow. The sharp edge produces a good chip discharge.	Carbon Steel-Alloy Steel 	Flank 

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 
	CNMG_FP  NEW ↻ A102	DNMG_FP  NEW ↻ A110	SNMG_FP  NEW ↻ A118	TNMG_FP  NEW ↻ A124	VNMG_FP  NEW ↻ A132	WNMG_FP  NEW ↻ A136	
	CNMG_FH  ↻ A102	DNMG_FH  ↻ A110	SNMG_FH  ↻ A118	TNMG_FH  ↻ A124	VNMG_FH  ↻ A132	WNMG_FH  ↻ A136	
	CNMG_FS  ↻ A102	DNMG_FS  ↻ A110	SNMG_FS  ↻ A118	TNMG_FS  ↻ A124	VNMG_FS  ↻ A132	WNMG_FS  ↻ A136	
	CNMG_FY  ↻ A102	DNMG_FY  ↻ A110		TNMG_FY  ↻ A124		WNMG_FY  ↻ A136	
	CNGG_FJ  ↻ A102	DNGG_FJ  ↻ A110			VNGG_FJ  ↻ A132		
	CNGG_FJ-P  ↻ A102						
	CNGG_PK  ↻ A103	DNGG_PK  ↻ A110		TNGG_PK  ↻ A124			
				TNGG_R/L FS  ↻ A124			
				TNGG_R/L F  ↻ A125	VNGG_R/L-F  ↻ A132		

CLASSIFICATION


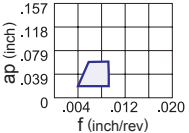
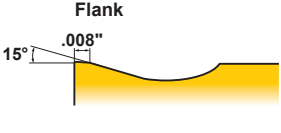
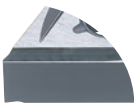
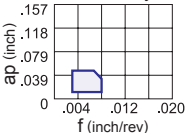
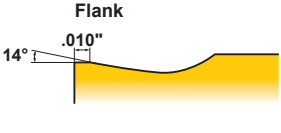

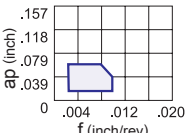
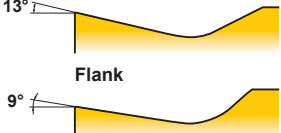

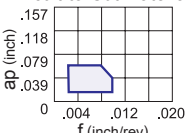
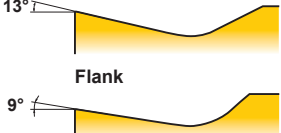

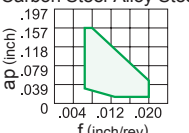
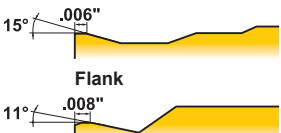

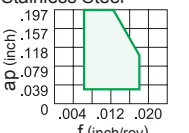
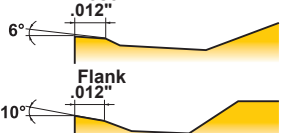

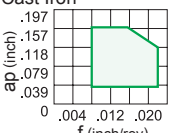
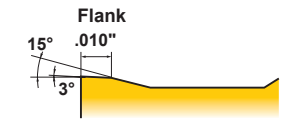

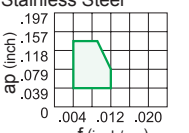
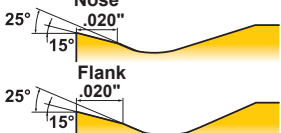

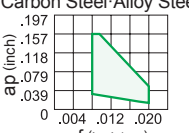
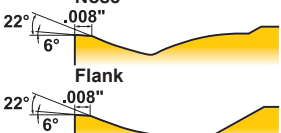
NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry	
Light Cutting	M Class	LP 	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 	
		LM 	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 	Recommendation for light cutting of cast iron Narrow positive land provides low cutting resistance and excellent finish.	Cast Iron 	
		LS 	Recommendation for light cutting of difficult-to-cut materials Enhanced chip disposal for depth of cut smaller than the corner R.		
		SH 	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 	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 	

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 
	CNMG_LP  ↻ A103	DNMG_LP  ↻ A111	SNMG_LP  ↻ A118	TNMG_LP  ↻ A125	VNMG_LP  ↻ A132	WNMG_LP  ↻ A136	
	CNMG_LM  ↻ A103	DNMG_LM  ↻ A111	SNMG_LM  ↻ A118	TNMG_LM  ↻ A125	VNMG_LM  ↻ A133	WNMG_LM  ↻ A136	
	CNMG_LK  ↻ A103	DNMG_LK  ↻ A111	SNMG_LK  ↻ A118	TNMG_LK  ↻ A125	VNMG_LK  ↻ A133	WNMG_LK  ↻ A137	
	CNMG_LS  ↻ A103	DNMG_LS  ↻ A111		TNMG_LS  ↻ A125	VNMG_LS  ↻ A133	WNMG_LS  ↻ A137	
	CNMG_SH  ↻ A103	DNMG_SH  ↻ A111	SNMG_SH  ↻ A119	TNMG_SH  ↻ A125	VNMG_SH  ↻ A133	WNMG_SH  ↻ A137	
	CNMG_SA  ↻ A103	DNMG_SA  ↻ A111	SNMG_SA  ↻ A119	TNMG_SA  ↻ A125	VNMG_SA  ↻ A133	WNMG_SA  ↻ A137	
	CNMG_SW  ↻ A103	DNMX_SW  ↻ A112		TNMX_SW  ↻ A125		WNMG_SW  ↻ A137	
	CNMG_SY  ↻ A104	DNMG_SY  ↻ A112	SNMG_SY  ↻ A119	TNMG_SY  ↻ A126		WNMG_SY  ↻ A137	
	CNMG_C  ↻ A104	DNMG_C  ↻ A112	SNMG_C  ↻ A119	TNMG_C  ↻ A126		WNMG_C  ↻ A137	

CLASSIFICATION


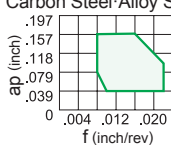

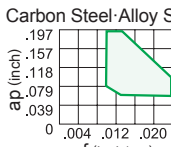

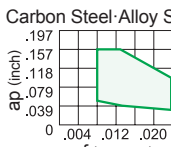
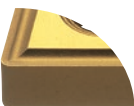
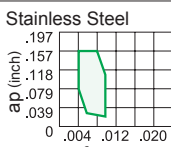

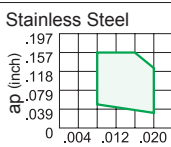

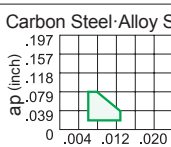

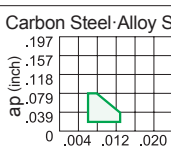

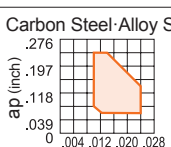

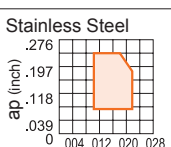
NEGATIVE INSERTS WITH HOLE









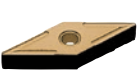


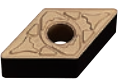












Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Light Cutting	M Class	R/L 1G 	Alternative chipbreaker for light cutting of carbon steel and alloy steel Double sided chipbreaker. Angled chipbreaker controls chip flow. Excellent chip control at low to medium feed rates.	Carbon Steel-Alloy Steel  
	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  
	M Class	MJ 	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  
	G Class	MJ 	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  
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  
	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  
	M Class	MK 	Recommendation for medium cutting of cast iron Optimum balance between sharpness and high edge strength for general use.	Cast Iron  
	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  
	M Class	MA 	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  

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 
			SNMG_R/L 1G  ↻ A119	TNMG_R/L 1G  ↻ A126			
				TNGG_R/L K  ↻ A126			
	CNMG_MJ  ↻ A104	DNMG_MJ  ↻ A112		TNMG_MJ  ↻ A126	VNMG_MJ  ↻ A133	WNMG_MJ  ↻ A137	
	CNGG_MJ  ↻ A104	DNGM_MJ  ↻ A112			VNGM_MJ  ↻ A133		
	CNMG_MP  ↻ A104	DNMG_MP  ↻ A113	SNMG_MP  ↻ A119	TNMG_MP  ↻ A126	VNMG_MP  ↻ A133	WNMG_MP  ↻ A138	
	CNMG_MM  ↻ A105	DNMG_MM  ↻ A113	SNMG_MM  ↻ A119	TNMG_MM  ↻ A127	VNMG_MM  ↻ A134	WNMG_MM  ↻ A138	
	CNMG_MK  ↻ A105	DNMG_MK  ↻ A113	SNMG_MK  ↻ A120	TNMG_MK  ↻ A127	VNMG_MK  ↻ A134	WNMG_MK  ↻ A138	
	CNMG_GM  ↻ A105	DNMG_GM  ↻ A113	SNMG_GM  ↻ A120	TNMG_GM  ↻ A127	VNMG_GM  ↻ A134	WNMG_GM  ↻ A138	
	CNMG_MA  ↻ A105	DNMG_MA  ↻ A113	SNMG_MA  ↻ A120	TNMG_MA  ↻ A127	VNMG_MA  ↻ A134	WNMG_MA  ↻ A139	

CLASSIFICATION


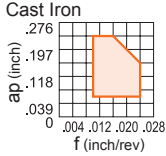

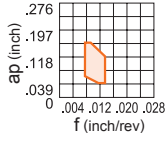

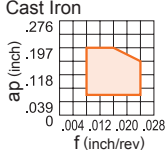

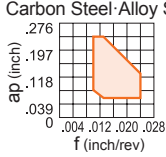

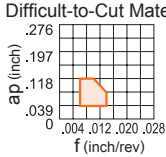

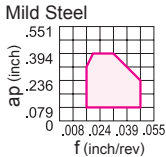

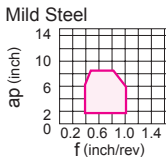

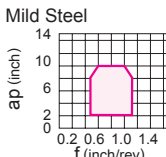

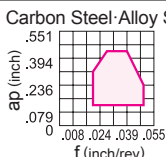
NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features		Cross Section Geometry
Medium Cutting	M Class	MH 	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 	Nose .010" 16° Flank .014" 16°
		Standard 	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 	Nose .010" 15° Flank .010" 15°
		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 	Nose .010" 19° Flank .012" 19°
		MS 	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 	Nose .020" 25° Flank .020" 15°
		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 	Flank 15° .006"
		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 	Flank 14° .008"
		R/L 	Medium cutting Double sided chipbreaker. Parallel chipbreaker. Good chip control for medium feed rate.	Carbon Steel-Alloy Steel 	Flank 14° .010"
Rough Cutting	M Class	RP 	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 	Nose .013" 3° Flank .013"
		RM 	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 	Nose .012" 3° Flank .012" 6°

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 
	CNMG_MH  ↻ A106	DNMG_MH  ↻ A114	SNMG_MH  ↻ A120	TNMG_MH  ↻ A127	VNMG_MH  ↻ A134	WNMG_MH  ↻ A139	
	CNMG  ↻ A106	DNMG  ↻ A114	SNMG  ↻ A121	TNMG  ↻ A127, A128	VNMG  ↻ A135	WNMG  ↻ A139	RNMG  ↻ A117
	CNMG_MW  ↻ A106	DNMX_MW  ↻ A114		TNMX_MW  ↻ A128		WNMG_MW  ↻ A139	
	CNMG_MS  ↻ A106, A107	DNMG_MS  ↻ A114	SNMG_MS  ↻ A121	TNMG_MS  ↻ A128	VNMG_MS  ↻ A135	WNMG_MS  ↻ A139	
				TNMG_R/L ES  ↻ A128			
				TNMG_R/L 2G  ↻ A128			
		DNGG_R/L  ↻ A115	SNGG_R/L  ↻ A121	TNGG_R/L  ↻ A129	VNGG_R/L  ↻ A135		
	CNMG_RP  ↻ A107	DNMG_RP  ↻ A115	SNMG_RP  ↻ A121	TNMG_RP  ↻ A129		WNMG_RP  ↻ A139	
	CNMG_RM  ↻ A107	DNMG_RM  ↻ A115	SNMG_RM  ↻ A121	TNMG_RM  ↻ A129		WNMG_RM  ↻ A140	

CLASSIFICATION


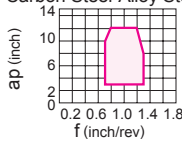
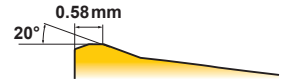

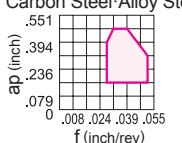
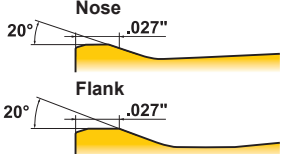

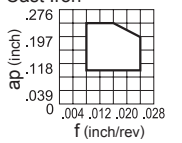

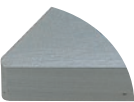
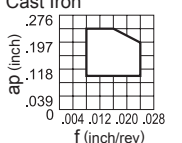

NEGATIVE INSERTS WITH HOLE













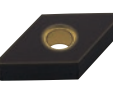



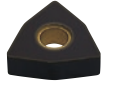



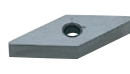
Application Tolerance	Breaker Name and Picture	Features		Cross Section Geometry
Rough Cutting M Class	RK 	Recommendation for rough cutting of cast iron Seating surface and wide land 3 or more times that of conventional products provides high cutting stability for interrupted machining and scale removal.	Cast Iron 	Flank 15° .014"
	RS 	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.		Flank 25° 10° .008"
	GK 	Recommendation for rough cutting of cast iron Positive land increases welding resistance and suppresses chip welding and abrasion at low speed cutting.	Cast Iron 	Flank 15° .010"
	GH 	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 	Nose 18° .013" Flank 18° .013"
	GJ 	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 	Nose 18° .006" Flank 18° .006"
Heavy Cutting M Class	HZ 	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 	Nose 22° 6° .017" Flank 22° 6° .017"
	NEW HL 	Recommendation for mild steel and stainless steel Low resistance due to narrow flat land. Achieves high chip breaking ability.	Mild Steel 	15° 0.34mm
	NEW HM 	Assist breaker for mild steel and stainless steel Flat land provides outstanding balance between cutting edge strength and sharpness.	Mild Steel 	16° 0.32mm
	HX 	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 	Nose 23° .017" Flank 21° .020"

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 
	CNMG_RK  ↪ A107	DNMG_RK  ↪ A115	SNMG_RK  ↪ A122	TNMG_RK  ↪ A129		WNMG_RK  ↪ A140	
	CNMG_RS  ↪ A107	DNMG_RS  ↪ A115	SNMG_RS  ↪ A122	TNMG_RS  ↪ A129		WNMG_RS  ↪ A140	
	CNMG_GK  ↪ A105	DNMG_GK  ↪ A113	SNMG_GK  ↪ A120	TNMG_GK  ↪ A127	VNMG_GK  ↪ A134	WNMG_GK  ↪ A138	
	CNMG_GH  ↪ A108	DNMG_GH  ↪ A115	SNMG_GH  ↪ A122	TNMG_GH  ↪ A130		WNMG_GH  ↪ A140	
	CNMG_GJ  ↪ A108	DNMG_GJ  ↪ A115				WNMG_GJ  ↪ A140	
	CNMM_HZ  ↪ A108	DNMM_HZ  ↪ A116	SNMM_HZ  ↪ A122	TNMM_HZ  ↪ A130, A131			
	CNMM_HL  ↪ A109	DNMM_HL  ↪ A116	SNMM_HL  ↪ A123	TNMM_HL  ↪ A131			
	CNMM_HM  ↪ A109		SNMM_HM  ↪ A123				
	CNMM_HX  ↪ A108		SNMM_HX  ↪ A123				

CLASSIFICATION


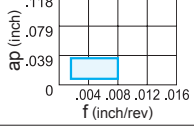
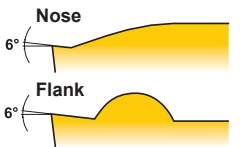

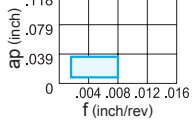
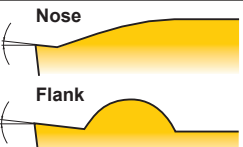

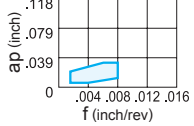
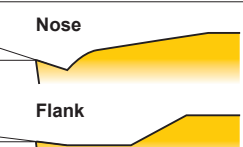

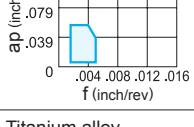


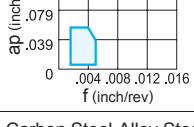


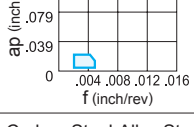
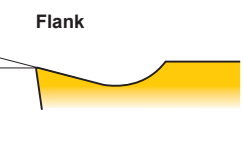

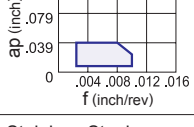


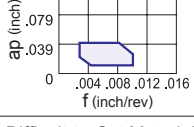


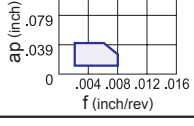
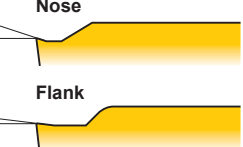
NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Heavy Cutting	M Class	<p>NEW</p> <p>HR</p> 	<p>Assist breaker for general steel and alloy steel</p> <p>High cutting edge strength. Excellent chip discharge even with high feed and high depth of cut.</p>	<p>Carbon Steel-Alloy Steel</p>  
		<p>HV</p> 	<p>Alternative chipbreaker for heavy cutting of carbon steel and alloy steel</p> <p>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.</p>	<p>Carbon Steel-Alloy Steel</p>  
For Cast Iron	M Class	<p>Flat Top</p> 	<p>Recommendation for rough cutting of cast iron</p> <p>Double sided flat insert. Most effective in unstable machining i.e. interrupted cuts due to high edge strength and stable fitting on the shim.</p>	<p>Cast Iron</p>  
		<p>Flat Top</p> 	<p>For cast iron</p> <p>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.</p>	<p>Cast Iron</p>  

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
							
	CNMM_HR  ↻ A109		SNMM_HR  ↻ A123				
	CNMM_HV  ↻ A109		SNMM_HV  ↻ A123				
	CNMA  ↻ A109	DNMA  ↻ A116	SNMA  ↻ A123	TNMA  ↻ A130	VNMA  ↻ A135	WNMA  ↻ A140	
		DNGA  ↻ A116	SNGA  ↻ A123	TNGA  ↻ A130	VNGA  ↻ A135		

CLASSIFICATION


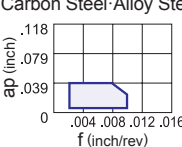
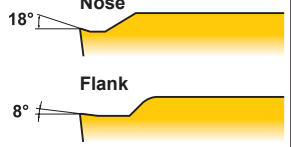

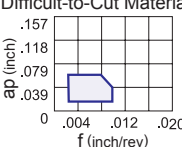
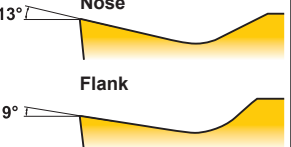

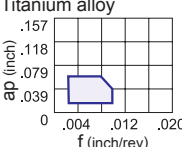
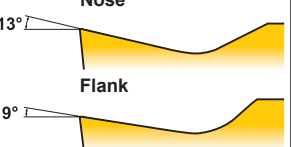
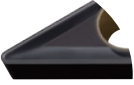
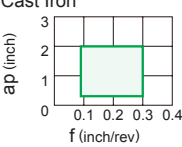
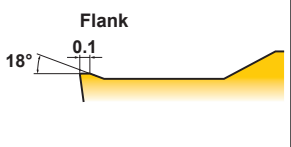

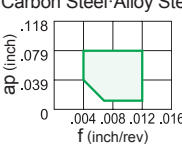
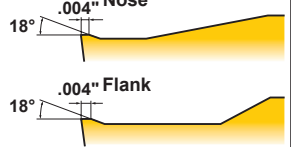

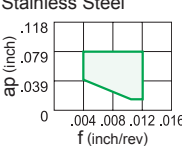
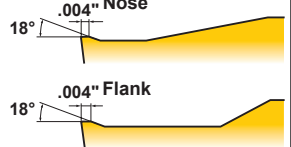

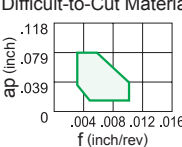
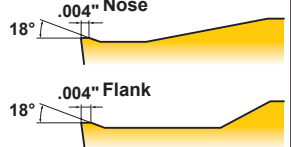

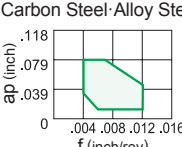
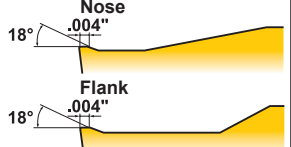

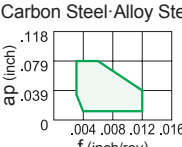
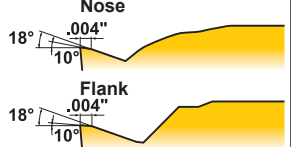
5° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features		Cross Section Geometry
Finish Cutting	M Class	FP 	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 	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 	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 	
	G Class	FJ 	Finishing difficult-to-cut materials The curved cutting edges support changes in cutting depth, smooth chip discharge and disposal. The high rake angle is highly suitable for finishing difficult-to-cut materials.	Difficult-to-Cut Materials 	
		FJ-P 	Finishing titanium alloy Ideal for aluminum and copper. The sharp edge produces excellent surface finishes. The curved edge allows smooth chip discharge. The polished insert face prevents built up edge.	Titanium alloy 	
		R/L F 	Finishing carbon steel and alloy steel Angled chipbreaker controls chip flow. Sharp cutting edge produces excellent surface finishes.	Carbon Steel·Alloy Steel 	
Light Cutting	M Class	LP 	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 	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 	
		LS 	Recommendation for light cutting of difficult-to-cut materials Sharp cutting edge due to a large rake angle. Breaker protrusion suitable for depth of cut area achieves a wide range of chip control.	Difficult-to-Cut Materials 	

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 
					VBMT_FP  ↻ A174		
					VBMT_FM  ↻ A174		
					VBMT_FV  ↻ A174		
					VBGT_FJ  ↻ A174		
					VBGT_FJ-P  ↻ A174		
					VBGT_R/L F  ↻ A175	WBGT_R/L F  ↻ A183	
					VBMT_LP  ↻ A175		
					VBMT_LM  ↻ A175		
					VBMT_LS  ↻ A175		

CLASSIFICATION


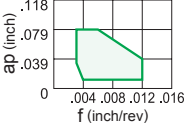
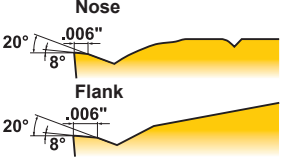
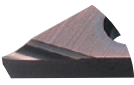
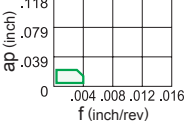
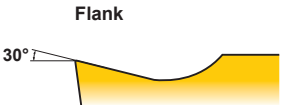
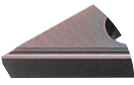
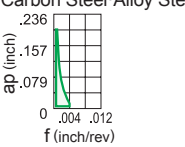
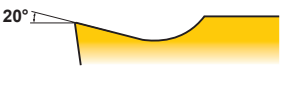
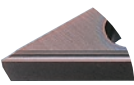
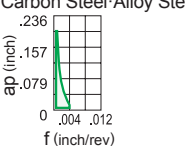
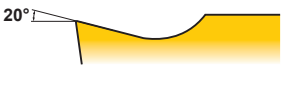

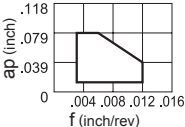

5° POSITIVE INSERTS WITH HOLE













Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Light Cutting	M Class	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 applications.	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	MK 	Recommendation for medium cutting of cast iron Optimum balance between sharpness and high edge strength for general use.	Cast Iron  
		MP 	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 	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  
		MS 	Recommendation for medium cutting of difficult-to-cut materials	Difficult-to-Cut Materials  
		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  

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 
					VBMT_SV  ↻ A175		
					VBGT_MJ  ↻ A175		
					VBGT_MJ-P  ↻ A175		
					VBMT_MK  ↻ A176		
					VBMT_MP  ↻ A175		
					VBMT_MM  ↻ A176		
					VBMT_MS  ↻ A176		
					VBMT  ↻ A176		
					VBMT_MV  ↻ A176		

CLASSIFICATION


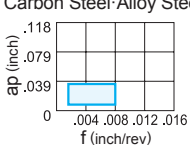

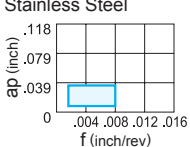

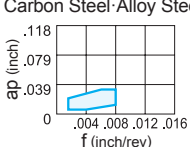

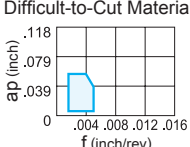

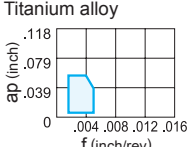

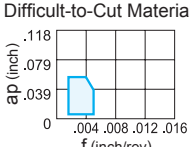

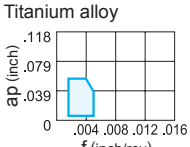

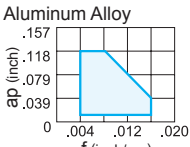
5° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M Class	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  
For Cast Iron	M Class	Flat Top 	Heavy cutting of cast iron Flat top. Most effective for unstable machining due to its high edge strength.	Cast Iron  

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 
						WBMT_R/L MV  ↻ A183	
					VBET_R/L SR  ↻ A177		
					VBET_R/L SN  ↻ A177		
					VBET_R/LW SN  ↻ A177		
					VBMW  ↻ A177		

CLASSIFICATION

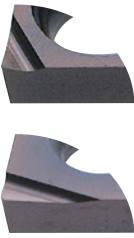
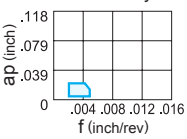
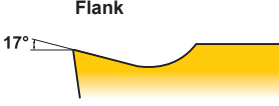

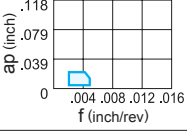
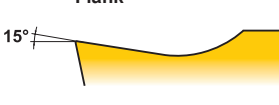

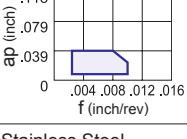


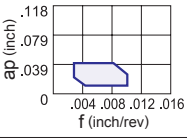


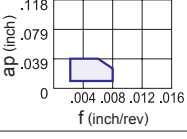


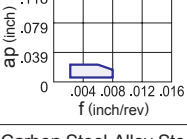


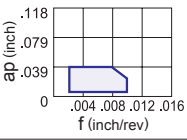


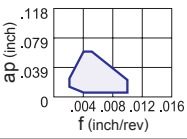
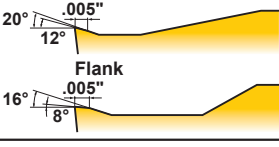
7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features		Cross Section Geometry
M Class		FP 	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 	Nose 6° Flank 6°
		FM 	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 	Nose 6° Flank 6°
		FV 	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 	Nose 18° Flank 8°
Finish Cutting		NEW FS 	Recommendation for finishing difficult-to-cut materials Ideal for heat-resistant alloys, titanium alloys, and cobalt chrome alloys. Sharp cutting edges provide excellent surface precision and finish. Highly efficient chip discharge is possible due to curved cutting edges.	Difficult-to-Cut Materials 	Nose 14° Flank 9°
		NEW FS-P 	Recommendation for finishing titanium alloy Ideal for titanium alloys and copper alloys. Sharp cutting edges provide excellent surface precision and finish. Highly efficient chip discharge is possible due to curved cutting edges. Polished (mirror-surface) finish of insert surfaces drastically improves welding resistance extending tool life.	Titanium alloy 	Nose 14° Flank 9°
		FJ 	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 difficult-to-cut materials.	Difficult-to-Cut Materials 	Nose 14° Flank 9°
		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 	Nose 14° Flank 14°
G Class		AZ 	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 	Flank 30°

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Rhombic 25° 	Round 
	CCMT_FP  ↻ A145	DCMT_FP  ↻ A155	SCMT_FP  ↻ A164	TCMT_FP  ↻ A167	VCMT_FP  ↻ A178			
	CCMT_FM  ↻ A145	DCMT_FM  ↻ A155	SCMT_FM  ↻ A164	TCMT_FM  ↻ A167	VCMT_FM  ↻ A178			
	CCMT_FV  ↻ A145	DCMT_FV  ↻ A155	SCMT_FV  ↻ A164	TCMT_FV  ↻ A167	VCMT_FV  ↻ A178			
	CCGT_FS  ↻ A145	DCGT_FS  ↻ A156						
	CCGT_FS-P  ↻ A145	DCGT_FS-P  ↻ A156						
	CCGT_FJ  ↻ A145	DCGT_FJ  ↻ A155						
	CCGT_FJ-P  ↻ A146	DCGT_FJ-P  ↻ A155		TCGT_FJ-P  ↻ A167		WCGT_FJ-P  ↻ A184		
	CCGT_AZ  ↻ A146	DCGT_AZ  ↻ A156		TCGT_AZ  ↻ A167	VCGT_AZ  ↻ A179			RCGT-AZ  ↻ A163

CLASSIFICATION


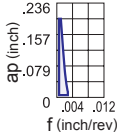
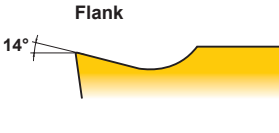
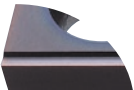
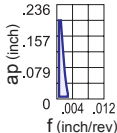
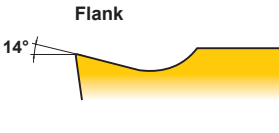

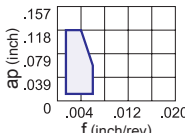
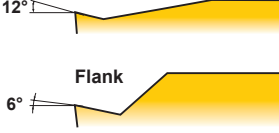

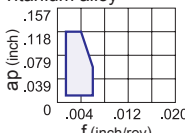
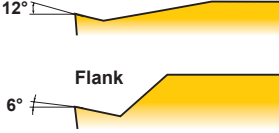

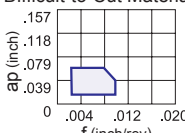
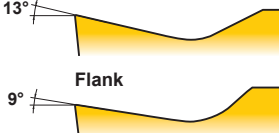

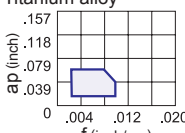
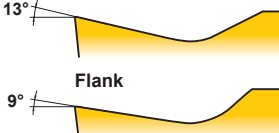

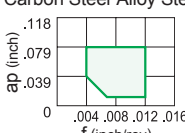
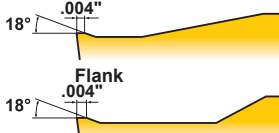

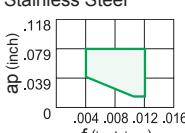
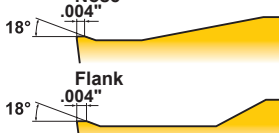

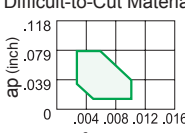
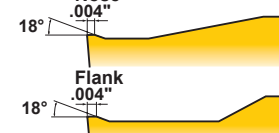
7° POSITIVE INSERTS WITH HOLE

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 provides excellent surface finishes.	Carbon Steel-Alloy Steel  
		R/L 	Finishing Angled chipbreaker. Excellent chip control at low feed rates.	Carbon Steel-Alloy Steel  
Light Cutting	M Class	LP 	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 	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  
		NEW LS 	Recommendation for light cutting of difficult-to-cut materials Sharp cutting edge due to a large rake angle. Breaker protrusion suitable for depth of cut area achieves a wide range of chip control.	Difficult-to-Cut Materials  
		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  

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Rhombic 25°	Round
								
	CCGT_L F  ↪ A146	DCGT_R/L F  ↪ A156		TCGT_R/L F  ↪ A168	VCGT_R/L F  ↪ A179			
	CCGH_R/L F  ↪ A147							
						WCGT_R/L  ↪ A184		
	CCMT_LP  ↪ A147	DCMT_LP  ↪ A156	SCMT_LP  ↪ A164	TCMT_LP  ↪ A168	VCMT_LP  ↪ A179			
	CCMT_LM  ↪ A147	DCMT_LM  ↪ A157	SCMT_LM  ↪ A164	TCMT_LM  ↪ A168	VCMT_LM  ↪ A179			
	NEW CCMT_LS  ↪ A147	NEW DCMT_LS  ↪ A157			NEW VCMT_LS  ↪ A179			
							XCMT_SVX  ↪ A186	
	CCMH_SV  ↪ A147	DCMT_SV  ↪ A157			VCMT_SV  ↪ A179			
	CCMT_SW  ↪ A147							

CLASSIFICATION


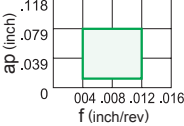

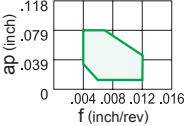

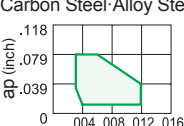

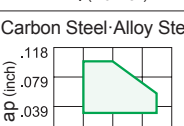

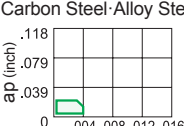

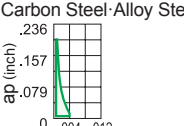

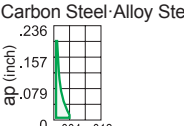

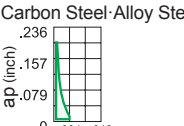
7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features		Cross Section Geometry
Light Cutting	G Class	NEW R SS 	Light cutting for Swiss type lathe machining The parallel chip breaker. Excellent chip control at low feed rate.	Carbon Steel-Alloy Steel 	
		R/L SS 	Light cutting for Swiss type lathe machining The parallel chipbreaker. Excellent chip control at low feed rate.	Carbon Steel-Alloy Steel 	
		NEW LS 	Recommendation for light cutting of difficult-to-cut materials Ideal for heat-resistant alloy and titanium alloy and cobalt chrome alloy. The parallel cutting edge. Breaker protrusion suitable for depth of cut area achieves a wide range of chip control.	Difficult-to-Cut Materials 	
		NEW LS-P 	Recommendation for light cutting of titanium alloy Ideal for aluminum and copper. The parallel cutting edge. Breaker protrusion suitable for depth of cut area achieves a wide range of chip control. The polished insert face prevents built up edge.	Titanium alloy 	
		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 	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 	
		MM 	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 MS 	Recommendation for medium cutting of difficult-to-cut materials Ideal for heat-resistant alloy and titanium alloy and cobalt chrome alloy. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depth of cut.	Difficult-to-Cut Materials 	

	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Rhombic 25° 	Round 
	CCGT_R SS  NEW ⇒ A147	DCGT_R SS  NEW ⇒ A157						
	CCGT_R/L SS  ⇒ A147, A148	DCGT_R/L SS  ⇒ A157						
	CCGT_LS  NEW ⇒ A148	DCGT_LS  NEW ⇒ A157			VCGT_LS  NEW ⇒ A178			
	CCGT_LS-P  NEW ⇒ A148	DCGT_LS-P  NEW ⇒ A157			VCGT_LS-P  NEW ⇒ A178			
	CCGT_MJ  ⇒ A148	DCGT_MJ  ⇒ A158		TCGT_MJ  ⇒ A168		WCGT_MJ  ⇒ A184		
	CCGT_MJ-P  ⇒ A148	DCGT_MJ-P  ⇒ A158		TCGT_MJ-P  ⇒ A168		WCGT_MJ-P  ⇒ A184		
	CCMT_MP  ⇒ A149	DCMT_MP  ⇒ A158	SCMT_MP  ⇒ A164	TCMT_MP  ⇒ A169	VCMT_MP  ⇒ A179			
	CCMT_MM  ⇒ A149	DCMT_MM  ⇒ A158	SCMT_MM  ⇒ A165	TCMT_MM  ⇒ A169	VCMT_MM  ⇒ A179			
	CCMT_MS  NEW ⇒ A149	DCMT_MS  NEW ⇒ A158					VCMT_MS  NEW ⇒ A180	

CLASSIFICATION


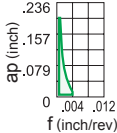
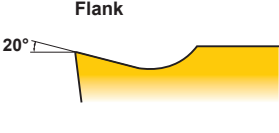

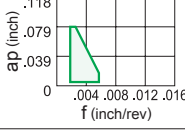
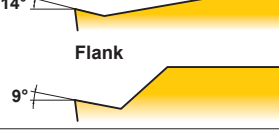

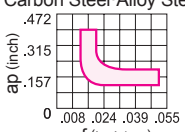
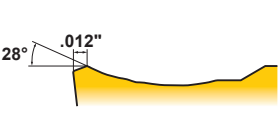
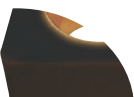
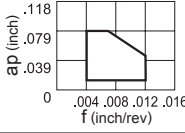
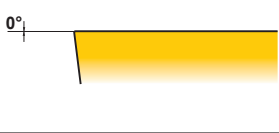

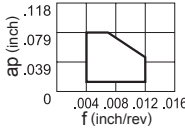
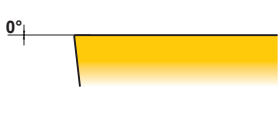
7° POSITIVE INSERTS WITH HOLE

Application Tolerance	Breaker Name and Picture	Features		Cross Section Geometry
Medium Cutting	M Class	MK  Recommendation for medium cutting of cast iron Optimum balance between sharpness and high edge strength for general use.	Cast Iron	
		Standard  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	
		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	 	
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	 	


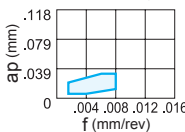

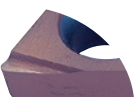
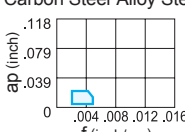
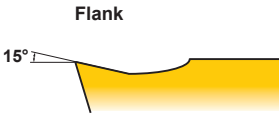

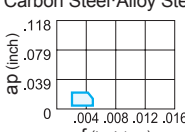
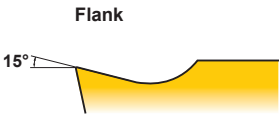
	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 
	CCMT_MK  ↻ A149	DCMT_MK  ↻ A159	SCMT_MK  ↻ A165	TCMT_MK  ↻ A169	VCMT_MK  ↻ A180		
	CCMT  ↻ A149	DCMT  ↻ A159	SCMT  ↻ A165	TCMT  ↻ A169	VCMT  ↻ A180	WCMT  ↻ A184	RCMT  ↻ A163
							RCMX  ↻ A163
	CCMH_MV  ↻ A149	DCMT_MV  ↻ A159			VCMT_MV  ↻ A180		
	CCMT_MW  ↻ A150						
	CCET_R/L SR  ↻ A150	DCET_R/L SR  ↻ A159					
	CCET_R/L SN  ↻ A150, A151	DCET_R/L SN  ↻ A159, A160					
	CCGT_R/L SN  ↻ A151	DCGT_R/L SN  ↻ A160					
	CCET_R/LW SN  ↻ A151	DCET_R/LW SN  ↻ A161					








CLASSIFICATION









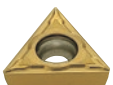
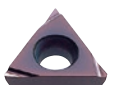
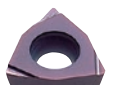
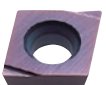
7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	G Class	NEW R SN 	Medium cutting for Swiss style lathes machining The parallel chip breaker. Excellent chip control at low to medium feed rates.	Carbon Steel·Alloy Steel  
		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  
	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


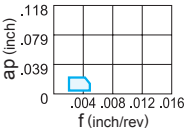

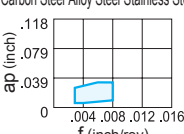

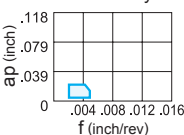

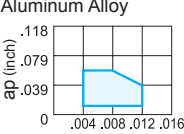
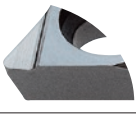
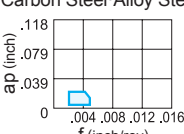
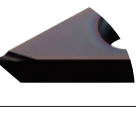
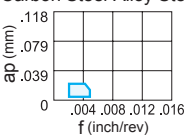

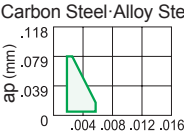

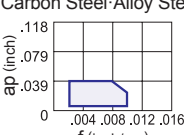

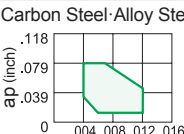
Application	Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M Class	FV 	Recommendation for finishing carbon steel, alloy steel, mild steel and stainless steel Suitable for low depth of cut and low feed rate applications. Sharp cutting edge and low resistance design achieves excellent cutting performance.	Carbon Steel·Alloy Steel  
	G Class	R/L FS 	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  
	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
							
	CCGT_R SN  ↪ A151	DCGT_R SN  ↪ A160					
	CCGT_MSMG  ↪ A151	DCGT_MSMG  ↪ A161					
							RCMX-RR  ↪ A163
	CCMW  ↪ A152	DCMW  ↪ A161	SCMW  ↪ A165	TCMW  ↪ A169	VCMW  ↪ A180		
	CCGW  ↪ A152	DCGW  ↪ A161		TCGW  ↪ A169			

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round
							
	CPMH_FV  ↪ A153			TPMH_FV  ↪ A171			
				TPGH_R/L FS  ↪ A171		WPGT_R/L FS  ↪ A185	
	CPMH_R/L F  ↪ A153						

CLASSIFICATION


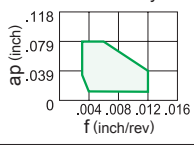
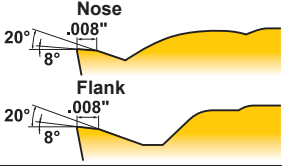

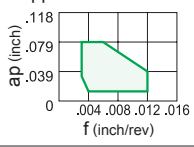
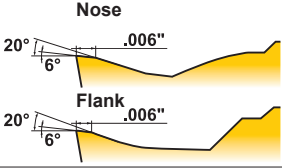

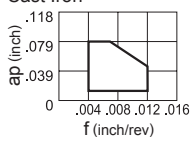
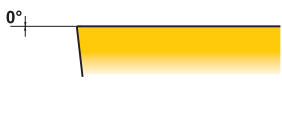
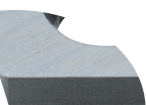
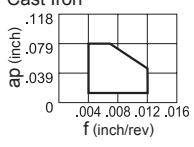
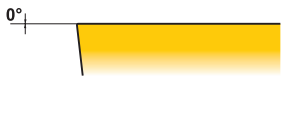
11° POSITIVE INSERTS WITH HOLE

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 	Flank 15°
	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 	Nose 6° Flank 6°
	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 	Flank 10°
	G Class	Standard 	Finishing aluminum alloy Lead chipbreaker controls chip flow. Good chip control for low to medium feed rates.	Aluminum Alloy 	Flank 25°
	M Class	L 	Finishing Angled chipbreaker controls chip flow. Good chip control for low to medium feed rates.	Carbon Steel-Alloy Steel 	Flank 10°
	E Class	SRF 	Finishing Lead chipbreaker controls chip flow. Sharp cutting edge produces excellent surface finishes.	Carbon Steel-Alloy Steel 	Flank 15°
	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 	Nose 11° Flank 11°
Light Cutting	M Class	SV 	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 	Nose 18° Flank 8°
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 	Nose 10° Flank 10°

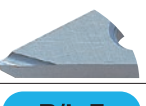
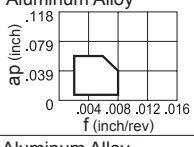
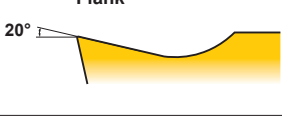

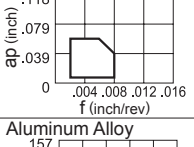
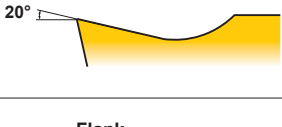
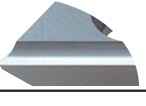
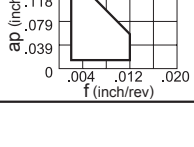
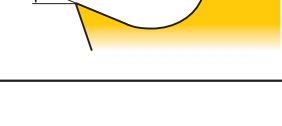
	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 
	CPGT_R/L F  ↻ A153						
	CPMT_SQ  ↻ A153			TPMT_SQ  ↻ A171			
				TPGX_R/L  ↻ A172			
	CPGT  ↻ A153						
				TPMX_L  ↻ A172			
					VPET_SRF  ↻ A182		
					VPGT_SMG  ↻ A182		
	CPMH_SV  ↻ A153			TPMH_SV  ↻ A172			
	CPMX  ↻ A154		SPMT  ↻ A166	TPMX  ↻ A173			
















CLASSIFICATION









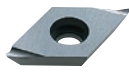


11° POSITIVE INSERTS WITH HOLE

Application Tolerance	Breaker Name and Picture	Features	Cross Section Geometry
Medium Cutting M Class	MV 	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 G Class	Flat Top 	Heavy cutting of cast iron Flat top. Most effective for unstable machining due to high edge strength.	Cast Iron  
	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  ↻ A154			TPMH_MV  ↻ A173		WPMT_MV  ↻ A185	
	CPMT_MQ  ↻ A154			TPMT_MQ  ↻ A173			
			SPMW  ↻ A166				
			SPGX  ↻ A166	TPGX  ↻ A173			

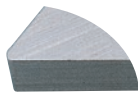
	Rhombic 80° 	Rhombic 55° 	Square 90° 	Triangular 60° 	Rhombic 35° 	Trigon 80° 	Round 
					VDGX_R/L  ↻ A181		
		DEGX_R/L F  ↻ A162					
		DEGX_R/L  ↻ A162		TEGX_R/L  ↻ A170			

CLASSIFICATION

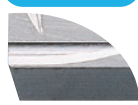



NEGATIVE INSERTS WITHOUT HOLE











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 Graph: ap (inch) vs f (inch/rev) Cross Section Geometry: Flank, 12°, .012"
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 Graph: ap (inch) vs f (inch/rev) Cross Section Geometry: 0°
	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 Graph: ap (inch) vs f (inch/rev) Cross Section Geometry: 0°


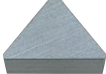
7° POSITIVE INSERTS WITHOUT HOLE

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 Graph: ap (inch) vs f (inch/rev) Cross Section Geometry: 0°












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 Graph: ap (inch) vs f (inch/rev) Cross Section Geometry: Flank, 15°
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 Graph: ap (inch) vs f (inch/rev) Cross Section Geometry: Nose, Flank, 0°
	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 Graph: ap (inch) vs f (inch/rev) Cross Section Geometry: 0°
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 Graph: ap (inch) vs f (inch/rev) Cross Section Geometry: 0°

	Rhombic 80° 	Square 90° 	Triangular 60° 	Parallelogram 55° 
				KNUX_M1  ↪ A141
	CNMN  ↪ A142	SNMN  ↪ A143	TNMN  ↪ A144	
		SNG  ↪ A143	TNG  ↪ A144	

	Triangular 60° 
	TCG  ↪ A189

SPECIAL PURPOSE INSERTS

		Application	Tolerance	Tool Holder Type	Inserts
	Square 90° 				
	SPGR_R  ↪ A188				
	Triangular 60° 				
	TPGR_R/L  ↪ A190				
	SPMR  ↪ A188				
	TPMR  ↪ A190				
	SPMN  ↪ A188				
	TPMN  ↪ A190				
	SPG  ↪ A188				
	TPG  ↪ A191				
		Special	G Class	TL Type	RTG  ↪ A187

TURNING INSERTS

TURNING INSERTS

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	FP	NX2525	690-985	.003-.010	.004-.040
		●	F	2	FH	AP25N	705-1115	.004-.008	.008-.040
		●	F	3	FH	NX2525	670-970	.003-.008	.008-.040
		●	F	4	R/L-F	MP3025	690-1065	.003-.006	.004-.020
		●	F	5	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	FP	MP3025	690-1080	.003-.010	.004-.040
		●	F	2	FH	MP3025	690-1065	.004-.008	.008-.040
		●	F	3	FH	NX3035	655-935	.004-.008	.008-.040
●	F	4	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		

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)	
Carbon Steel • Alloy Steel (AISI 1045, AISI 4140)	180 | 280HB	●	L	4	SA	UE6110	690–1165	.004–.016	.012–.079
		●	L	5	LP	MP3025	640–970	.004–.016	.012–.079
		●	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	MC6025	590–820	.020–.050	.118–.433
		●	H	2	HV	UE6020	410–670	.028–.052	.158–.473
		●	H	3	HZ	UE6110	525–900	.016–.048	.079–.394
		⊕	F	1	FP	MC6025	755–1230	.003–.010	.004–.040
		⊕	F	2	FH	UE6110	755–1280	.004–.008	.008–.040
		⊕	F	3	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	MC6035	625–1015	.008–.020	.012–.157
		⊕	M	3	MP	UE6020	590–970	.007–.020	.012–.158
		⊕	M	4	MA	UE6020	590–970	.008–.020	.012–.158
		⊕	M	5	MA	UE6035	560–770	.008–.020	.012–.158
		⊕	M	6	MH	UE6020	590–970	.008–.022	.040–.158
		⊕	M	7	MH	UE6035	560–770	.008–.022	.040–.158
		⊕	M	8	Std	UE6020	590–970	.010–.024	.060–.197
		⊕	M	9	Std	UE6035	560–770	.010–.024	.060–.197
		⊕	M	10	MW	MC6025	620–1015	.008–.024	.036–.158
		⊕	M	11	MW	UE6020	590–970	.004–.009	.035–.157
⊕	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		

TURNING INSERTS

TURNING INSERTS

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		

TURNING INSERTS

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		

TURNING INSERTS

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		

TURNING INSERTS

TURNING INSERTS

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)			
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		
		●	≤800MPa	●	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			

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		

TURNING INSERTS

TURNING INSERTS

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

TURNING INSERTS

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

TURNING INSERTS

TURNING INSERTS

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

TURNING INSERTS

TURNING INSERTS

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
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

TURNING INSERTS

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	LS	MT9005	115–245	.002–.005	.008–.056
		●	F	1	FJ	MT9005	115–245	.002–.005	.008–.056
		⊕	F	1	MS	MT9005	115–245	.002–.005	.008–.056
S									
Heat Resistant Alloy (Inconel718)	—	●	F	1	FS	MP9005	82–310	.002–.005	.008–.055
		●	L	1	LS	MP9005	82–310	.002–.008	.012–.118
		●	F	1	FS	MP9015	66–245	.002–.005	.008–.055
		●	L	1	LS	MP9015	66–245	.002–.008	.012–.118
		⊕	F	1	FS	MP9015	66–245	.002–.005	.008–.055
		⊕	L	1	LS	MP9015	66–245	.002–.008	.012–.118

TURNING INSERTS

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	≤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			

TURNING INSERTS [NEGATIVE]

80° CN TYPE INSERTS WITH HOLE

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

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

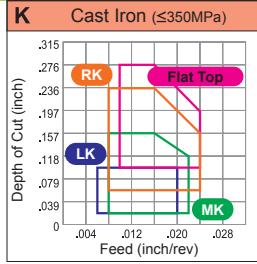
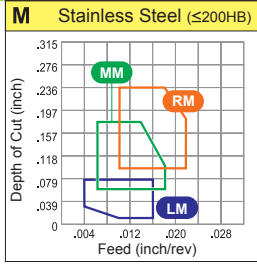
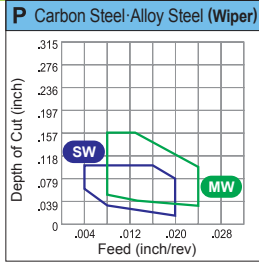
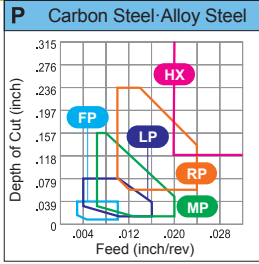
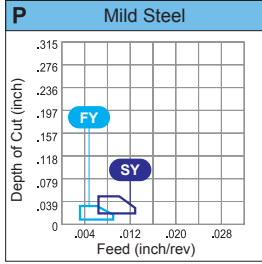
T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	Steel																														
	M	Stainless Steel																														
Shape	K	Cast Iron																														
	N	Non-Ferrous Metal																														
Order Number	S	Heat-resistant Alloy, Titanium Alloy																														
	(ISO) Number	Corner Radius (inch)																														
Shape			Coated										Cermet	Coated Cermet	Carbide		Applicable Holder Page															
	UE6105	MC6015	MC6025	MC6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015		VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010
FP 	CNMG430.5FP	CNMG120402-FP	.008	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	C006
	CNMG431FP	CNMG120404-FP	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-009
	CNMG432FP	CNMG120408-FP	.031	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	E021
FH 	CNMG430.5FH	CNMG120402-FH	.008	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	C006	
	CNMG431FH	CNMG120404-FH	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-009	
	CNMG432FH	CNMG120408-FH	.031	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	E021	
	CNMG433FH	CNMG120412-FH	.047	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	H006	
FS 	CNMG431FS	CNMG120404-FS	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	C006	
	CNMG432FS	CNMG120408-FS	.031	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-009	
FY 	CNMG431FY	CNMG120404-FY	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	C006	
	CNMG432FY	CNMG120408-FY	.031	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-009	
FJ 	CNGG43V5FJ	CNGG1204V5-FJ	.002	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	C006	
	CNGG430.2FJ	CNGG120401-FJ	.004	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-009	
	CNGG430.5FJ	CNGG120402-FJ	.008	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	E021	
	CNGG431FJ	CNGG120404-FJ	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	E024	
	CNGG432FJ	CNGG120408-FJ	.031	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	H006	
FJ-P 	CNGG430.2FJ-P	CNGG120401-FJ-P	.004	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	C006	
	CNGG430.5FJ-P	CNGG120402-FJ-P	.008	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-009	
	CNGG43V5FJ-P	CNGG1204V5-FJ-P	.002	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	E021	

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

TURNING INSERTS [NEGATIVE]

80° CN TYPE INSERTS WITH HOLE

CNMG 4 3 1 SY

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

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

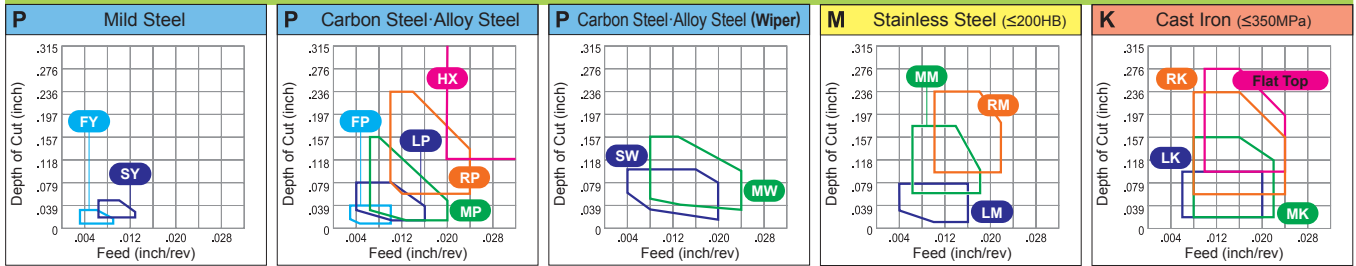
T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	Steel																																				
	M	Stainless Steel																																				
Shape	K	Cast Iron																																				
	N	Non-Ferrous Metal																																				
Order Number	S	Heat-resistant Alloy, Titanium Alloy																																				
	(ISO) Number	Corner Radius (inch)																																				
			Coated										Cermet	Coated Cermet	Carbide			Applicable Holder Page																				
			UE6105	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115		MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010			
SY 	CNMG431SY	CNMG120404-SY	.016	●●●●●●●●●●●●●●●●																			★	●										C006				
	CNMG432SY	CNMG120408-SY	.031																						★	●	★										E021	
C 	CNMG431C	CNMG120404-C	.016																					★	●												C006	
	CNMG432C	CNMG120408-C	.031																					★	●												E021	
MJ 	CNMG431MJ	CNMG120404-MJ	.016										★						●●																	C006		
	CNMG432MJ	CNMG120408-MJ	.031										★						●●																		E021	
	CNMG433MJ	CNMG120412-MJ	.047										★						★	★																E024		
	CNMG434MJ	CNMG120416-MJ	.063										★						★	★																H006		
MJ 	CNMG431MJ	CNMG120404-MJ	.016																																		C006	
	CNMG432MJ	CNMG120408-MJ	.031																																			E021
MP 	CNMG431MP	CNMG120404-MP	.016	●●●●●●●●●●●●●●●●															●							●											C006	
	CNMG432MP	CNMG120408-MP	.031	●●●●●●●●●●●●●●●●															●							●												E021
	CNMG433MP	CNMG120412-MP	.047	●●●●●●●●●●●●●●●●															●							●												E024
	CNMG434MP	CNMG120416-MP	.063	●●●●●●●●●●●●●●●●															●							●												H006
	CNMG542MP	CNMG160608-MP	.031	●●●●●●●●●●●●●●●●															●																			H006
	CNMG543MP	CNMG160612-MP	.047	●●●●●●●●●●●●●●●●															●																			E024
	CNMG544MP	CNMG160616-MP	.063	●●●●●●●●●●●●●●●●															●																			H006

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

TURNING INSERTS [NEGATIVE]

80° CN TYPE INSERTS WITH HOLE

CNMG 4 3 1 MH

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

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

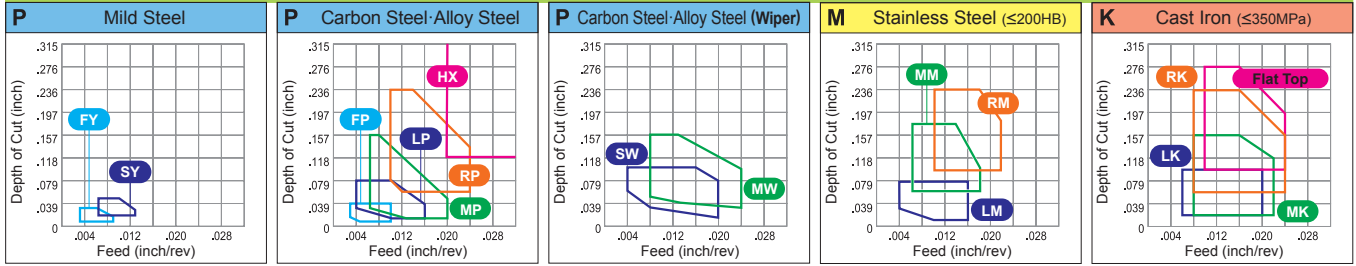
T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● 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	
	MH	CNMG431MH	CNMG120404-MH	.016	●●●●●	●							
		CNMG432MH	CNMG120408-MH	.031	●●●●●	●							
		CNMG433MH	CNMG120412-MH	.047	●●●●●	●							
		CNMG434MH	CNMG120416-MH	.063	●●●●●	●							
		CNMG542MH	CNMG160608-MH	.031	●●●●●	●							
		CNMG543MH	CNMG160612-MH	.047	●●●●●	●							
		CNMG544MH	CNMG160616-MH	.063	●●●●●	●							
		CNMG643MH	CNMG190612-MH	.047	●●●●●	●							
	Standard	CNMG322	CNMG090308	.031	●●●●●	●							
		CNMG32.51	CNMG09T304	.016	●●●●●	●							
		CNMG32.52	CNMG09T308	.031	●●●●●	●							
		CNMG431	CNMG120404	.016	●●●●●	●							
		CNMG432	CNMG120408	.031	●●●●●	●							
		CNMG433	CNMG120412	.047	●●●●●	●							
		CNMG434	CNMG120416	.063	●●●●●	●							
	Standard	CNMG542	CNMG160608	.031	●●●●●	●							
		CNMG543	CNMG160612	.047	●●●●●	●							
		CNMG544	CNMG160616	.063	●●●●●	●							
		CNMG642	CNMG190608	.031	●●●●●	●							
		CNMG643	CNMG190612	.047	●●●●●	●							
	MW (With Wiper)	*1 CNMG432MW	CNMG120408-MW	.031	●●●●●	●							
		*1 CNMG433MW	CNMG120412-MW	.047	●●●●●	●							
	MS	*2 CNMG321MS	CNMG090304-MS	.016	●●●●●	●							
		*2 CNMG322MS	CNMG090308-MS	.031	●●●●●	●							
		*2 CNMG32.51MS	CNMG09T304-MS	.016	●●●●●	●							
		*2 CNMG32.52MS	CNMG09T308-MS	.031	●●●●●	●							
		*2 CNMG431MS	CNMG120404-MS	.016	●●●●●	●							

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

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



TURNING INSERTS [NEGATIVE]



CNMG 4 3 2 GH
 Size Thickness Corner Radius Chip Breaker
 *Please refer to page A002.

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

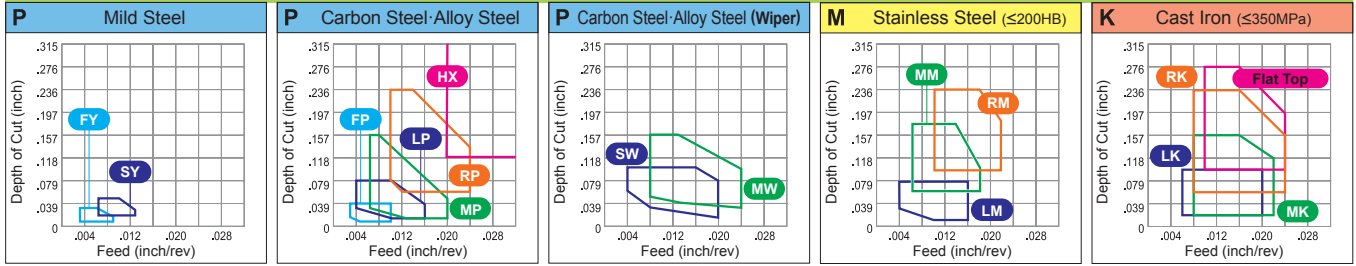
T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS

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









Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	Steel														Applicable Holder Page																			
	M	Stainless Steel																																	
Shape	K	Cast Iron														Applicable Holder Page																			
	N	Non-Ferrous Metal																																	
Shape	S	Heat-resistant Alloy, Titanium Alloy														Applicable Holder Page																			
			Coated	Cermet	Coated Cermet	Carbide							Applicable Holder Page																						
Order Number	(ISO) Number	Corner Radius (inch)	UE6105	UE6110	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035		US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010
GH 	CNMG432GH	CNMG120408-GH	.031	●	●																														
	CNMG433GH	CNMG120412-GH	.047	●	●																														
	CNMG434GH	CNMG120416-GH	.063	●	★																														
	CNMG543GH	CNMG160612-GH	.047	●	●																														
	CNMG544GH	CNMG160616-GH	.063	●	●																														
	CNMG643GH	CNMG190612-GH	.047	●	●																														
	CNMG644GH	CNMG190616-GH	.063	●	●																														
GJ 	CNMG432GJ	CNMG120408-GJ	.031											●																				●	
	CNMG433GJ	CNMG120412-GJ	.047											●																					●
	CNMG434GJ	CNMG120416-GJ	.063											●										★	★										★
	CNMG543GJ	CNMG160612-GJ	.047											●																					●
	CNMG643GJ	CNMG190612-GJ	.047											●																					●
	CNMG644GJ	CNMG190616-GJ	.063											●																					●
	HZ 	CNMM432HZ	CNMM120408-HZ	.031	●	★	★																												
CNMM433HZ		CNMM120412-HZ	.047	●	★	★																													
CNMM434HZ		CNMM120416-HZ	.063			★																													
CNMM543HZ		CNMM160612-HZ	.047	●																															
CNMM544HZ		CNMM160616-HZ	.063	●																															
CNMM643HZ		CNMM190612-HZ	.047											★																					
CNMM644HZ		CNMM190616-HZ	.063	●									★																						
HX 	CNMM432HX	CNMM120408-HX	.031			★	★																												
	CNMM433HX	CNMM120412-HX	.047			★	★																												
	CNMM543HX	CNMM160612-HX	.047			★	★																												
	CNMM544HX	CNMM160616-HX	.063			★	★																												
	CNMM643HX	CNMM190612-HX	.047	●	★	★	★		★																										
	CNMM644HX	CNMM190616-HX	.063	●	★	★	★		★																										
	CNMM646HX	CNMM190624-HX	.094	●	★	★	★		★																										
	CNMM866HX	CNMM250924-HX	.094	●	★	★	★		★																										

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

Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	Material		Cutting Conditions																				Applicable Holder Page																
	Symbol	Material Name	UE6105	UE6110	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT		VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010			
Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet	Coated Cermet	Carbide				Applicable Holder Page													
				UE6105	UE6110	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M		NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010		
 Light Cutting	LP	DNMG331LP	DNMG110404-LP	.016	●	●	●	●	●																														
		DNMG332LP	DNMG110408-LP	.031	●	●	●	●	●																			●											
		DNMG431LP	DNMG150404-LP	.016	●	●	●	●	●																														
		DNMG432LP	DNMG150408-LP	.031	●	●	●	●	●																				●										
		DNMG433LP	DNMG150412-LP	.047	●	●	●	●	●																														
		DNMG441LP	DNMG150604-LP	.016	●	●	●	●	●																				●										
		DNMG442LP	DNMG150608-LP	.031	●	●	●	●	●																				●										
		DNMG443LP	DNMG150612-LP	.047	●	●	●	●	●																														
 Light Cutting	LM	DNMG331LM	DNMG110404-LM	.016						●	●	●																											
		DNMG332LM	DNMG110408-LM	.031							●	●	●																										
		DNMG431LM	DNMG150404-LM	.016							●	●	●																										
		DNMG432LM	DNMG150408-LM	.031							●	●	●																										
		DNMG433LM	DNMG150412-LM	.047							●	●	●																										
		DNMG441LM	DNMG150604-LM	.016							●	●	●																										
		DNMG442LM	DNMG150608-LM	.031							●	●	●																										
		DNMG443LM	DNMG150612-LM	.047							●	●	●																										
 Light Cutting	LK	DNMG332LK	DNMG110408-LK	.031											★	●																							
		DNMG431LK	DNMG150404-LK	.016													●	●																					
		DNMG432LK	DNMG150408-LK	.031													●	●																					
		DNMG433LK	DNMG150412-LK	.047													●	●																					
		DNMG441LK	DNMG150604-LK	.016													●	●																					
		DNMG442LK	DNMG150608-LK	.031													●	●																					
		DNMG443LK	DNMG150612-LK	.047													●	●																					
 Light Cutting	LS	DNMG431LS	DNMG150404-LS	.016																●	●																		
		DNMG432LS	DNMG150408-LS	.031																	●	●																	
		DNMG441LS	DNMG150604-LS	.016																	●	●																	
		DNMG442LS	DNMG150608-LS	.031																	●	●																	
 Light Cutting	SH	DNMG331SH	DNMG110404-SH	.016	●	●									★																								
		DNMG332SH	DNMG110408-SH	.031	●	●										●																							
		DNMG431SH	DNMG150404-SH	.016	●	●	●	●								●				●							★	●	★										
		DNMG432SH	DNMG150408-SH	.031	●	●	●	●								●				●							★	●	★										
		DNMG433SH	DNMG150412-SH	.047	●	●	●	●								●				★							★		★										
		DNMG441SH	DNMG150604-SH	.016	★	★																																	
		DNMG442SH	DNMG150608-SH	.031	★	★																																	
		DNMG443SH	DNMG150612-SH	.047	★	★																																	
 Light Cutting	SA	DNMG431SA	DNMG150404-SA	.016	●	●	●	●																		★	●												
		DNMG432SA	DNMG150408-SA	.031	●	●	●	●							●													★	●										
		DNMG433SA	DNMG150412-SA	.047	●	●	●	●																					●										
		DNMG441SA	DNMG150604-SA	.016	★	★																							★										
		DNMG442SA	DNMG150608-SA	.031	★	★																							★										
		DNMG443SA	DNMG150612-SA	.047	★	★																							★										

■ = MIRACLE SIGMA

CHIP BREAKER > A046
IDENTIFICATION > A002

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

T

V

W

A111

TURNING INSERTS [NEGATIVE]

55° DN TYPE INSERTS WITH HOLE

DNMX 3 3 1 SW

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

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

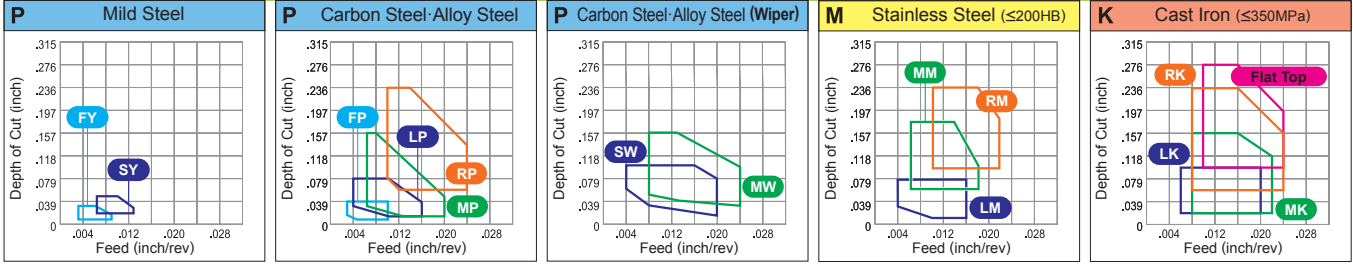
T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	Steel																																						
	M	Stainless Steel																																						
Shape	K	Cast Iron																																						
	N	Non-Ferrous Metal																																						
Order Number	S	Heat-resistant Alloy, Titanium Alloy																																						
	(ISO) Number	Corner Radius (inch)																																						
			Coated						Cermet	Coated Cermet	Carbide			Applicable Holder Page																										
			UE6105	UE6110	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735		US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010				
SW (With Wiper)	*DNMX331SW	DNMX110404-SW	.016	●	●																																			
	*DNMX332SW	DNMX110408-SW	.031	●	●																																			
	*DNMX431SW	DNMX150404-SW	.016	●	●	●																				★	●													
	*DNMX432SW	DNMX150408-SW	.031	●	●	●																				★	●													
	*DNMX433SW	DNMX150412-SW	.047	●	●	●																				★	●													
	*DNMX441SW	DNMX150604-SW	.016	●	●	●																				★	●	★												
	*DNMX442SW	DNMX150608-SW	.031	●	●	●																				★	●	★												
*DNMX443SW	DNMX150612-SW	.047	●	●	●																				●	●														
SY	DNMG431SY	DNMG150404-SY	.016																						★	●														
	DNMG432SY	DNMG150408-SY	.031																						★	●	★													
	DNMG441SY	DNMG150604-SY	.016																							★	●													
	DNMG442SY	DNMG150608-SY	.031																							★	●													
C	DNMG431C	DNMG150404-C	.016																						★	●														
	DNMG432C	DNMG150408-C	.031																						★	●														
	DNMG441C	DNMG150604-C	.016																						★	●														
	DNMG442C	DNMG150608-C	.031																						★	●														
MJ	DNMG431MJ	DNMG150404-MJ	.016												★																									
	DNMG432MJ	DNMG150408-MJ	.031												★																									
	DNMG433MJ	DNMG150412-MJ	.047												★																									
	DNMG434MJ	DNMG150416-MJ	.063												★																									
	DNMG441MJ	DNMG150604-MJ	.016												★																									
	DNMG442MJ	DNMG150608-MJ	.031												★																									
	DNMG443MJ	DNMG150612-MJ	.047												★																									
DNMG444MJ	DNMG150616-MJ	.063												★																										
MJ	DNGM431MJ	DNGM150404-MJ	.016																																					
	DNGM432MJ	DNGM150408-MJ	.031																																					

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

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

TURNING INSERTS [NEGATIVE]

55° DN TYPE INSERTS WITH HOLE

DNMG 4 3 1 MH
 Size Thickness Corner Radius Chip Breaker
 *Please refer to page A002.

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

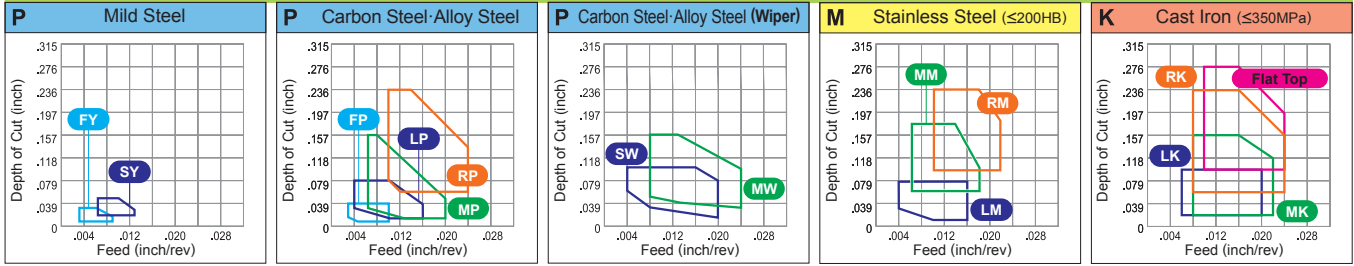
T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	Steel														Applicable Holder Page																										
	M	Stainless Steel																																								
Shape	K	Cast Iron														Applicable Holder Page																										
	N	Non-Ferrous Metal																																								
Shape	S	Heat-resistant Alloy, Titanium Alloy														Applicable Holder Page																										
	Order Number	(ISO) Number	Corner Radius (inch)	Coated										Cermet	Coated Cermet		Carbide																									
				UE6105	UE6110	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010						
MH 	DNMG431MH	DNMG150404-MH	.016	●	●																																					
	DNMG432MH	DNMG150408-MH	.031	●	●	●	●	●																																		
	DNMG433MH	DNMG150412-MH	.047	●	●	●	●	●																																		
	DNMG441MH	DNMG150604-MH	.016	★	★																																					
	DNMG442MH	DNMG150608-MH	.031	★	★	●	●	●																																		
	DNMG443MH	DNMG150612-MH	.047	★	★	●	●	●																																		
Standard 	DNMG332	DNMG110408	.031	●																																						
	DNMG431	DNMG150404	.016	●	●	●	●																				★	●	●													
	DNMG432	DNMG150408	.031	●	●	●	●																				★	●	●													
	DNMG433	DNMG150412	.047	●	●	●	●																				★															
	DNMG434	DNMG150416	.063	●	●	●	●																																			
	DNMG441	DNMG150604	.016	★	★	●	●																				★	★														
	DNMG442	DNMG150608	.031	★	★	●	●																				★	★														
	DNMG443	DNMG150612	.047	★	★	●	●																				●															
MW (With Wiper) 	*1 DNMX432MW	DNMX150408-MW	.031	●	●											●	●	●																								
	*1 DNMX433MW	DNMX150412-MW	.047	●	●												●	●	●																							
	*1 DNMX442MW	DNMX150608-MW	.031	★	●												●	●	★																							
	*1 DNMX443MW	DNMX150612-MW	.047	★	●												●	●																								
MS 	*2 DNMG332MS	DNMG110408-MS	.031	●																																						
	*2 DNMG431MS	DNMG150404-MS	.016	●											★																											
	*2 DNMG432MS	DNMG150408-MS	.031	●											★																											
	*2 DNMG433MS	DNMG150412-MS	.047	★											★																											
	*2 DNMG441MS	DNMG150604-MS	.016	★											★																											
	*2 DNMG442MS	DNMG150608-MS	.031	★											★																											

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



TURNING INSERTS [NEGATIVE]

55° DN TYPE INSERTS WITH HOLE

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

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

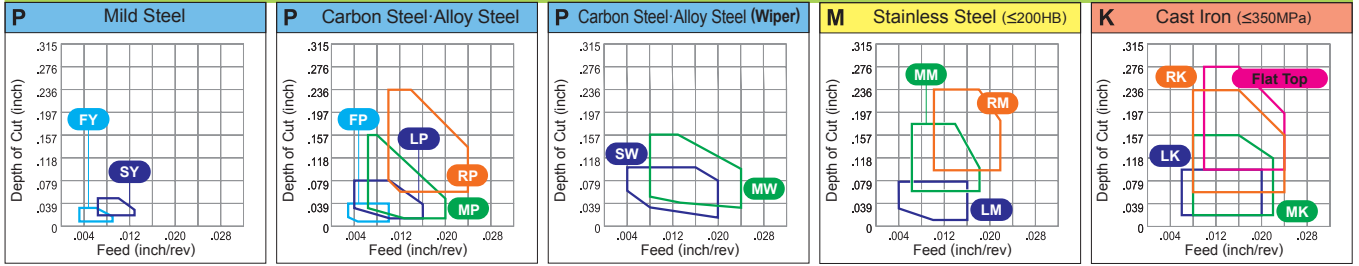
T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	Steel																Applicable Holder Page																			
	M	Stainless Steel																																			
Shape	K	Cast Iron																Applicable Holder Page																			
	N	Non-Ferrous Metal																																			
Shape	S	Heat-resistant Alloy, Titanium Alloy																Applicable Holder Page																			
	Order Number	(ISO) Number	Corner Radius (inch)	Coated										Cermet	Coated Cermet	Carbide																					
				UE6105	MC6015	MC6025	MC6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010			
Heavy Cutting	DNMM432HZ	DNMM150408-HZ	.031	●	★	★																														C010 -012 E021 E024 H009 -011	
	DNMM433HZ	DNMM150412-HZ	.047	●	★	★																															
	DNMM442HZ	DNMM150608-HZ	.031	●	★	★																															
	DNMM443HZ	DNMM150612-HZ	.047	●	★	★																															
	DNMA431	DNMA150404	.016											●	●	●																	★			C010 -012 E021 E024 H009 -011	
	DNMA432	DNMA150408	.031											●	●	●									★						★	★					
	DNMA433	DNMA150412	.047											●	●	●																					
	DNMA441	DNMA150604	.016											●	●																						
	DNMA442	DNMA150608	.031											●	●	★	★																				
DNMA443	DNMA150612	.047											●	●	★	★																					
	DNGA431	DNGA150404	.016																														★			C010 -012 E021 E024 H009 -011	
	DNGA432	DNGA150408	.031																													★	★				
Heavy Cutting	DNMM432HL	DNMM150408-HL	.031		★	★						★																									C010 -012 E021 E024 H009 -011
	DNMM433HL	DNMM150412-HL	.047		★	★						★																									
	DNMM442HL	DNMM150608-HL	.031		★	★						★																									
	DNMM443HL	DNMM150612-HL	.047		★	★						★																									

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

TURNING INSERTS [NEGATIVE]

90° SN TYPE INSERTS WITH HOLE

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

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

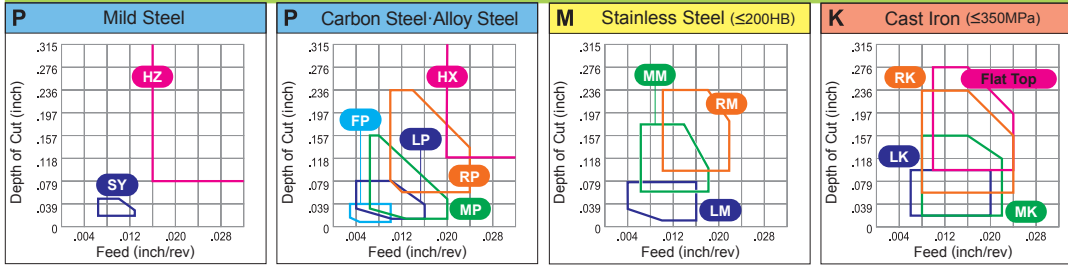
T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS

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










Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	M	K	N	S	Coated																Cermet	Coated Cermet	Carbide				Applicable Holder Page									
	Steel	Stainless Steel	Cast Iron	Non-Ferrous Metal	Heat-resistant Alloy, Titanium Alloy	UE6105	UE6110	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M		NX2525	NX3035	MP3025	AP25N	VP25N	UTI20T	HT105T	HT110	MT9015	RT9005	RT9010
Shape	Order Number	(ISO) Number	Corner Radius (inch)																																		
FP Finish Cutting	SNMG431FP	SNMG120404-FP	.016	●●●●●●●●																																	
	SNMG432FP	SNMG120408-FP	.031	●●																																	
FH Finish Cutting	SNMG321FH	SNMG090304-FH	.016	●●●●●●●●																																	
	SNMG322FH	SNMG090308-FH	.031	●●																																	
	SNMG431FH	SNMG120404-FH	.016	★																																	
	SNMG432FH	SNMG120408-FH	.031	●																																	
FS Finish Cutting	SNMG432FS	SNMG120408-FS	.031	●●●●●●●●																																	
LP Light Cutting	SNMG431LP	SNMG120404-LP	.016	●●●●●●●●																																	
	SNMG432LP	SNMG120408-LP	.031	●●●●●●●●																																	
	SNMG433LP	SNMG120412-LP	.047	●●●●●●●●																																	
LM Light Cutting	SNMG431LM	SNMG120404-LM	.016	●●●●●●●●																																	
	SNMG432LM	SNMG120408-LM	.031	●●●●●●●●																																	
LK Light Cutting	SNMG432LK	SNMG120408-LK	.031	●●																																	
	SNMG433LK	SNMG120412-LK	.047	●●																																	

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

Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	Material		Cutting Conditions																				Applicable Holder Page																		
	P	M	K	N	S	UE6105	UE6110	MC6015	MC6025	MC6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015		VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTI20T	HTI05T	HTI10	MT9015	RT9005	RT9010			
Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated															Cermet	Coated Cermet	Carbide																				
				UE6105	UE6110	MC6015	MC6025	MC6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525		NX3035	MP3025	AP25N	VP25N	UTI20T	HTI05T	HTI10	MT9015	RT9005	RT9010					
 Light Cutting	SH	SNMG431SH	SNMG120404-SH	.016	★																●																		C014 -017 E022 E025		
		SNMG432SH	SNMG120408-SH	.031	●	●															●					★															
		SNMG433SH	SNMG120412-SH	.047	★																	★																			
 Light Cutting	SA	SNMG431SA	SNMG120404-SA	.016		●																					●												C014 -017 E022 E025		
		SNMG432SA	SNMG120408-SA	.031	●	●																					●														
		SNMG433SA	SNMG120412-SA	.047	●																							●													
 Light Cutting	SY	SNMG432SY	SNMG120408-SY	.031																								●												C014 -017 E022 E025	
 Light Cutting	C	SNMG321C	SNMG090304-C	.016																								★												C014 -017 E022 E025	
		SNMG322C	SNMG090308-C	.031																								★													
		SNMG432C	SNMG120408-C	.031																								★ ●													
		SNMG434C	SNMG120416-C	.063																								★													
 Light Cutting	R/L 1G	SNMG431R1G	SNMG120404R-1G	.016																								★												C014 -017 E022 E025	
		SNMG431L1G	SNMG120404L-1G	.016																								★													
		SNMG432R1G	SNMG120408R-1G	.031																								★													
 Medium Cutting	MP	SNMG431MP	SNMG120404-MP	.016	●	●	●	●													●							●												C014 -017 E022 E025	
		SNMG432MP	SNMG120408-MP	.031	●	●	●	●													★							●													
		SNMG433MP	SNMG120412-MP	.047	●	●	●	●													★							●													
 Medium Cutting	MM	SNMG432MM	SNMG120408-MM	.031							●	●	●																											C014 -017 E022 E025	
		SNMG433MM	SNMG120412-MM	.047							●	●	●																												
		SNMG434MM	SNMG120416-MM	.063							●	●	●																												
		SNMG542MM	SNMG150608-MM	.031							●	●	●																												
		SNMG543MM	SNMG150612-MM	.047							●	●	●																												
		SNMG544MM	SNMG150616-MM	.063							●	●	●																												
		SNMG643MM	SNMG190612-MM	.047							●	●	●																												
		SNMG644MM	SNMG190616-MM	.063							●	●	●																												

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

T

V

W

CHIP BREAKER > A046
IDENTIFICATION > A002

TURNING INSERTS [NEGATIVE]

90° SN TYPE INSERTS WITH HOLE

SNMG 4 3 2 MK
 Size Thickness Corner Radius Chip Breaker
 *Please refer to page A002.

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

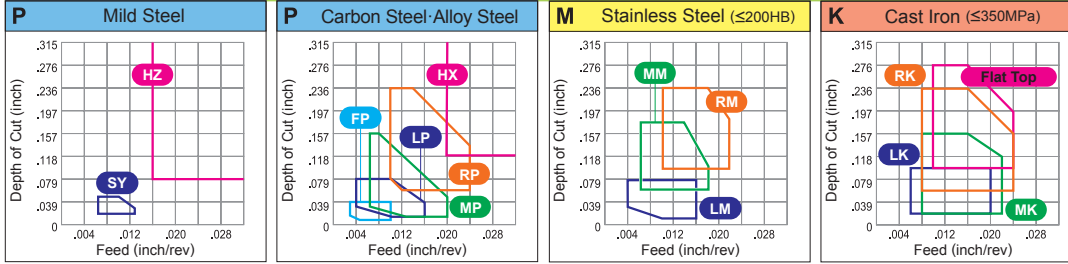
T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ✚ Unstable Cutting

Work Material	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Heat-resistant Alloy, Titanium Alloy	Coated																					Cermets		Carbide					Applicable Holder Page	
						UE6105	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T		HT110	MT9015	RT9005	RT9010
Order Number	(ISO) Number	Corner Radius (inch)																																	
 Medium Cutting	MK	SNMG432MK	SNMG120408-MK	.031	● ● ● ● ●						● ● ●																								
	SNMG433MK	SNMG120412-MK	.047																																
	SNMG434MK	SNMG120416-MK	.063																																
	SNMG543MK	SNMG150612-MK	.047									★ ●																							
	SNMG544MK	SNMG150616-MK	.063									★ ●																							
	SNMG643MK	SNMG190612-MK	.047									● ● ●																							
 Medium Cutting	GK	SNMG431GK	SNMG120404-GK	.016								● ● ●																							
	SNMG432GK	SNMG120408-GK	.031									● ● ●																							
	SNMG433GK	SNMG120412-GK	.047									● ● ●																							
 Medium Cutting	GM	SNMG431GM	SNMG120404-GM	.016	● ● ● ●			● ● ●														●													
	SNMG432GM	SNMG120408-GM	.031	● ● ● ● ●			● ● ●						● ● ● ●											●											
	SNMG433GM	SNMG120412-GM	.047	● ● ● ● ●			● ● ●						● ● ● ●											●											
 Medium Cutting	MA	SNMG431MA	SNMG120404-MA	.016	● ● ● ● ●			● ● ●				● ● ● ●											●												
	SNMG432MA	SNMG120408-MA	.031	● ● ● ● ●			● ● ●					● ● ● ●												●											
	SNMG433MA	SNMG120412-MA	.047	● ● ● ● ●			● ● ●					● ● ● ●												●											
	SNMG434MA	SNMG120416-MA	.063	● ● ● ● ●			● ● ●					● ● ● ●													●										
	SNMG542MA	SNMG150608-MA	.031	● ● ● ●			● ● ● ●		★																										
	SNMG543MA	SNMG150612-MA	.047	● ● ● ● ●			● ● ● ●			●															★										
	SNMG544MA	SNMG150616-MA	.063	● ● ● ● ●			● ● ● ●																												
	SNMG643MA	SNMG190612-MA	.047	● ● ● ● ●			● ● ● ●					●																							
 Medium Cutting	MH	SNMG432MH	SNMG120408-MH	.031	● ● ● ● ●																														
	SNMG433MH	SNMG120412-MH	.047	● ● ● ● ●																															
	SNMG643MH	SNMG190612-MH	.047	★ ●																					★										
	SNMG644MH	SNMG190616-MH	.063	★ ●																															

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

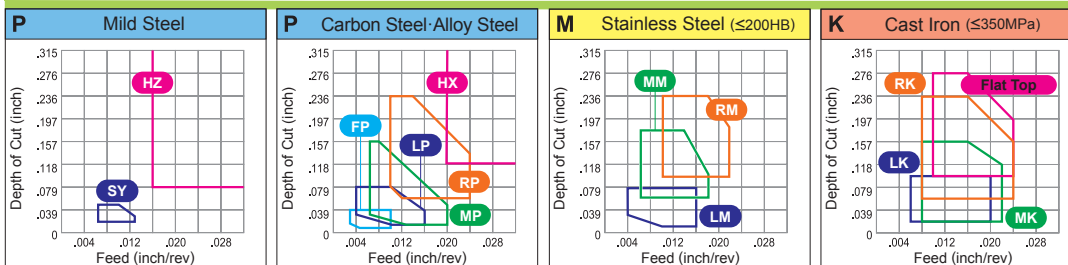
TURNING INSERTS [NEGATIVE]

90° SN TYPE INSERTS WITH HOLE

SNMG 4 3 2 RK

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

CHIP CONTROL RANGE FOR WORK MATERIALS



Cutting Conditions : ● Stable Cutting ● General Cutting ☒ Unstable Cutting

Work Material	Coated			Cermet	Coated Cermet	Carbide		Applicable Holder Page	
	Order Number	(ISO) Number	Corner Radius (inch)	UE6105	UC5105	VP10RT	RT9015		
Steel	P	Steel	.031	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.047	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.063	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.047	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.063	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
Stainless Steel	M	Stainless Steel	.031	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.047	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.063	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.047	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.063	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
Cast Iron	K	Cast Iron	.031	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.047	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.063	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.047	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.063	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
Non-Ferrous Metal	N	Non-Ferrous Metal	.031	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.047	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.063	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.047	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.063	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
Heat-resistant Alloy, Titanium Alloy	S	Heat-resistant Alloy, Titanium Alloy	.031	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.047	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.063	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.047	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
			.063	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S








T

V

W



Cutting Conditions : ● Stable Cutting ○ General Cutting ⊕ Unstable Cutting

Work Material	P	Steel	● ○ ⊕																				Applicable Holder Page																		
	M	Stainless Steel	● ○ ⊕																																						
Shape	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	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT		VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010				
 Heavy Cutting	HX	SNMM432HX	SNMM120408-HX	.031	●	●	●	●	●	●	●																											C014 -017 E022 E025			
		SNMM433HX	SNMM120412-HX	.047			★	★																																	
		SNMM543HX	SNMM150612-HX	.047			★	★																																	
		SNMM643HX	SNMM190612-HX	.047	●		★	★	★																																
		SNMM644HX	SNMM190616-HX	.063	●		★	★	★																																
		SNMM646HX	SNMM190624-HX	.094	●		★	★	★																																
		SNMM856HX	SNMM250724-HX	.094	●		★	★	★																																
		SNMM866HX	SNMM250924-HX	.094	●		★	★	★																																
 Heavy Cutting	HV	SNMM644HV	SNMM190616-HV	.063	●		★	★	★																													C014 -017 E025			
		SNMM646HV	SNMM190624-HV	.094	●		★	★	★																																
		SNMM856HV	SNMM250724-HV	.094	●		★	★	★																																
		SNMM866HV	SNMM250924-HV	.094	●		★		★																																
 Flat Top	Flat Top	SNMA321	SNMA090304	.016												●	●	●	●																	★		C014 -017 E022 E025			
		SNMA322	SNMA090308	.031												●	●	●	●																	●					
		SNMA432	SNMA120408	.031												●	●	●	●																	●	★				
		SNMA433	SNMA120412	.047												●	●	●	●																		★				
		SNMA434	SNMA120416	.063												●	●	●	●																						
		SNMA543	SNMA150612	.047												★	●		●																						
		SNMA544	SNMA150616	.063												★	●																								
		SNMA643	SNMA190612	.047												●	●	●	●																						
	SNMA644	SNMA190616	.063												●	●	●	●																							
 Flat Top	Flat Top	SNGA321	SNGA090304	.016																																	★	C014 -017 E022 E025			
		SNGA431	SNGA120404	.016																																	★				
		SNGA432	SNGA120408	.031																																	★				
 Heavy Cutting	HL	SNMM432HL	SNMM120408-HL	.031																																		C014 -017 E022 E025			
		SNMM433HL	SNMM120412-HL	.047																																					
		SNMM543HL	SNMM150612-HL	.047																																					
		SNMM643HL	SNMM190612-HL	.047																																					
		SNMM644HL	SNMM190616-HL	.063																																					
		SNMM646HL	SNMM190624-HL	.094																																					
 Heavy Cutting	HM	SNMM543HM	SNMM150612-HM	.047																																			C014 -017 E022 E025		
		SNMM643HM	SNMM190612-HM	.047																																					
		SNMM644HM	SNMM190616-HM	.063																																					
		SNMM646HM	SNMM190624-HM	.094																																					
		SNMM856HM	SNMM250724-HM	.094																																					
		SNMM866HM	SNMM250924-HM	.094																																					
 Heavy Cutting	HR	SNMM856HR	SNMM250724-HR	.094																																			C014 -017 E022 E025		
		SNMM866HR	SNMM250924-HR	.094																																					

CHIP BREAKER > A046
IDENTIFICATION > A002

TURNING INSERTS [NEGATIVE]

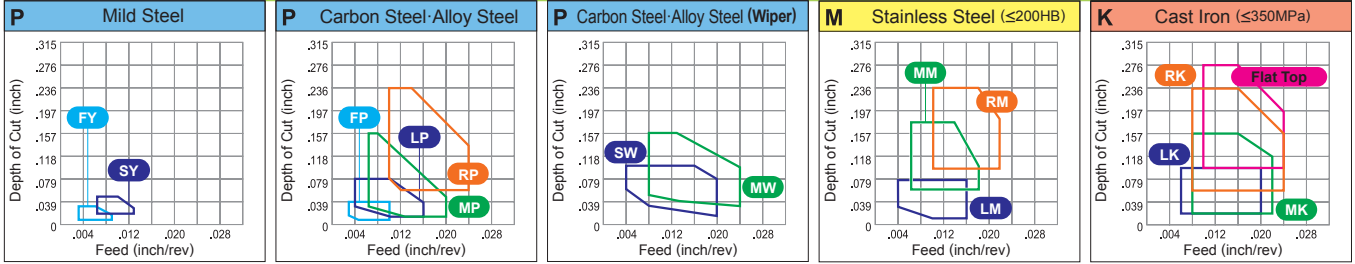
60° TN TYPE INSERTS WITH HOLE

TNMG 3 3 0.5 FP







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

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ✚ Unstable Cutting

Work Material	Steel		Coated											Cermert	Coated Cermert		Carbide					Applicable Holder Page																	
	P	M	UE6105	UE6110	MC6015	MC6025	MC6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT		VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTI20T	HT105T	HT110	MT9015	RT9005	RT9010				
 Finish Cutting	NEW FP	TNMG330.5FP	TNMG160402-FP	.008	●	●																	★	●											C018 -023 E022 E025				
		TNMG331FP	TNMG160404-FP	.016	●	●																		★	●														
		TNMG332FP	TNMG160408-FP	.031	●	●																		★	●														
 Finish Cutting	FH	TNMG221FH	TNMG110304-FH	.016																				★												C018 -023 E022 E025			
		TNMG330.5FH	TNMG160402-FH	.008	●																			●	●														
		TNMG331FH	TNMG160404-FH	.016	●																			●	●														
	TNMG332FH	TNMG160408-FH	.031	●																			●	●															
 Finish Cutting	FS	TNMG331FS	TNMG160404-FS	.016																				★													C018 -023 E022 E025		
		TNMG332FS	TNMG160408-FS	.031																				●															
 Finish Cutting	FY	TNMG331FY	TNMG160404-FY	.016																				★	●	★												C018 -023 E022 E025	
		TNMG332FY	TNMG160408-FY	.031																				★	●	★													
 Finish Cutting	PK	TNMG331PK	TNMG160404-PK	.016																				★														C018 -023 E022 E025	
		TNMG332PK	TNMG160408-PK	.031																					★														
 Finish Cutting	R/L FS	TNMG330.5RFS	TNMG160402R-FS	.008																				★															C018 -023 E022 E025
		TNMG330.5LFS	TNMG160402L-FS	.008																					★														
		TNMG331RFS	TNMG160404R-FS	.016																					★														
		TNMG331LFS	TNMG160404L-FS	.016																						★													

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

Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	Steel		●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●																					
	P	Stainless Steel	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●																					
Shape	M	Cast Iron	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●																					
	K	Non-Ferrous Metal	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●																					
	N	Heat-resistant Alloy, Titanium Alloy	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●																					
	S		●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●																					
Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated										Cermet	Coated Cermet	Carbide				Applicable Holder Page																
				UE6105	UE6110	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115		MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010
	TNGG330.5RF	TNGG160402R-F	.008																																	
	TNGG330.5LF	TNGG160402L-F	.008																																	
	TNGG331RF	TNGG160404R-F	.016																																	
	TNGG331LF	TNGG160404L-F	.016																																	
	TNGG332RF	TNGG160408R-F	.031																																	
	TNMG331LP	TNMG160404-LP	.016																																	
	TNMG332LP	TNMG160408-LP	.031																																	
	TNMG333LP	TNMG160412-LP	.047																																	
	TNMG432LP	TNMG220408-LP	.031																																	
	TNMG433LP	TNMG220412-LP	.047																																	
	TNMG331LM	TNMG160404-LM	.016																																	
	TNMG332LM	TNMG160408-LM	.031																																	
	TNMG333LM	TNMG160412-LM	.047																																	
	TNMG331LK	TNMG160404-LK	.016																																	
	TNMG332LK	TNMG160408-LK	.031																																	
	TNMG333LK	TNMG160412-LK	.047																																	
	TNMG331LS	TNMG160404-LS	.016																																	
	TNMG332LS	TNMG160408-LS	.031																																	
	TNMG331SH	TNMG160404-SH	.016																																	
	TNMG332SH	TNMG160408-SH	.031																																	
	TNMG432SH	TNMG220408-SH	.031																																	
	TNMG331SA	TNMG160404-SA	.016																																	
	TNMG332SA	TNMG160408-SA	.031																																	
	TNMG333SA	TNMG160412-SA	.047																																	
	TNMG432SA	TNMG220408-SA	.031																																	
	TNMG433SA	TNMG220412-SA	.047																																	
	*TNMX331SW	TNMX160404-SW	.016																																	
	*TNMX332SW	TNMX160408-SW	.031																																	

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



CHIP BREAKER > A046
IDENTIFICATION > A002

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

T

V

W

TURNING INSERTS [NEGATIVE]

60° TN TYPE INSERTS WITH HOLE

TNMG 3 3 1 SY

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

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

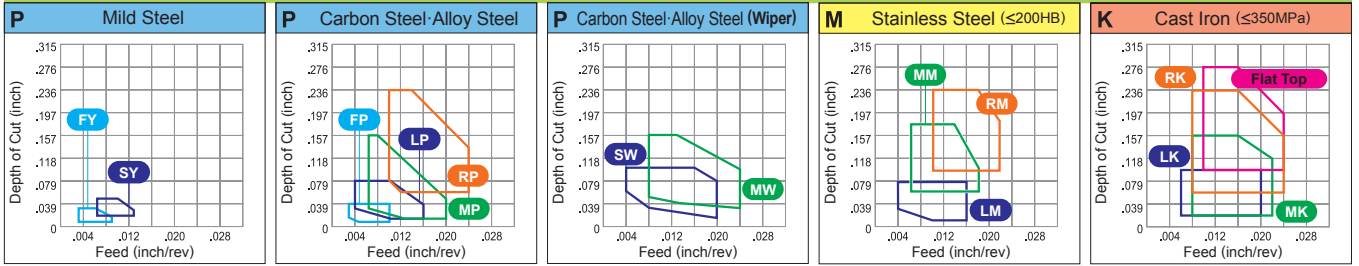
T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● 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	
SY		TNMG331SY	TNMG160404-SY	.016	●●●●●●●●●●											C018-023 E022 E025
		TNMG332SY	TNMG160408-SY	.031												
C		TNMG331C	TNMG160404-C	.016						★●						C018-023 E022 E025
		TNMG332C	TNMG160408-C	.031						★●						
		TNMG431C	TNMG220404-C	.016						★●	●					
		TNMG432C	TNMG220408-C	.031						●						
R/L 1G		TNMG331R1G	TNMG160404R-1G	.016						★						C018-023 E022 E025
		TNMG331L1G	TNMG160404L-1G	.016						★						
		TNMG431R1G	TNMG220404R-1G	.016						★						
		TNMG431L1G	TNMG220404L-1G	.016						★						
R/L K		TNGG330.5RK	TNGG160402R-K	.008						★★●						C018-023 E022 E025
		TNGG330.5LK	TNGG160402L-K	.008						★★●						
		TNGG331RK	TNGG160404R-K	.016						★★●						
		TNGG331LK	TNGG160404L-K	.016						★●						
		TNGG332LK	TNGG160408L-K	.031						●						
		TNGG332RK	TNGG160408R-K	.031						●						
MJ		TNMG331MJ	TNMG160404-MJ	.016										●	C018-023 E022 E025	
		TNMG332MJ	TNMG160408-MJ	.031					★					●		
		TNMG333MJ	TNMG160412-MJ	.047					★		★★					
MP		TNMG331MP	TNMG160404-MP	.016	●●●●●●●●									●	C018-023 E022 E025	
		TNMG332MP	TNMG160408-MP	.031	●●●●●●●●									●		
		TNMG333MP	TNMG160412-MP	.047	●●●●●●●●									●		
		TNMG432MP	TNMG220408-MP	.031	●●●●●●●●									●		
		TNMG433MP	TNMG220412-MP	.047	●●●●●●●●									●		

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

TURNING INSERTS [NEGATIVE]

60° TN TYPE INSERTS WITH HOLE

TNMG 3 3 4

Size Thickness Corner Radius

*Please refer to page A002.

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

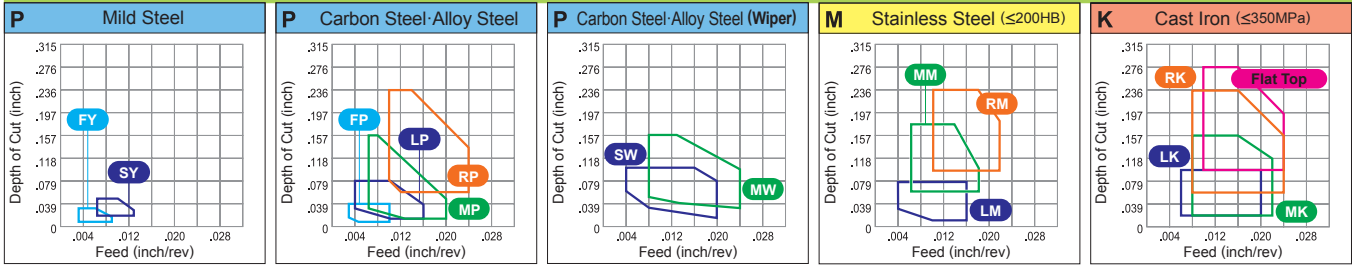
T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	Coated			Cement	Coated Cement	Carbide				Applicable Holder Page
	P Steel	M Stainless Steel	K Cast Iron			HT105T	HT110	MT9015	RT9005		RT9010
Standard 	TNMG334	TNMG160416	.063	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	C018 -023 E022 E025
	TNMG431	TNMG220404	.016	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
	TNMG432	TNMG220408	.031	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
	TNMG433	TNMG220412	.047	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
	TNMG434	TNMG220416	.063	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
	TNMG542	TNMG270608	.031	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
	TNMG543	TNMG270612	.047	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
	TNMG544	TNMG270616	.063	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
Medium Cutting 	TNMG666	TNMG330924	.094	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
	MW (With Wiper) 	*1 TNMX332MW	TNMX160408-MW	.031	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	C018
	*1 TNMX333MW	TNMX160412-MW	.047	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●		
Medium Cutting 	MS	*2 TNMG331MS	TNMG160404-MS	.016	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	C018 -023 E022 E025
		*2 TNMG332MS	TNMG160408-MS	.031	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
		*2 TNMG333MS	TNMG160412-MS	.047	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
		*2 TNMG432MS	TNMG220408-MS	.031	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
		*2 TNMG433MS	TNMG220412-MS	.047	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
Medium Cutting 	R/L ES	TNMG331RES	TNMG160404R-ES	.016	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	C018 -023 E022 E025
		TNMG331LES	TNMG160404L-ES	.016	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
		TNMG332RES	TNMG160408R-ES	.031	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
		TNMG332LES	TNMG160408L-ES	.031	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
		TNMG432RES	TNMG220408R-ES	.031	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
Medium Cutting 	R/L 2G	TNMG331R2G	TNMG160404R-2G	.016	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	C018 -023 E022 E025
		TNMG331L2G	TNMG160404L-2G	.016	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
		TNMG332R2G	TNMG160408R-2G	.031	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	
		TNMG332L2G	TNMG160408L-2G	.031	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	●●●●●●●●●●	

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

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



TURNING INSERTS [NEGATIVE]

60° TN TYPE INSERTS WITH HOLE

TNMG 3 3 2 GH

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

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

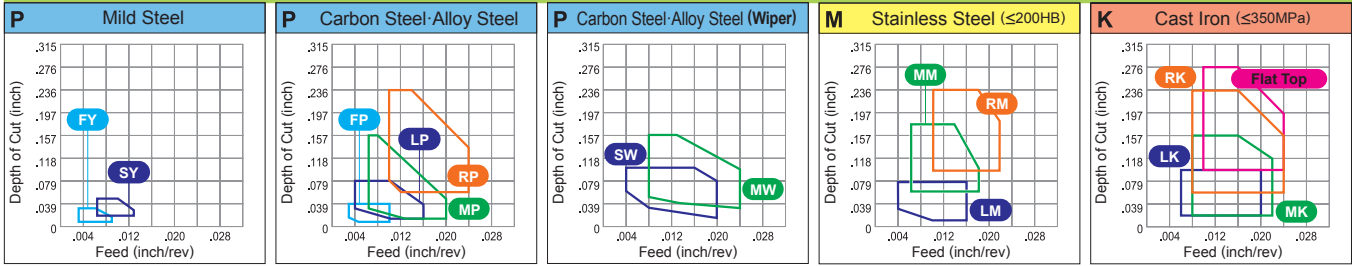
T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	Steel																																							
	M	Stainless Steel																																							
Shape	K	Cast Iron																																							
	N	Non-Ferrous Metal																																							
Order Number	S	Heat-resistant Alloy, Titanium Alloy																																							
	(ISO) Number	Corner Radius (inch)																																							
			Coated										Cermet	Coated Cermet	Carbide				Applicable Holder Page																						
			UE6105	UE6110	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115		MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010					
GH	TNMG332GH	TNMG160408-GH	.031	●●																																					
	TNMG333GH	TNMG160412-GH	.047	★★																																					
	TNMG432GH	TNMG220408-GH	.031	●●																																					
	TNMG433GH	TNMG220412-GH	.047	●●																																					
	TNMG434GH	TNMG220416-GH	.063	●●																																					
	TNMG543GH	TNMG270612-GH	.047	●●			●																																		
	TNMG544GH	TNMG270616-GH	.063	●●																																					
Rough Cutting	TNMG666GH	TNMG330924-GH	.094	●●																																					
	HZ	TNMM332HZ	TNMM160408-HZ	.031	★	★★																																			
		TNMM432HZ	TNMM220408-HZ	.031	●																																				
		TNMM433HZ	TNMM220412-HZ	.047	●																																				
TNMM434HZ		TNMM220416-HZ	.063	●																																					
Flat Top	TNMA331	TNMA160404	.016												●●●●																										
	TNMA332	TNMA160408	.031												●●●●																										
	TNMA333	TNMA160412	.047												●●●●																										
	TNMA334	TNMA160416	.063												●●●●																										
	TNMA335	TNMA160420	.079												●●																										
	TNMA431	TNMA220404	.016																																						
	TNMA432	TNMA220408	.031													●●●●										★															
	TNMA433	TNMA220412	.047													●●●●																									
	TNMA434	TNMA220416	.063													●●●●																									
Flat Top	TNGA221	TNGA110304	.016																																						
	TNGA222	TNGA110308	.031																																						
	TNGA330.5	TNGA160402	.008																																						
	TNGA331	TNGA160404	.016																																						
	TNGA332	TNGA160408	.031																																						
	TNGA431	TNGA220404	.016																																						
TNGA432	TNGA220408	.031																																							

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

TURNING INSERTS [NEGATIVE]



35°

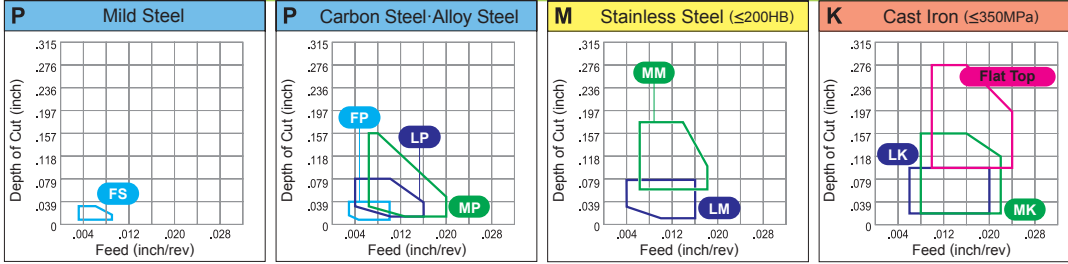
VN TYPE INSERTS WITH HOLE

VNMG 3 3 2 MM

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

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	Steel																																			
	M	Stainless Steel																																			
Shape	K	Cast Iron																																			
	N	Non-Ferrous Metal																																			
Order Number	S	Heat-resistant Alloy, Titanium Alloy																																			
	(ISO) Number	Corner Radius (inch)																																			
			Coated					Cermet	Coated Cermet	Carbide		Applicable Holder Page																									
			UE6105	MC6015	MC6025	MC6035	UH6400	MC7015	MC7025	MP7035	US735		US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UTI20T	HT105T	HT110	MT9015	RT9005	RT9010			
MM Medium Cutting	VNMG332MM	VNMG160408-MM	.031	●●●●●				●●●																										C024 C025 E023 E026			
MK Medium Cutting	VNMG331MK	VNMG160404-MK	.016									●●																									
	VNMG332MK	VNMG160408-MK	.031									●●																									
	VNMG333MK	VNMG160412-MK	.047									●●																									
GK Medium Cutting	VNMG331GK	VNMG160404-GK	.016									●●																									
	VNMG332GK	VNMG160408-GK	.031									●●																									
	VNMG333GK	VNMG160412-GK	.047									★●																									
GM Medium Cutting	VNMG331GM	VNMG160404-GM	.016					●●●																													
	VNMG332GM	VNMG160408-GM	.031					●●●																													
MA Medium Cutting	VNMG331MA	VNMG160404-MA	.016	●●●●●				●●●				●●●●●										●															
	VNMG332MA	VNMG160408-MA	.031	●●●●●●●				●●●				●●●●●										●															
MH Medium Cutting	VNMG331MH	VNMG160404-MH	.016	●●																		●															
	VNMG332MH	VNMG160408-MH	.031	●●●●●●●																		●															

TURNING INSERTS [NEGATIVE]



80°

WN TYPE INSERTS WITH HOLE

WNMG 4 3 0.5 FP

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

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

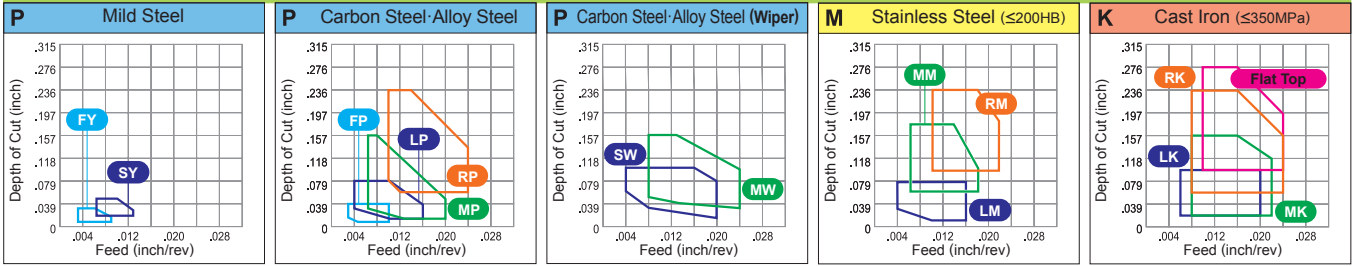
T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● 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
NEW FP Finish Cutting	WNUMG430.5FP	WNMG080402-FP	.008	●●●●●				★	●		
	WNUMG431FP	WNMG080404-FP	.016	●●				★	●		C027 E023 E026 E027
	WNUMG432FP	WNMG080408-FP	.031	●●				★	●		
FH Finish Cutting	WNUMG431FH	WNMG080404-FH	.016	●				★	●		
	WNUMG432FH	WNMG080408-FH	.031	●				★	●●		C027 E023 E026 E027
FS Finish Cutting	WNUMG431FS	WNMG080404-FS	.016					★			
	WNUMG432FS	WNMG080408-FS	.031					★			C027 E023 E026 E027
FY Finish Cutting	WNUMG431FY	WNMG080404-FY	.016					★	●		
	WNUMG432FY	WNMG080408-FY	.031					★	●	★	C027 E023 E026 E027
LP Light Cutting	WNUMG331LP	WNMG060404-LP	.016	●●●●●					●		
	WNUMG332LP	WNMG060408-LP	.031	●●●●●					●		
	WNUMG32.51LP	WNMG06T304-LP	.016	●●●●●					●		C027 E023 E026 E027
	WNUMG32.52LP	WNMG06T308-LP	.031	●●●●●					●		
	WNUMG431LP	WNMG080404-LP	.016	●●●●●					●		
	WNUMG432LP	WNMG080408-LP	.031	●●●●●					●		
LM Light Cutting	WNUMG331LM	WNMG060404-LM	.016		●●●						
	WNUMG332LM	WNMG060408-LM	.031		●●●						C027 E023 E026 E027
	WNUMG431LM	WNMG080404-LM	.016		●●●						
	WNUMG432LM	WNMG080408-LM	.031		●●●						

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

TURNING INSERTS [NEGATIVE]



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

TURNING INSERTS

NEG

WITH HOLE

C

D

R

S

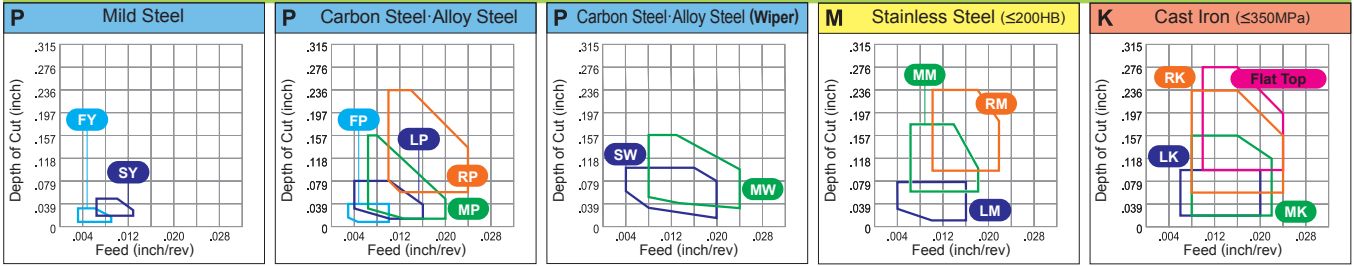
T

V






W

CHIP CONTROL RANGE FOR WORK MATERIALS

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









Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	Steel																													
	M	Stainless Steel																													
Shape	K	Cast Iron																													
	N	Non-Ferrous Metal																													
Order Number	S	Heat-resistant Alloy, Titanium Alloy																													
	(ISO) Number	Corner Radius (inch)																													
Coated	Cermet	Coated Cermet	Carbide																												
UE6105	MC6015	MC6025	MC6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010	Applicable Holder Page
MP	WNMG32.51MP	WNMG06T304-MP	.016	●	●	●	●	●	●																						
	WNMG32.52MP	WNMG06T308-MP	.031	●	●	●	●	●																							
	WNMG32.53MP	WNMG06T312-MP	.047	●	●	●	●	●																							
	WNMG331MP	WNMG060404-MP	.016	●	●	●	●	●																							
	WNMG332MP	WNMG060408-MP	.031	●	●	●	●	●																							
	WNMG333MP	WNMG060412-MP	.047	●	●	●	●	●																							
	WNMG431MP	WNMG080404-MP	.016	●	●	●	●	●															●								
	WNMG432MP	WNMG080408-MP	.031	●	●	●	●	●															●								
	WNMG433MP	WNMG080412-MP	.047	●	●	●	●	●															●								
Medium Cutting	WNMG434MP	WNMG080416-MP	.063	●	●	●	●	●															●								
	WNMG332MM	WNMG060408-MM	.031							●	●																				
	WNMG333MM	WNMG060412-MM	.047							●	●																				
	WNMG432MM	WNMG080408-MM	.031							●	●																				
Medium Cutting	WNMG433MM	WNMG080412-MM	.047							●	●																				
	WNMG431MK	WNMG080404-MK	.016							●	●																				
	WNMG432MK	WNMG080408-MK	.031							●	●																				
	WNMG433MK	WNMG080412-MK	.047							●	●																				
Medium Cutting	WNMG434MK	WNMG080416-MK	.063							●	●																				
	WNMG331GK	WNMG060404-GK	.016							●	●																				
	WNMG332GK	WNMG060408-GK	.031							●	●																				
	WNMG431GK	WNMG080404-GK	.016							●	●																				
	WNMG432GK	WNMG080408-GK	.031							●	●																				
Medium Cutting	WNMG433GK	WNMG080412-GK	.047							●	●																				
	WNMG331GM	WNMG060404-GM	.016							●	●																				
	WNMG332GM	WNMG060408-GM	.031							●	●																				
	WNMG431GM	WNMG080404-GM	.016							●	●																				
	WNMG432GM	WNMG080408-GM	.031							●	●																				
Medium Cutting	WNMG433GM	WNMG080412-GM	.047							●	●																				

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

Cutting Conditions : ● Stable Cutting ● General Cutting ✕ Unstable Cutting

Work Material	Steel				Stainless Steel				Cast Iron				Non-Ferrous Metal				Heat-resistant Alloy, Titanium Alloy																													
	P	M	K	N	S	UE6105	UE6110	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010								
	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																					Cermets	Coated Cermet		Carbide				Applicable Holder Page														
				UE6105	UE6110	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF		UP20M	NX2525	NX3035	MP3025	AP25N	VP25N		UT120T	HT105T	HT110	MT9015	RT9005	RT9010								
 Medium Cutting	MA	WNUMG32.51MA	WNMG06T304-MA	.016	●●										★																															
		WNUMG32.52MA	WNMG06T308-MA	.031	●●											★																														
		WNUMG32.53MA	WNMG06T312-MA	.047	★●											★																														
		WNUMG331MA	WNMG060404-MA	.016	●★	●●										●																														
		WNUMG332MA	WNMG060408-MA	.031	●★	●●								●●	●●				●●								●																			
		WNUMG333MA	WNMG060412-MA	.047	●●	●●								●●	●★				●●							●																				
		WNUMG431MA	WNMG080404-MA	.016	●●	●●								●●	●●				●●								●																			
		WNUMG432MA	WNMG080408-MA	.031	●●	●●	●●							●●	●●				●●	●●						●																				
		WNUMG433MA	WNMG080412-MA	.047	●●	●●	●●							●	●●				●	●●						●																				
		WNUMG434MA	WNMG080416-MA	.063	★	★															●																									
	WNUMG543MA	WNMG100612-MA	.047						●																																					
 Medium Cutting	MH	WNUMG431MH	WNMG080404-MH	.016	●●																																									
		WNUMG432MH	WNMG080408-MH	.031	●●	●●	●●														●																									
		WNUMG433MH	WNMG080412-MH	.047	●●	●●	●●														●																									
 Medium Cutting	Standard	WNUMG431	WNMG080404	.016	●●	●●													●●						★	●																				
		WNUMG432	WNMG080408	.031	●●	●●	●●													●●						★	●		★																	
		WNUMG433	WNMG080412	.047	●●	●●	●●													●●						●																				
		WNUMG434	WNMG080416	.063																		★																								
 Medium Cutting	MW (With Wiper)	*1 WNUMG332MW	WNMG060408-MW	.031	●●	●●													●●	●●																										
		*1 WNUMG333MW	WNMG060412-MW	.047	●★	●●														●●	●●																									
		*1 WNUMG432MW	WNMG080408-MW	.031	●●	●●														●●	●●																									
		*1 WNUMG433MW	WNMG080412-MW	.047	●●	●●	●●													●●	●●																									
 Medium Cutting	MS	*2 WNUMG322MS	WNMG060308-MS	.031																																										
		*2 WNUMG32.51MS	WNMG06T304-MS	.016	●											●																														
		*2 WNUMG32.52MS	WNMG06T308-MS	.031	●											●																														
		*2 WNUMG331MS	WNMG060404-MS	.016	●											●																														
		*2 WNUMG332MS	WNMG060408-MS	.031	●											●																														
		*2 WNUMG431MS	WNMG080404-MS	.016	●											●									●●	●●	●●														●					
		*2 WNUMG432MS	WNMG080408-MS	.031	●											●									●●	●●	●●	●●													●●	●●				
		*2 WNUMG433MS	WNMG080412-MS	.047	★											●●									●●	★	●●														●●					
 Rough Cutting	RP	WNUMG432RP	WNMG080408-RP	.031	●●	●●	●●																																							
		WNUMG433RP	WNMG080412-RP	.047	●●	●●	●●																																							

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

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








 =

CHIP BREAKER IDENTIFICATION ➤ A046
➤ A002

TURNING INSERTS

NEG

WITH HOLE

-  C
-  D
-  R
-  S
-  T
-  V
-  W

TURNING INSERTS [NEGATIVE]



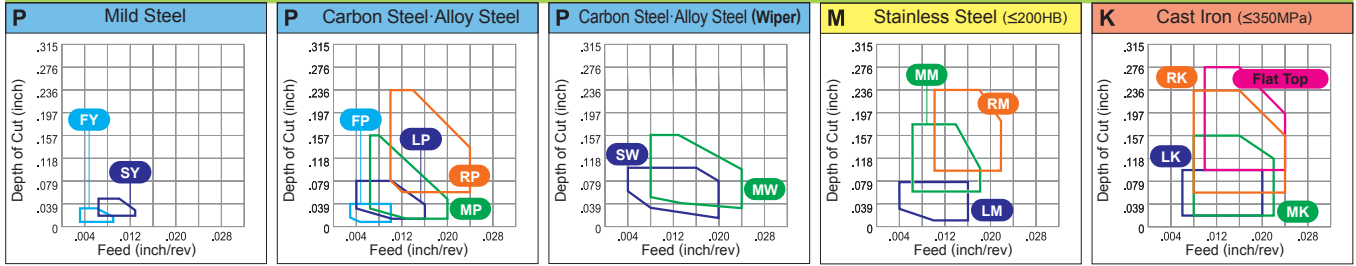
80° WN TYPE INSERTS WITH HOLE

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	Material Legend		Cutting Conditions																			Applicable Holder Page																	
	P	M	Steel	Stainless Steel	Cast Iron	Non-Ferrous Metal	Heat-resistant Alloy, Titanium Alloy	Coated					Cermet	Coated Cermet	Carbide																								
Shape	Order Number	(ISO) Number	Corner Radius (inch)	UE6105	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010				
RM Rough Cutting	WNMG332RM	WNMG060408-RM	.031	●	●	●	●	●	●	●																													
	WNMG333RM	WNMG060412-RM	.047																																				C027
	WNMG432RM	WNMG080408-RM	.031																																				E023
	WNMG433RM	WNMG080412-RM	.047																																				E026
RK Rough Cutting	WNMG432RK	WNMG080408-RK	.031												●	●																						C027	
	WNMG433RK	WNMG080412-RK	.047												●	●																						E023	
	WNMG434RK	WNMG080416-RK	.063												●	●																						E026	
RS Rough Cutting	WNMG432RS	WNMG080408-RS	.031																		●																	C027	
	WNMG433RS	WNMG080412-RS	.047																		●																	E023	
	WNMG434RS	WNMG080416-RS	.063																		●																	E026	
	WNMG543RS	WNMG100612-RS	.047																		●																	E027	
GH Rough Cutting	WNMG432GH	WNMG080408-GH	.031	●	●		●										●	●																				C027	
	WNMG433GH	WNMG080412-GH	.047	●	●												●	●																				E023	
GJ Rough Cutting	WNMG432GJ	WNMG080408-GJ	.031												●						●																	●	
	WNMG433GJ	WNMG080412-GJ	.047												●						●																	●	
	WNMG434GJ	WNMG080416-GJ	.063												●						●																	●	
	WNMG543GJ	WNMG100612-GJ	.047																		●																	●	
Flat Top	WNMA332	WNMA060408	.031												★	●																							
	WNMA333	WNMA060412	.047												★	●																							
	WNMA431	WNMA080404	.016												●	●	●	●																★			C027		
	WNMA432	WNMA080408	.031												●	●	●	●																★			E023		
	WNMA433	WNMA080412	.047												●	●	●	●																			E026		
WNMA434	WNMA080416	.063												●	●	★																				E027			



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

55° KN TYPE INSERTS WITHOUT HOLE

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

Work Material	P	Steel		●	●	●	✦	✦	✦	✦	Shape	Order Number	(ISO) Number	Corner Radius (inch)														Applicable Holder Page
	M	Stainless Steel		●	●	●	✦	✦	✦	✦					Coated	Cermet	Coated Cermet	Carbide										
	K	Cast Iron		●	●	●	✦	✦	✦	✦																		
	N	Non-Ferrous Metal		●	●	●	✦	✦	✦	✦																		
	S	Heat-resistant Alloy, Titanium Alloy		●	●	●	✦	✦	✦	✦																		
M1												KNUX160405RM1	KNUX160405RM-1	.020											-			
Rough Cutting																												

TURNING INSERTS

NEG

WITHOUT HOLE

C

D

R

S

T

V

W

K

CHIP BREAKER > A079
 IDENTIFICATION > A002

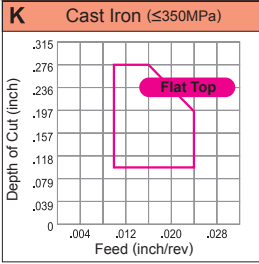
TURNING INSERTS [NEGATIVE]



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

CHIP CONTROL RANGE FOR WORK MATERIALS

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	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005		MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010		
Flat Top	CNMN432	CNMN120408	.031												★ ★																								
	CNMN433	CNMN120412	.047												★ ★																								
	CNMN434	CNMN120416	.063												★ ★																								

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

90° SN TYPE INSERTS WITHOUT HOLE

SNMN 4 3 2

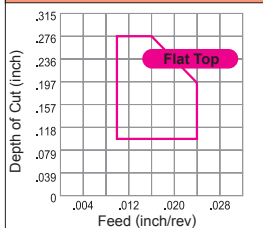
Size Thickness Corner Radius

*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	Cutting Conditions : ● Stable Cutting ● General Cutting ☒ Unstable Cutting																	Applicable Holder Page															
						UE6105	UE6110	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005		MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010
Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated													Cermet	Coated Cermet	Carbide																			
Flat Top 	SNMN432	SNMN120408	.031	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	SNMN433	SNMN120412	.047																	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	SNMN434	SNMN120416	.063																	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	SNMN633	SNMN190412	.047																																			
Flat Top 	SNG322	SNGN090308	.031																																			
	SNG431	SNGN120404	.016																									●	●	●	●	●	●	●	●	●	●	
	SNG432	SNGN120408	.031																									●	●	●	●	●	●	●	●	●	●	●

TURNING INSERTS

NEG

WITHOUT HOLE

C

D

R

S

T

V

W

TURNING INSERTS [NEGATIVE]

60° TN TYPE INSERTS WITHOUT HOLE

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

TURNING INSERTS

NEG

WITHOUT HOLE

C

D

R

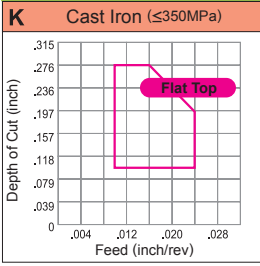
S

T

V

W

CHIP CONTROL RANGE FOR WORK MATERIALS ● Heavy Cutting...



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	Steel	● ● ● ● ⊕ ⊕ ⊕ ⊕																																				
	M	Stainless Steel																																					
Shape	K	Cast Iron																																					
	N	Non-Ferrous Metal																																					
Order Number	S	Heat-resistant Alloy, Titanium Alloy																																					
	(ISO) Number																																						
Corner Radius (inch)																																							
Flat Top	TNMN322	TNMN160308	.031	UE6105	MC6015	MC6025	MC6035	UE6035	UH6400	MC7015	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	NX2525	NX3035	MP3025	AP25N	VP25N	UT120T	HT105T	HT110	MT9015	RT9005	RT9010	Applicable Holder Page			
	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																																				

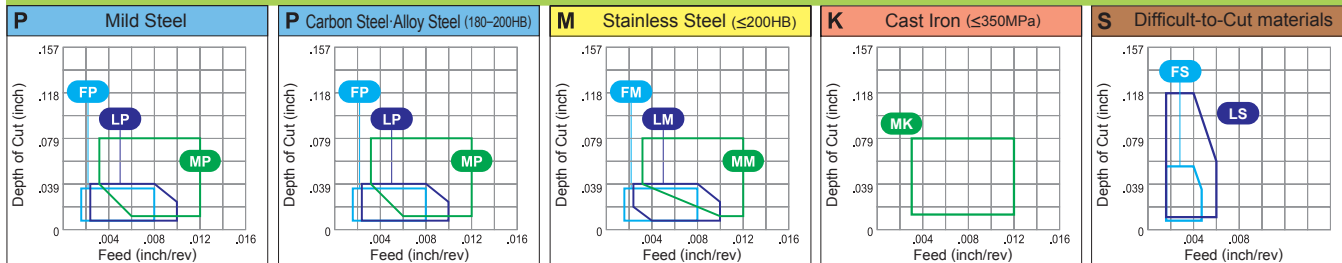
TURNING INSERTS [POSITIVE]

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

FS, LS : G class inserts

Work Material	Material		Corner Radius (inch)	Cutting Conditions															Applicable Holder Page																					
	P	M		K	N	S	Coated										Cermet	Coated Cermet		Carbide																				
Shape	Order Number	(ISO) Number		UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HT105T	HT110	TF15	MT9005	RT9005	RT9010				
FP 	CCMT21.50.5FP	CCMT060202-FP	.008	●	●	●	●	●	●	●	●	●	●	●	●	●	●					●	●	●	●	●	●	●	●	●										
	CCMT21.51FP	CCMT060204-FP	.016	●	●	●																																		
	CCMT32.50.5FP	CCMT09T302-FP	.008	●	●	●																																		
	CCMT32.51FP	CCMT09T304-FP	.016	●	●	●																																		
	CCMT32.52FP	CCMT09T308-FP	.031	●	●	●																																		
FM 	CCMT21.50.5FM	CCMT060202-FM	.008																	●																				
	CCMT21.51FM	CCMT060204-FM	.016																	●																				
	CCMT32.50.5FM	CCMT09T302-FM	.008																	●																				
	CCMT32.51FM	CCMT09T304-FM	.016																	●																				
	CCMT32.52FM	CCMT09T308-FM	.031																	●																				
FV 	CCMT21.50.5FV	CCMT060202-FV	.008																	●						★	●	●	★											
	CCMT21.51FV	CCMT060204-FV	.016																	●						★	●	●	★											
	CCMT32.50.5FV	CCMT09T302-FV	.008																	●						●	●													
	CCMT32.51FV	CCMT09T304-FV	.016																	●						●	●													
	CCMT32.52FV	CCMT09T308-FV	.031																	●						●	●													
NEW FS 	CCGT21.50.2MFS	CCGT060201M-FS	.003														●	●																						
	CCGT21.50.5MFS	CCGT060202M-FS	.007														●	●																						
	CCGT32.50.2MFS	CCGT09T301M-FS	.003														●	●																						
	CCGT32.50.5MFS	CCGT09T302M-FS	.007														●	●																						
	CCGT32.51MFS	CCGT09T304M-FS	.015														●	●																						
NEW FS-P 	CCGT21.50.2MFS-P	CCGT060201M-FS-P	.003																																	●				
	CCGT21.50.5MFS-P	CCGT060202M-FS-P	.007																																●					
	CCGT32.50.2MFS-P	CCGT09T301M-FS-P	.003																																●					
	CCGT32.50.5MFS-P	CCGT09T302M-FS-P	.007																															●						
	CCGT32.51MFS-P	CCGT09T304M-FS-P	.015																																●					
FJ 	CCGT21.5V5FJ	CCGT0602V5-FJ	.002																	●																				
	CCGT21.50.2FJ	CCGT060201-FJ	.004																	●																				
	CCGT21.50.5FJ	CCGT060202-FJ	.008																	●																				
	CCGT32.5V5FJ	CCGT09T3V5-FJ	.002																	●																				
	CCGT32.50.2FJ	CCGT09T301-FJ	.004																	●																		★		
	CCGT32.50.5FJ	CCGT09T302-FJ	.008																	●																		★		

TURNING INSERTS

POSIT

WITH HOLE



Work Material	P	Steel	Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																Cermet	Coated Cermet	Carbide	Applicable Holder Page															
	M	Stainless Steel					UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF		UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UT120T	HT105T	HT110	TF15	MT9005	RT9005	RT9010
	K	Cast Iron	R/L F	CCGH21.50.5RF	CCGH060202R-F	.008																			*		*										C030				
	N	Non-Ferrous Metal		CCGH21.50.5LF	CCGH060202L-F	.008																			*		*									D012					
	S	Heat-resistant Alloy, Titanium Alloy		CCGH21.51RF	CCGH060204R-F	.016																			*		*									E006					
			Finish Cutting	CCGH21.51LF	CCGH060204L-F	.016																		*		*										E012					
																																			E013						
																																				E040					
			LP	CCMT21.51LP	CCMT060204-LP	.016	●	●	●																●	●										C030					
				CCMT21.52LP	CCMT060208-LP	.031	●	●	●																●	●											D008				
			Light Cutting	CCMT32.51LP	CCMT09T304-LP	.016	●	●	●																●	●											D012				
				CCMT32.52LP	CCMT09T308-LP	.031	●	●	●																●	●												E012			
			LM	CCMT21.51LM	CCMT060204-LM	.016				●	●												●														C030				
				CCMT21.52LM	CCMT060208-LM	.031				●	●												●															D008			
			Light Cutting	CCMT32.51LM	CCMT09T304-LM	.016				●	●												●																D012		
				CCMT32.52LM	CCMT09T308-LM	.031				●	●												●																E012		
			NEW LS	CCMT21.50.5LS	CCMT060202-LS	.008													●	●																		C030			
				CCMT21.51LS	CCMT060204-LS	.016													●	●																			D008		
			Light Cutting	CCMT32.50.5LS	CCMT09T302-LS	.008													●	●																			D012		
				CCMT32.51LS	CCMT09T304-LS	.016													●	●																			E012		
				CCMT32.52LS	CCMT09T308-LS	.031													●	●																			E013		
			SV	CCMH21.50.5SV	CCMH060202-SV	.008			●		●												★		★	●		★										C030			
				CCMH21.51SV	CCMH060204-SV	.016			●		●												★		★	●		★											D012		
			Light Cutting																																				E006		
			SW (With Wiper)	*CCMT21.50.5SW	CCMT060202-SW	.008	●	●	●															●	●	●													C030		
				*CCMT21.51SW	CCMT060204-SW	.016	●	●	●							●								●	●	●														D008	
			Light Cutting	*CCMT32.50.5SW	CCMT09T302-SW	.008	●	●	●							●								●	●	●														D012	
				*CCMT32.51SW	CCMT09T304-SW	.016	●	●	●							●								●	●	●														E012	
			NEW R SS	CCGT21.50.2MRSS	CCGT060201MR-SS	.004																		●																C030	
				CCGT21.50.5MRSS	CCGT060202MR-SS	.008																		●																D008	
			Light Cutting	CCGT32.50.2MRSS	CCGT09T301MR-SS	.004																		●																D012	
				CCGT32.50.5MRSS	CCGT09T302MR-SS	.008																		●																	E012
				CCGT32.51MRSS	CCGT09T304MR-SS	.016																		●																	E013
			R/L SS	CCGT21.5V3RSS	CCGT0602V3R-SS	.0012																	●																C030		
				CCGT21.5V3LSS	CCGT0602V3L-SS	.0012																	●																	D008	
			Light Cutting	CCGT21.50.2RSS	CCGT060201R-SS	.004																	●																	D012	
				CCGT21.50.2LSS	CCGT060201L-SS	.004																	●																	E012	
				CCGT21.50.5RSS	CCGT060202R-SS	.008																	●																	E013	
				CCGT21.50.5LSS	CCGT060202L-SS	.008																	●																	E040	

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



POSITION 7°

WITH HOLE

C

D

R

S

T

V

W

X

TURNING INSERTS [POSITIVE]

80° CC TYPE INSERTS WITH HOLE

CCGT 3 2.5 V3 RSS
 Size Thickness Corner Radius Chip Breaker
 *Please refer to page A002.

TURNING INSERTS

POSIT

WITH HOLE

C

D

R

S

T

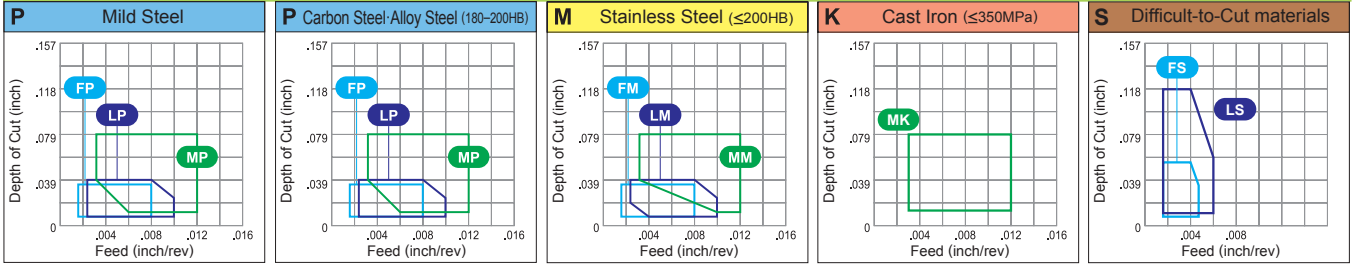
V

W





X

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ✦ Unstable Cutting FS, LS : G class inserts

Work Material	Work Material Legend			Cutting Conditions																										Applicable Holder Page														
	P	M	K	N	S	Coated										Cermet		Coated Cermet		Carbide																								
Shape	Order Number	(ISO) Number	Corner Radius (inch)																																									
		R/L SS	CCGT32.5V3RSS	CCGT09T3V3R-SS	.0012	●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●●																																						
		CCGT32.5V3LSS	CCGT09T3V3L-SS	.0012																																								
		CCGT32.50.2RSS	CCGT09T301R-SS	.004																																								
		CCGT32.50.2LSS	CCGT09T301L-SS	.004																																								
		CCGT32.50.5RSS	CCGT09T302R-SS	.008																																								
		CCGT32.50.5LSS	CCGT09T302L-SS	.008																																								
	NEW LS	CCGT21.50.2MLS	CCGT060201M-LS	.004																	●●●●●																							
		CCGT21.50.5MLS	CCGT060202M-LS	.008																		●●●●●																						
		CCGT32.50.2MLS	CCGT09T301M-LS	.004																		●●●●●																						
		CCGT32.50.5MLS	CCGT09T302M-LS	.008																			●●●●●																					
		CCGT32.51MLS	CCGT09T304M-LS	.016																			●●●●●																					
		NEW LS-P	CCGT21.50.2MLS-P	CCGT060201M-LS-P	.004																																							
		CCGT21.50.5MLS-P	CCGT060202M-LS-P	.008																																								
		CCGT32.50.2MLS-P	CCGT09T301M-LS-P	.004																																								
		CCGT32.50.5MLS-P	CCGT09T302M-LS-P	.008																																								
		CCGT32.51MLS-P	CCGT09T304M-LS-P	.016																																								
	MJ	CCGT21.51MJ	CCGT060204-MJ	.016																																								
		CCGT32.52MJ	CCGT09T308-MJ	.031																																								
	MJ-P	CCGT21.51MJ-P	CCGT060204-MJ-P	.016																																								
		CCGT32.52MJ-P	CCGT09T308-MJ-P	.031																																								



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

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	US735	US905	MC5005	MC5015	UC5105		UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UT120T	HT105T	HT110	TF15	MT9005	RT9005	RT9010		
Medium Cutting		MP	CCMT21.51MP	CCMT060204-MP	.016	●	●	●																																
			CCMT21.52MP	CCMT060208-MP	.031	●	●	●																																
			CCMT32.51MP	CCMT09T304-MP	.016	●	●	●																																
			CCMT32.52MP	CCMT09T308-MP	.031	●	●	●																																
			CCMT431MP	CCMT120404-MP	.016	●	●	●																																
			CCMT432MP	CCMT120408-MP	.031	●	●	●																																
			CCMT433MP	CCMT120412-MP	.047	●	●	●																																
Medium Cutting		MM	CCMT21.51MM	CCMT060204-MM	.016						●	●																												
			CCMT21.52MM	CCMT060208-MM	.031							●	●																											
			CCMT32.51MM	CCMT09T304-MM	.016							●	●																											
			CCMT32.52MM	CCMT09T308-MM	.031							●	●																											
			CCMT431MM	CCMT120404-MM	.016							●	●																											
			CCMT432MM	CCMT120408-MM	.031							●	●																											
Medium Cutting		MS	CCMT32.51MS	CCMT09T304-MS	.016																													●						
			CCMT32.52MS	CCMT09T308-MS	.031																														●					
Medium Cutting		MK	CCMT21.51MK	CCMT060204-MK	.016																																			
			CCMT21.52MK	CCMT060208-MK	.031																																			
			CCMT32.51MK	CCMT09T304-MK	.016																																			
			CCMT32.52MK	CCMT09T308-MK	.031																																			
			CCMT431MK	CCMT120404-MK	.016																																			
			CCMT432MK	CCMT120408-MK	.031																																			
Standard			CCMT433MK	CCMT120412-MK	.008										★	●																								
Medium Cutting		Standard	CCMT21.50.5	CCMT060202	.008		●				●													★	●	●	●													
			CCMT21.51	CCMT060204	.016		●	●				●			●										★	●	●	●	●											
			CCMT21.52	CCMT060208	.031		●					●				●									★				●	●										
			CCMT2.520.5	CCMT080302	.008		★																																	
			CCMT2.521	CCMT080304	.016		★					●																★	●	●	●	●								
			CCMT2.522	CCMT080308	.031		★					●																			●									
			CCMT32.50.5	CCMT09T302	.008		●					●														★	●	●	●											
			CCMT32.51	CCMT09T304	.016		●	●				●														★	●	●	●	●										
			CCMT32.52	CCMT09T308	.031		●	●				●														★	●	●	●	●										
			CCMT431	CCMT120404	.016		●	●				●														★	●	●	●			★								
			CCMT432	CCMT120408	.031		●	●				●														★	●	●	●											
CCMT433	CCMT120412	.047		●					●															●																
Medium Cutting		MV	CCMH21.50.5MV	CCMH060202-MV	.008						●												★	●	●	●	●													
			CCMH21.51MV	CCMH060204-MV	.016						●		●			●									★	●	●	●	●											



TURNING INSERTS [POSITIVE]

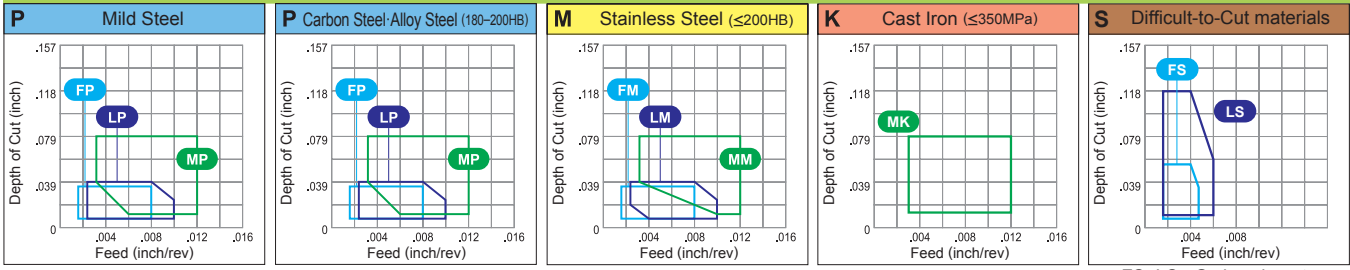


CCMT 2 1.5 1 MW

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

FS, LS : G class inserts

Work Material	P Steel		M Stainless Steel		K Cast Iron		N Non-Ferrous Metal		S Heat-resistant Alloy, Titanium Alloy										
	Coated	Cermet	Coated Cermet	Carbide	Coated	Cermet	Coated Cermet	Carbide	Coated	Cermet									
Shape	Order Number	(ISO) Number	Corner Radius (inch)											Applicable Holder Page					
MW (With Wiper)	*CCMT21.51MW	CCMT060204-MW	.016	●	●	●	●	●	●	●	●	●	●		●	●	●		
	*CCMT21.52MW	CCMT060208-MW	.031	●	●	●	●											C030	
	*CCMT32.51MW	CCMT09T304-MW	.016	●	●	●	●											D008	
	*CCMT32.52MW	CCMT09T308-MW	.031	●	●	●	●											D012	
	*CCMT431MW	CCMT120404-MW	.016	●	●	●	●	●										E012	
	*CCMT432MW	CCMT120408-MW	.031	●	●	●	●											E013	
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															C030	
	CCET21.51LSR	CCET060204L-SR	.016															D008	
	CCET32.5V3RSR	CCET09T3V3R-SR	.0012																D012
	CCET32.5V3LSR	CCET09T3V3L-SR	.0012																E012
	CCET32.50.2RSR	CCET09T301R-SR	.004																E013
	CCET32.50.2LSR	CCET09T301L-SR	.004																E040
	CCET32.50.5RSR	CCET09T302R-SR	.008																
	CCET32.50.5LSR	CCET09T302L-SR	.008																
	Medium Cutting	CCET32.51RSR	CCET09T304R-SR	.016															
	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															C030	
	CCET21.50.2LSN	CCET060201L-SN	.004															D008	
	CCET21.50.5RSN	CCET060202R-SN	.008															D012	
	CCET21.50.5LSN	CCET060202L-SN	.008															E012	
	Medium Cutting	CCET21.51RSN	CCET060204R-SN	.016															E013
	CCET21.51LSN	CCET060204L-SN	.016															E040	

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

● : Inventory maintained. ★ : Inventory maintained in Japan.

<10 inserts in one case>

TURNING INSERTS [POSITIVE]

80° CC TYPE INSERTS WITH HOLE

CCMW **2** **1.5** **0.5**

Size Thickness Corner Radius

*Please refer to page A002.

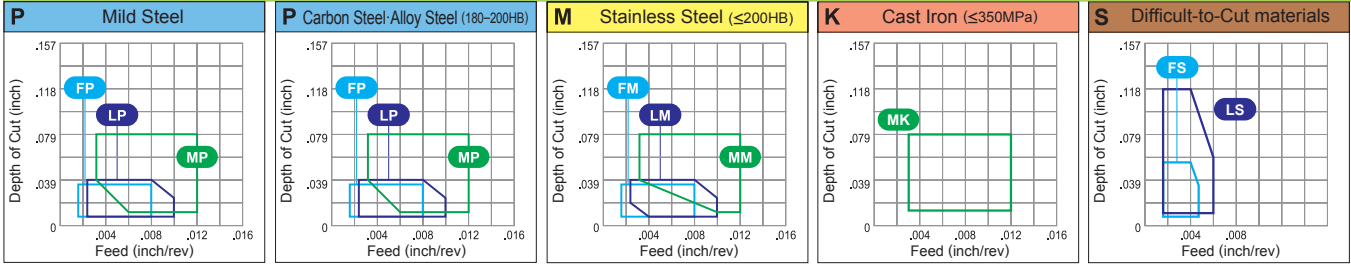
TURNING INSERTS

POSITIVE

WITH HOLE

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ✦ Unstable Cutting

FS, LS : G class inserts

Work Material	P	Steel	M	Stainless Steel	K	Cast Iron	N	Non-Ferrous Metal	S	Heat-resistant Alloy, Titanium Alloy																													
	<p>● Stable Cutting ● General Cutting ✦ Unstable Cutting</p>																																						
Shape	Order Number	(ISO) Number	Corner Radius (inch)	Material Compatibility									Applicable Holder Page																										
				Coated						Cermet	Coated Cermet	Carbide																											
				UE6105	UE6110	UE6020	MC6015	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HT105T	HT110	TF15	MT9005	RT9005	RT9010			
Flat Top	CCMW21.50.5	CCMW060202	.008	●	●	●	●	●	●	●																													
	CCMW21.51	CCMW060204	.016										●	●	●	●																							
	CCMW21.52	CCMW060208	.031										●	●																									
	CCMW32.51	CCMW09T304	.016										●	●	●	●																							
	CCMW32.52	CCMW09T308	.031										●	●	●	●																							
	CCMW32.53	CCMW09T312	.008										●	●																									
	CCMW431	CCMW120404	.016										●	●	●	●																							
	CCMW432	CCMW120408	.031										●	●	●	●																							
CCMW433	CCMW120412	.047										●	●		★																								
Flat Top	CCGW21.5V0	CCGW060200	0																					●															
	CCGW21.5V5	CCGW0602V5	.002																					●															
	NEW CCGW21.50.5E	CCGW060202E	.008																						★														
	NEW CCGW21.51E	CCGW060204E	.016																						★														
	NEW CCGW21.52E	CCGW060208E	.031																						★														
	NEW CCGW21.50.5	CCGW060202	.008																																				
	NEW CCGW21.51	CCGW060204	.016																																				
	NEW CCGW21.52	CCGW060208	.031																																				
	CCGW32.5V0	CCGW09T300	0																						●														
	CCGW32.5V5	CCGW09T3V5	.002																						●														

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

TURNING INSERTS [POSITIVE]

80° CP TYPE INSERTS WITH HOLE

CPMX 2.5 1.5 1

Size Thickness Corner Radius

*Please refer to page A002.

TURNING INSERTS

POSI 11°

WITH HOLE

C

D

R

S

T

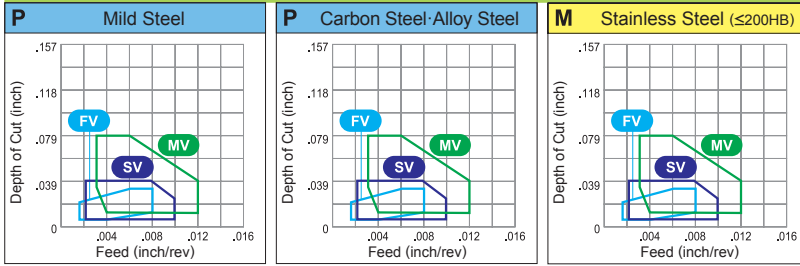
V

W




X

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																																			
Shape	K	Cast Iron																																			
	N	Non-Ferrous Metal																																			
Order Number	S	Heat-resistant Alloy, Titanium Alloy																																			
	(ISO) Number	Corner Radius (inch)	Coated										Cermets		Coated Cermets		Carbide						Applicable Holder Page														
UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035		MP3025	AP25N	VP25N	VP45N	UTI20T	HT105T	HT110	TF15	MT9005	RT9005	RT9010			
Standard	CPMX2.51.51	CPMX080204	.016	●																																	
	CPMX2.51.52	CPMX080208	.031	●																																	
Medium Cutting	CPMX321	CPMX090304	.016	●																		★															
	CPMX322	CPMX090308	.031	●																							★										
Medium Cutting																																					
Medium Cutting	CPMH2.51.51MV	CPMH080204-MV	.016		●					●												★	●	●	●	●											
	CPMH2.51.52MV	CPMH080208-MV	.031		●					●												★	●	●	●	●											
Medium Cutting	CPMH321MV	CPMH090304-MV	.016		●					●												★	●	●	●	●											
	CPMH322MV	CPMH090308-MV	.031		●					●												★	●	●	●	●											
Medium Cutting																																					
Medium Cutting	CPMT21.51MQ	CPMT060204-MQ	.016	●						●																											
	CPMT21.52MQ	CPMT060208-MQ	.031	●						●																											
Medium Cutting	CPMT32.51MQ	CPMT09T304-MQ	.016	●						●																											
	CPMT32.52MQ	CPMT09T308-MQ	.031	●						●																											

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



DC TYPE INSERTS WITH HOLE

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

TURNING INSERTS

POSI 7°

WITH HOLE

C

D

R

S

T

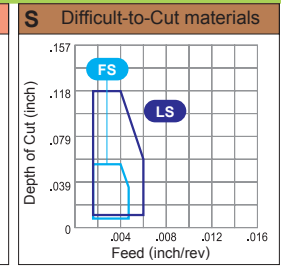
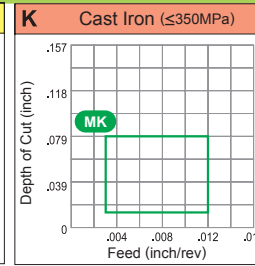
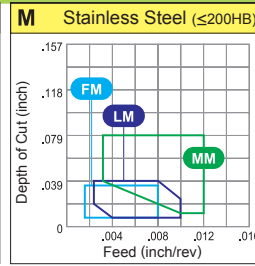
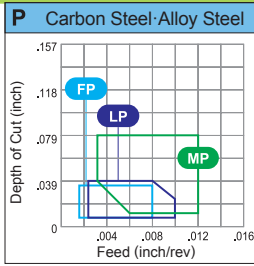
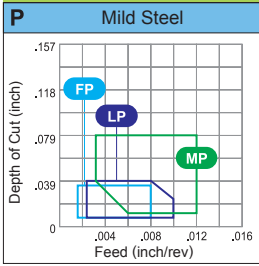
V

W

X

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ✦ Unstable Cutting FS, LS : G class inserts

Work Material	Material		Cutting Conditions																			Applicable Holder Page																
	P	M	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●																	
Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated											Cermet		Coated Cermet		Carbide																			
				UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HT105T	HT110	TF15	MT9005	RT9005	RT9010	
	DCMT21.50.5FP	DCMT070202-FP	.008	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	C031
	DCMT21.51FP	DCMT070204-FP	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	C032
	DCMT32.50.5FP	DCMT11T302-FP	.008	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D009
	DCMT32.51FP	DCMT11T304-FP	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D013
	DCMT32.52FP	DCMT11T308-FP	.031	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	D040
	DCMT21.50.5FM	DCMT070202-FM	.008																																		E008	
	DCMT21.51FM	DCMT070204-FM	.016																																		E013	
	DCMT32.50.5FM	DCMT11T302-FM	.008																																		E014	
	DCMT32.51FM	DCMT11T304-FM	.016																																		E042	
	DCMT32.52FM	DCMT11T308-FM	.031																																			E043
	DCMT21.50.5FV	DCMT070202-FV	.008	★																					★	●	●										C031	
	DCMT21.51FV	DCMT070204-FV	.016	★																					★	●	●										C032	
	DCMT21.52FV	DCMT070208-FV	.031																						●	★												D009
	DCMT32.50.5FV	DCMT11T302-FV	.008																						●	★												D013
	DCMT32.51FV	DCMT11T304-FV	.016	★																					●	★												E008
	DCMT32.52FV	DCMT11T308-FV	.031	★																					●	★												E013
	DCGT21.5V5FJ	DCGT0702V5-FJ	.002																																		C031	
	DCGT21.50.2FJ	DCGT070201-FJ	.004																																			C032
	DCGT21.50.5FJ	DCGT070202-FJ	.008																																			D009
	DCGT32.5V5FJ	DCGT11T3V5-FJ	.002																																			D013
	DCGT32.50.2FJ	DCGT11T301-FJ	.004																																			D040
	DCGT32.50.5FJ	DCGT11T302-FJ	.008																																			E008
	DCGT21.5V5FJ-P	DCGT0702V5-FJ-P	.002																																			E013
	DCGT21.50.2FJ-P	DCGT070201-FJ-P	.004																																			E014
	DCGT21.50.5FJ-P	DCGT070202-FJ-P	.008																																			E042
	DCGT32.5V5FJ-P	DCGT11T3V5-FJ-P	.002																																			E043
	DCGT32.50.2FJ-P	DCGT11T301-FJ-P	.004																																			E042
	DCGT32.50.5FJ-P	DCGT11T302-FJ-P	.008																																			E043

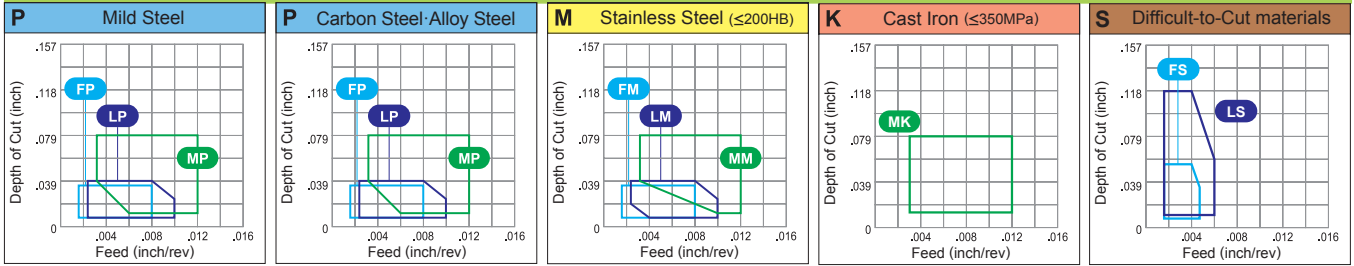
TURNING INSERTS [POSITIVE]

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

FS, LS : G class inserts

Work Material	P	Steel																																			
	M	Stainless Steel																																			
Shape	K	Cast Iron																																			
	N	Non-Ferrous Metal																																			
Order Number	S	Heat-resistant Alloy, Titanium Alloy																																			
	(ISO) Number	Corner Radius (inch)																																			
			Coated										Cermet	Coated Cermet	Carbide			Applicable Holder Page																			
			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005		MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HT105T	HT110	TF15	MT9005	RT9005	RT9010
MJ 	DCGT21.51MJ	DCGT070204-MJ	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	C031
	DCGT32.51MJ	DCGT11T304-MJ	.016																																		D009
	DCGT32.52MJ	DCGT11T308-MJ	.031																																		
MJ-P 	DCGT21.51MJ-P	DCGT070204-MJ-P	.016																																		E008
	DCGT32.51MJ-P	DCGT11T304-MJ-P	.016																																		E013
	DCGT32.52MJ-P	DCGT11T308-MJ-P	.031																																		E014
MP 	DCMT21.51MP	DCMT070204-MP	.016	●	●	●																															C031
	DCMT21.52MP	DCMT070208-MP	.031	●	●	●																															C032
	DCMT32.51MP	DCMT11T304-MP	.016	●	●	●																															D009
	DCMT32.52MP	DCMT11T308-MP	.031	●	●	●																															D013
	DCMT431MP	DCMT150404-MP	.016	●	●	●																															E008
	DCMT432MP	DCMT150408-MP	.031	●	●	●																															E013
MM 	DCMT21.51MM	DCMT070204-MM	.016						●	●																											C031
	DCMT21.52MM	DCMT070208-MM	.031						●	●																											C032
	DCMT32.51MM	DCMT11T304-MM	.016						●	●																											D009
	DCMT32.52MM	DCMT11T308-MM	.031						●	●																											D013
	DCMT431MM	DCMT150404-MM	.016						●	●																											D040
	DCMT432MM	DCMT150408-MM	.031						●	●																											E008
MS 	DCMT21.51MS	DCMT070204-MS	.016														●	●																			C031
	DCMT21.52MS	DCMT070208-MS	.031														●	●																			C032
	DCMT32.51MS	DCMT11T304-MS	.016														●	●																			D009
	DCMT32.52MS	DCMT11T308-MS	.031														●	●																			D013



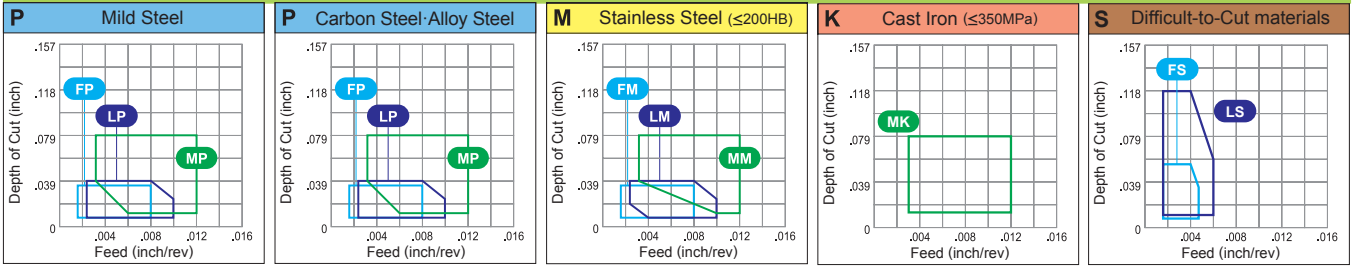
TURNING INSERTS [POSITIVE]

55° DC TYPE INSERTS WITH HOLE

DCET **2** **1.5** **0.2** **L** **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

FS, LS : G class inserts

Work Material	P	Steel																																
	M	Stainless Steel																																
Shape	K	Cast Iron																																
	N	Non-Ferrous Metal																																
Order Number	S	Heat-resistant Alloy, Titanium Alloy																																
	(ISO) Number	Corner Radius (inch)	Coated					Cermet	Coated Cermet		Carbide					Applicable Holder Page																		
UE6105	UE6110	UE6020	MC6015	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT		VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTI05T	HTI10	TF15	MT9005	RT9005	RT9010	
R/L SN	DCET21.50.2LSN	DCET070201L-SN	.004																															
	DCET21.50.5RSN	DCET070202R-SN	.008																															
	DCET21.50.5LSN	DCET070202L-SN	.008																															
	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																															
	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																															
DCET32.51RSN	DCET11T304R-SN	.016																																
DCET32.51LSN	DCET11T304L-SN	.016																																
NEW R SN	DCGT21.50.2MRSN	DCGT070201MR-SN	.004																															
	DCGT21.50.5MRSN	DCGT070202MR-SN	.008																															
	DCGT32.50.2MRSN	DCGT11T301MR-SN	.004																															
	DCGT32.50.5MRSN	DCGT11T302MR-SN	.008																															
	DCGT32.51MRSN	DCGT11T304MR-SN	.016																															
	DCGT32.51LSN	DCGT11T304L-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																															
	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																															
	DCGT32.51RSN	DCGT11T304R-SN	.016																															
	DCGT32.51LSN	DCGT11T304L-SN	.016																															

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

TURNING INSERTS [POSITIVE]

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.

TURNING INSERTS

POSI 20°

WITH HOLE

C

D

R

S

T

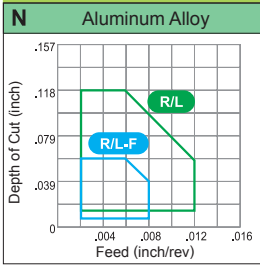
V

W

X

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting---● Medium Cutting---●



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	Steel	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTi05T	HTi10	TF-15	MT9005	RT9005	RT9010	Applicable Holder Page	
	M	Stainless Steel	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTi05T	HTi10	TF-15	MT9005	RT9005	RT9010		
Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated													Cermet	Coated Cermet		Carbide																		
				UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M		MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTi05T	HTi10	TF-15	MT9005	RT9005	RT9010
R/L F	DEGX430.5RF	DEGX150402R-F	.008	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	DEGX430.5LF	DEGX150402L-F	.008																																			
	DEGX431RF	DEGX150404R-F	.016																																			
	DEGX431LF	DEGX150404L-F	.016																																			
R/L	DEGX430.5R	DEGX150402R	.008																																			
	DEGX430.5L	DEGX150402L	.008																																			
	DEGX431R	DEGX150404R	.016																																			
	DEGX431L	DEGX150404L	.016																																			
	DEGX432R	DEGX150408R	.031																																			

RC TYPE INSERTS WITH HOLE

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

TURNING INSERTS

POSI
7°

WITH HOLE

C

D

R

S

T

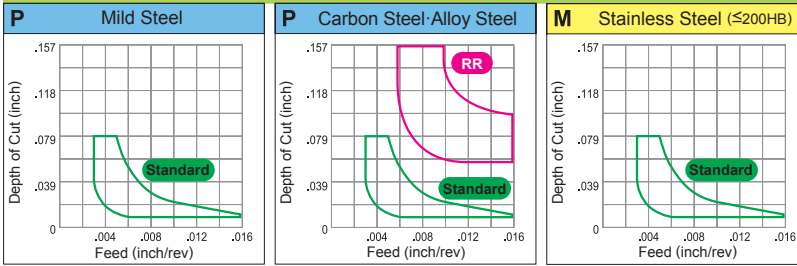
V

W

X

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																																		
Shape	K	Cast Iron																																		
	N	Non-Ferrous Metal																																		
Shape	S	Heat-resistant Alloy, Titanium Alloy																																		
	Order Number	(ISO) Number	Corner Radius (inch)	Coated												Cermets		Coated Cermets		Carbide		Applicable Holder Page														
UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525		NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTI05T	HTI10	TF15	MT9005	RT9005	RT9010		
 Medium-Finish Cutting	AZ RCGT0803M0-AZ	RCGT0803M0-AZ	-																																	
	RCGT10T3M0-AZ	RCGT10T3M0-AZ	-																																	
 Medium Cutting	Standard RCMT0602M0	RCMT0602M0	-	●																			★	●				★								
	RCMT0803M0	RCMT0803M0	-	●																			★	●				★								
 Medium Cutting	Standard RCMX1003M0	RCMX1003M0	-	●	★			★															★	★	●											
	RCMX1204M0	RCMX1204M0	-	●	●	★		●	★		●	★											★	●	●											
	RCMX1606M0	RCMX1606M0	-	★	●	★	★	★	★																											
	RCMX2006M0	RCMX2006M0	-	★	●	★	★	★																												
	RCMX2507M0	RCMX2507M0	-	★	★	★		★																												
RCMX3209M0	RCMX3209M0	-	★	★																																
 Heavy Cutting	RR RCMX1606M0-RR	RCMX1606M0-RR	-	★	★	★		★																												
	RCMX2006M0-RR	RCMX2006M0-RR	-	★	★	★		★																												
	RCMX2507M0-RR	RCMX2507M0-RR	-	★	★	★		★																												
	RCMX3209M0-RR	RCMX3209M0-RR	-	★																																

TURNING INSERTS [POSITIVE]

90° SC TYPE INSERTS WITH HOLE

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

TURNING INSERTS

90°

WITH HOLE

C

D

R

S

T

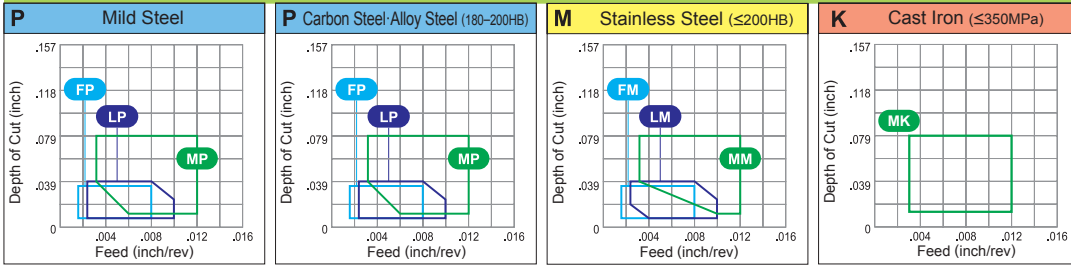
V

W

X

CHIP CONTROL RANGE FOR WORK MATERIALS





Finish Cutting... (Blue) Light Cutting... (Purple) Medium Cutting... (Green)



Cutting Conditions : ● Stable Cutting ● General Cutting ✚ Unstable Cutting

Work Material	P	Steel																																			
	M	Stainless Steel																																			
Shape	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	US735	US905	MC5005	MC5015	UC5105	UC5115		MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M		MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTI05T	HTI10	TF-15	MT9005	RT9005	RT9010
	FP	SCMT32.51FP	SCMT09T304-FP	.016	●	●	●																●	●													
		SCMT32.52FP	SCMT09T308-FP	.031	●	●	●																●	●													
	FM	SCMT32.51FM	SCMT09T304-FM	.016																																	
		SCMT32.52FM	SCMT09T308-FM	.031																																	
	FV	SCMT32.51FV	SCMT09T304-FV	.016																			★	●		●	★										
	LP	SCMT32.51LP	SCMT09T304-LP	.016	●	●	●																	●	●												
		SCMT32.52LP	SCMT09T308-LP	.031	●	●	●																	●	●												
	LM	SCMT32.51LM	SCMT09T304-LM	.016									●	●																							
		SCMT32.52LM	SCMT09T308-LM	.031																																	
	MP	SCMT32.51MP	SCMT09T304-MP	.016	●	●	●																	●	●												
		SCMT32.52MP	SCMT09T308-MP	.031	●	●	●																	●	●												
		SCMT431MP	SCMT120404-MP	.016	●	●	●																		●	●											
		SCMT432MP	SCMT120408-MP	.031	●	●	●																		●	●											

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

Work Material	P	Steel	Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																										Cermet	Coated Cermet	Carbide			Applicable Holder Page		
	M	Stainless Steel					UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UT120T	HT105T	HT110	TF15		MT9005	RT9005
K	Cast Iron																																							
N	Non-Ferrous Metal																																							
S	Heat-resistant Alloy, Titanium Alloy																																							
 Medium Cutting	SCMT32.51MM	SCMT09T304-MM	.016																																					
	SCMT32.52MM	SCMT09T308-MM	.031																																					
	SCMT431MM	SCMT120404-MM	.016																																					
	SCMT432MM	SCMT120408-MM	.031																																					
 Medium Cutting	SCMT32.51MK	SCMT09T304-MK	.016																																					
	SCMT32.52MK	SCMT09T308-MK	.031																																					
	SCMT431MK	SCMT120404-MK	.016																																					
	SCMT432MK	SCMT120408-MK	.031																																					
Standard  Medium Cutting	SCMT32.51	SCMT09T304	.016	★●																					★●	●●●			●											
	SCMT32.52	SCMT09T308	.031	●●																					★●	●●●			★											
	SCMT431	SCMT120404	.016	★●																					★●	●●														
	SCMT432	SCMT120408	.031	●●																					★●	●●			★											
	SCMT433	SCMT120412	.047	★																																				
Flat Top 	SCMW32.51	SCMW09T304	.016											●●	★																				★	★				
	SCMW32.52	SCMW09T308	.031											●●	★	★																								
	SCMW432	SCMW120408	.031											●●	★	★																								

TURNING INSERTS [POSITIVE]

90° SP TYPE INSERTS WITH HOLE

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

TURNING INSERTS

POSI 11°

WITH HOLE

C

D

R

S

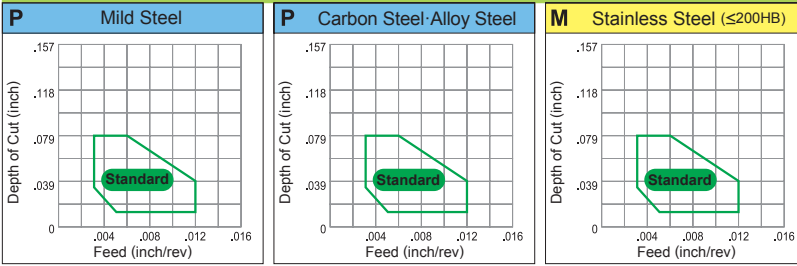
T

V

W

X

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														
	Coated	Cermet	Coated Cermet	Carbide																			
Shape	Order Number	(ISO) Number	Corner Radius (inch)	Applicable Holder Page																			
	SPMT321	SPMT090304	.016	UE6105, UE6110, UE6020, MC6015, MC6025, UH6400, MC7025, MP7035, US735, US905, MC5005, MC5015, UC5105, UC5115, MP9005, MP9015, VP05RT, VP10RT, VP15TF, UP20M, MS6015																			
	SPMT322	SPMT090308	.031																				
	SPMT422	SPMT120308	.031																				
	SPMW321	SPMW090304	.016																				
	SPMW322	SPMW090308	.031																				
	SPMW421	SPMW120304	.016																				
	SPMW422	SPMW120308	.031																				
	SPGX321	SPGX090304	.016																				
	SPGX322	SPGX090308	.031																				
	SPGX421	SPGX120304	.016																				
	SPGX422	SPGX120308	.031																				

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

TURNING INSERTS [POSITIVE]

60° TC TYPE INSERTS WITH HOLE

TCGT 1.2 1 V3 LF

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

TURNING INSERTS

POSI 7°

WITH HOLE

C

D

R

S

T

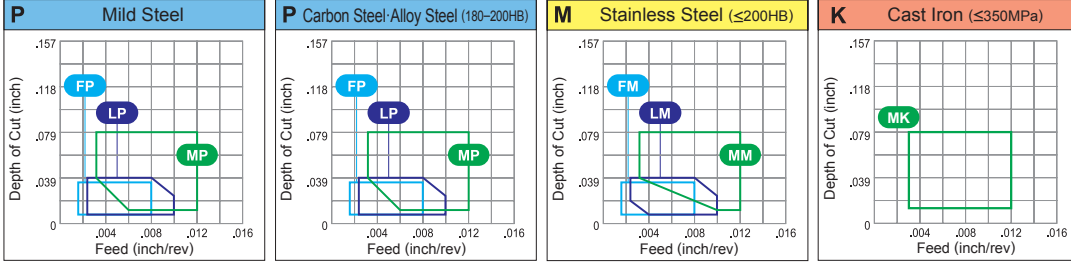
V

W

X

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Heat-resistant Alloy, Titanium Alloy	Coated												Cermet		Coated Cermet		Carbide		Applicable Holder Page																		
						UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT		VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UT120T	HT105T	HT110	TF15	MT9005	RT9005	RT9010		
R/L F	TCGT1.21V3LF	TCGT0601V3L-F	.0012																																							
	TCGT1.210.2LF	TCGT060101L-F	.004																																							
	TCGT1.210.5RF	TCGT060102R-F	.008																																							
	TCGT1.210.5LF	TCGT060102L-F	.008																																							
	TCGT1.211RF	TCGT060104R-F	.016																																							
LP	TCMT1.81.51LP	TCMT090204-LP	.016	●	●	●																																				
	TCMT1.81.52LP	TCMT090208-LP	.031	●	●	●																																				
	TCMT21.51LP	TCMT110204-LP	.016	●	●	●																																				
	TCMT21.52LP	TCMT110208-LP	.031	●	●	●																																				
	TCMT32.51LP	TCMT16T304-LP	.016	●	●	●																																				
LM	TCMT1.81.51LM	TCMT090204-LM	.016								●	●																														
	TCMT1.81.52LM	TCMT090208-LM	.031								●	●																														
	TCMT21.51LM	TCMT110204-LM	.016								●	●																														
	TCMT21.52LM	TCMT110208-LM	.031								●	●																														
	TCMT32.51LM	TCMT16T304-LM	.016								●	●																														
MJ	TCGT21.51MJ	TCGT110204-MJ	.016																																							
	TCGT32.51MJ	TCGT16T304-MJ	.016																																							
	TCGT32.52MJ	TCGT16T308-MJ	.031																																							
MJ-P	TCGT21.51MJ-P	TCGT110204-MJ-P	.016																																							
	TCGT32.51MJ-P	TCGT16T304-MJ-P	.016																																							
	TCGT32.52MJ-P	TCGT16T308-MJ-P	.031																																							

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

TURNING INSERTS [POSITIVE]

60° TE TYPE INSERTS WITH HOLE

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

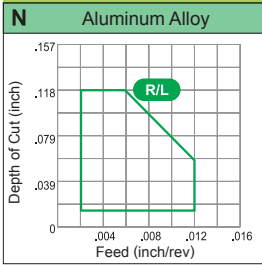
TURNING INSERTS

POSI 20°

WITH HOLE

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting... ●



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	Cutting Conditions			Coated	Cermet	Coated Cermet	Carbide	Applicable Holder Page																									
	Stable Cutting (●)	General Cutting (●)	Unstable Cutting (⊕)																														
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)					C042 E028																									
	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025		MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTi05T	HTi10	TF-15	MT9005	RT9005	RT9010
R/L Medium Cutting	TEGX320.5R	TEGX160302R	.008																														
	TEGX320.5L	TEGX160302L	.008																														
	TEGX321R	TEGX160304R	.016																														
	TEGX321L	TEGX160304L	.016																														

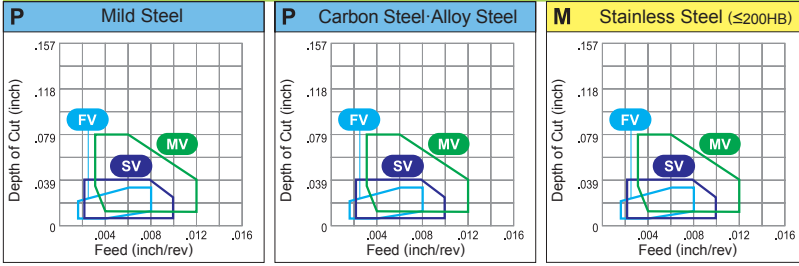
60° TP TYPE INSERTS WITH HOLE

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

TURNING INSERTS

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	Material Legend			Cutting Conditions																		Applicable Holder Page																			
	P	M	K	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●												
Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated									Cermets			Coated Cermet		Carbide				Applicable Holder Page																			
				UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT		VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTI05T	HTI10	TF15	MT9005	RT9005	RT9010			
Finish Cutting	FV	TPMH1.51.50.5FV	TPMH080202-FV	.008	●	●	●	●	●	●																															
		TPMH1.51.51FV	TPMH080204-FV	.016																		●	●	●	●																
		TPMH1.81.50.5FV	TPMH090202-FV	.008																																					
		TPMH1.81.51FV	TPMH090204-FV	.016																		●	●	●	●																
		TPMH220.5FV	TPMH110302-FV	.008																																					
		TPMH221FV	TPMH110304-FV	.016																																					
		TPMH222FV	TPMH110308-FV	.031																																					
		TPMH320.5FV	TPMH160302-FV	.008																																					
		TPMH321FV	TPMH160304-FV	.016																																					
		TPMH322FV	TPMH160308-FV	.031																																					
Finish Cutting	R/L FS	TPGH1.51.50.5RFS	TPGH080202R-FS	.008																					●	●	●														
		TPGH1.51.50.5LFS	TPGH080202L-FS	.008																																					
		TPGH1.51.51RFS	TPGH080204R-FS	.016																																					
		TPGH1.51.51LFS	TPGH080204L-FS	.016																																					
		TPGH1.81.50.5RFS	TPGH090202R-FS	.008																																					
		TPGH1.81.50.5LFS	TPGH090202L-FS	.008																																					
		TPGH1.81.51RFS	TPGH090204R-FS	.016																																					
		TPGH1.81.51LFS	TPGH090204L-FS	.016																																					
		TPGH220.5RFS	TPGH110302R-FS	.008																																					
		TPGH220.5LFS	TPGH110302L-FS	.008																																					
		TPGH221RFS	TPGH110304R-FS	.016																																					
		TPGH221LFS	TPGH110304L-FS	.016																																					
		TPGH321RFS	TPGH160304R-FS	.016																																					
		TPGH321LFS	TPGH160304L-FS	.016																																					
TPGH322RFS	TPGH160308R-FS	.031																																							
TPGH322LFS	TPGH160308L-FS	.031																																							
Finish Cutting	SQ	TPMT1.81.51SQ	TPMT090204-SQ	.016																																					
		TPMT21.50.5SQ	TPMT110202-SQ	.008	●																																				
		TPMT21.51SQ	TPMT110204-SQ	.016	●																																				
		TPMT21.52SQ	TPMT110208-SQ	.031	●																																				
		TPMT32.51SQ	TPMT16T304-SQ	.016																																					
TPMT32.52SQ	TPMT16T308-SQ	.031																																							

POSI 11°

WITH HOLE

C

D

R

S

T

V

W

X

CHIP BREAKER > A072
 IDENTIFICATION > A002

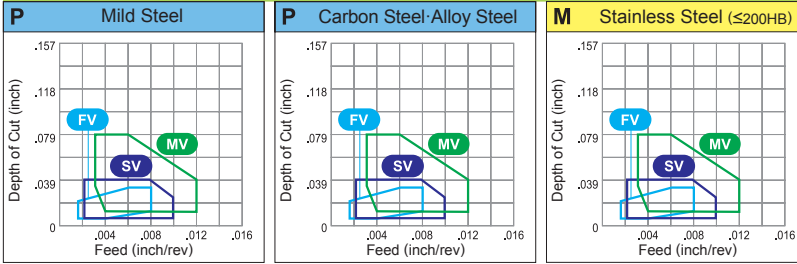
TURNING INSERTS [POSITIVE]



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																																		
Shape	K	Cast Iron																																		
	N	Non-Ferrous Metal																																		
Shape	S	Heat-resistant Alloy, Titanium Alloy																																		
	Order Number	(ISO) Number	Corner Radius (inch)	Coated								Cermet	Coated Cermet		Carbide			Applicable Holder Page																		
UE6105	UE6110	UE6020	MC6015	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF		UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTI05T	HTI10	TF15	MT9005	RT9005	RT9010			
R/L	TPGX1.51.50.5R	TPGX080202R	.008	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	TPGX1.51.50.5L	TPGX080202L	.008																																	
	TPGX1.51.51R	TPGX080204R	.016																																	
	TPGX1.51.51L	TPGX080204L	.016																																	
	TPGX1.81.50.5R	TPGX090202R	.008																																	
	TPGX1.81.50.5L	TPGX090202L	.008																																	
	TPGX1.81.51R	TPGX090204R	.016																																	
	TPGX1.81.51L	TPGX090204L	.016																																	
	TPGX1.81.52R	TPGX090208R	.031																																	
	TPGX1.81.52L	TPGX090208L	.031																																	
	TPGX220.5L	TPGX110302L	.008																																	
	TPGX221R	TPGX110304R	.016																																	
	TPGX221L	TPGX110304L	.016																																	
TPGX222R	TPGX110308R	.031																																		
TPGX222L	TPGX110308L	.031																																		
L	TPMX1.81.51L	TPMX090204L	.016																																	
	TPMX221L	TPMX110304L	.016																																	
SV	TPMH1.51.50.5SV	TPMH080202-SV	.008		●		●																													
	TPMH1.51.51SV	TPMH080204-SV	.016		●		●																													
	TPMH1.81.50.5SV	TPMH090202-SV	.008		●		●																													
	TPMH1.81.51SV	TPMH090204-SV	.016		●		●																													
	TPMH220.5SV	TPMH110302-SV	.008		●		●																													
	TPMH221SV	TPMH110304-SV	.016		●		●																													
	TPMH222SV	TPMH110308-SV	.031		●		●																													
	TPMH320.5SV	TPMH160302-SV	.008		●		●																													
	TPMH321SV	TPMH160304-SV	.016		●		●																													
TPMH322SV	TPMH160308-SV	.031		●		●																														

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



Work Material	Material		Inserts																				Applicable Holder Page																
	P	M	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M		MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UT120T	HT105T	HT110	TF15	MT9005	RT9005	RT9010		
Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated												Cermet	Coated Cermet		Carbide																				
				UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M		MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UT120T	HT105T	HT110	TF15	MT9005	RT9005	RT9010	
Standard	TPMX221	TPMX110304	.016	●	●	●	●	●	●															●	●	●	●	●	●	●	●	●	●	●					
	TPMX222	TPMX110308	.031																					●	●														
Medium Cutting	MV	TPMH1.51.50.5MV	TPMH080202-MV	.008					●		●													●	●	●													
		TPMH1.51.51MV	TPMH080204-MV	.016					●		●				●										●	●	●	●	●										
	TPMH1.81.50.5MV	TPMH090202-MV	.008					●		●														●	●	●													
	TPMH1.81.51MV	TPMH090204-MV	.016					●		●					●									●	●	●	●	●											
	TPMH1.81.52MV	TPMH090208-MV	.031					●		●					●									●	●	●													
	TPMH220.5MV	TPMH110302-MV	.008					●		●													★	★	●	●	●	●	★										
	TPMH221MV	TPMH110304-MV	.016					●		●														★	●	●	●	●											
	TPMH222MV	TPMH110308-MV	.031					●		●														★	●	●	●	●											
	TPMH321MV	TPMH160304-MV	.016					●		●														★	★	●	●	●	★										
TPMH322MV	TPMH160308-MV	.031					●		●														★	★	●	●	●	●											
Medium Cutting	MQ	TPMT21.51MQ	TPMT110204-MQ	.016	●					●																													
		TPMT21.52MQ	TPMT110208-MQ	.031	●						●																	●											
		TPMT32.51MQ	TPMT16T304-MQ	.016	●						●																												
		TPMT32.52MQ	TPMT16T308-MQ	.031	●						●																												
Flat Top	TPGX	TPGX1.51.50.5	TPGX080202	.008																																			
		TPGX1.51.51	TPGX080204	.016																																			
		TPGX1.51.52	TPGX080208	.031																																			
		TPGX1.81.50.5	TPGX090202	.008																																			
		TPGX1.81.51	TPGX090204	.016																																			
		TPGX1.81.52	TPGX090208	.031																																			
		TPGX220.5	TPGX110302	.008																																			
		TPGX221	TPGX110304	.016																																			
		TPGX222	TPGX110308	.031																																			
		TPGX321	TPGX160304	.016																																			
TPGX322	TPGX160308	.031																																					

TURNING INSERTS [POSITIVE]



35° VB TYPE INSERTS WITH HOLE

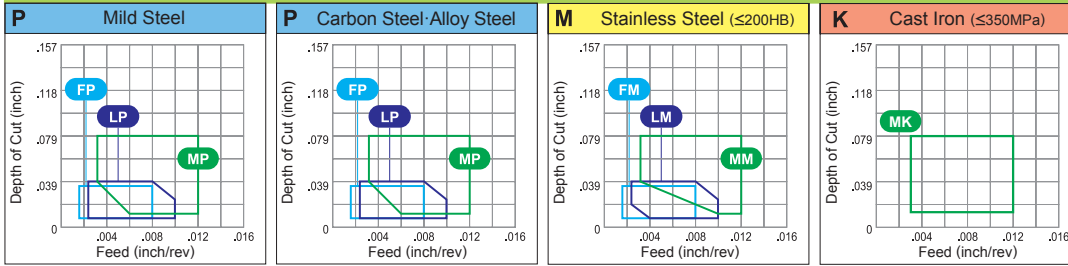
VBMT 2 2 0.5 FP

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

TURNING INSERTS

CHIP CONTROL RANGE FOR WORK MATERIALS

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



POSI 50

WITH HOLE

Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	Steel																																					
	M	Stainless Steel																																					
Shape	K	Cast Iron																																					
	N	Non-Ferrous Metal																																					
Order Number	S	Heat-resistant Alloy, Titanium Alloy																																					
	(ISO) Number	Corner Radius (inch)																																					
			Coated										Cermet	Coated Cermet		Carbide			Applicable Holder Page																				
			UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015		VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTI05T	HTI10	TF15	MT9005	RT9005	RT9010		
Finish Cutting	FP	VBMT220.5FP	VBMT110302-FP	.008	●	●	●																																
	VBMT221FP	VBMT110304-FP	.016	●	●	●																			●	●													
	VBMT222FP	VBMT110308-FP	.031	●	●	●																			●	●													
	VBMT331FP	VBMT160404-FP	.016	●	●	●																			●	●													
	VBMT332FP	VBMT160408-FP	.031	●	●	●																			●	●													
Finish Cutting	FM	VBMT220.5FM	VBMT110302-FM	.008																																			
	VBMT221FM	VBMT110304-FM	.016																																				
	VBMT222FM	VBMT110308-FM	.031																																				
	VBMT331FM	VBMT160404-FM	.016																																				
	VBMT332FM	VBMT160408-FM	.031																																				
Finish Cutting	FV	VBMT221FV	VBMT110304-FV	.016																						●	★												
	VBMT222FV	VBMT110308-FV	.031																							●	★												
	VBMT331FV	VBMT160404-FV	.016																							●	★												
	VBMT332FV	VBMT160408-FV	.031																							●	★												
Finish Cutting	FJ	VBGT33V5FJ	VBGT1604V5-FJ	.002																																			
	VBGT330.2FJ	VBGT160401-FJ	.004																																				
	VBGT330.5FJ	VBGT160402-FJ	.008																																				
Finish Cutting	FJ-P	VBGT33V5FJ-P	VBGT1604V5-FJ-P	.002																																		●	
	VBGT330.2FJ-P	VBGT160401-FJ-P	.004																																		●		
	VBGT330.5FJ-P	VBGT160402-FJ-P	.008																																		●		



Work Material	P Steel		M Stainless Steel		K Cast Iron		N Non-Ferrous Metal		S Heat-resistant Alloy, Titanium Alloy		Coated										Cermet	Coated Cermet	Carbide			Applicable Holder Page																																	
	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N		VP25N	VP45N	UT120T	HT105T	HT110	TF15	MT9005	RT9005	RT9010																								
Shape	Order Number	(ISO) Number	Corner Radius (inch)																																																								
 Finish Cutting	VBGT220.5RF	VBGT110302R-F	.008																								*	*	*	*																											C028 C029 D010 D011 D014 D015 E009 E010 H013		
	VBGT220.5LF	VBGT110302L-F	.008																								*	*	*	*																													
	VBGT221RF	VBGT110304R-F	.016																								*	*	*	*																													
	VBGT221LF	VBGT110304L-F	.016																								*	*	*	*																													
	VBGT330.5RF	VBGT160402R-F	.008																								*	*	*	*																													
	VBGT330.5LF	VBGT160402L-F	.008																								*	*	*	*																													
	VBGT331RF	VBGT160404R-F	.016																								*	*	*	*																													
	VBGT331LF	VBGT160404L-F	.016																								*	*	*	*																													
 Light Cutting	VBMT221LP	VBMT110304-LP	.016	●	●	●																	●	●																			C028 C029 D010 D011 D014 D015 E009 E010 H013																
	VBMT222LP	VBMT110308-LP	.031	●	●	●																	●	●																																			
	VBMT331LP	VBMT160404-LP	.016	●	●	●																	●	●																																			
	VBMT332LP	VBMT160408-LP	.031	●	●	●																	●	●																																			
 Light Cutting	VBMT221LM	VBMT110304-LM	.016					●	●																	●																					C028 C029 D010 D011 D014 D015 E009 E010 H013												
	VBMT222LM	VBMT110308-LM	.031					●	●																	●																																	
	VBMT331LM	VBMT160404-LM	.016					●	●																	●																																	
	VBMT332LM	VBMT160408-LM	.031					●	●																	●																																	
 Light Cutting	VBMT331LS	VBMT160404-LS	.016					●																																																			
	VBMT332LS	VBMT160408-LS	.031					●																																																			
 Light Cutting	VBMT221SV	VBMT110304-SV	.016																							●	●																																
	VBMT222SV	VBMT110308-SV	.031																							●	●																																
	VBMT331SV	VBMT160404-SV	.016																							●	●																																
	VBMT332SV	VBMT160408-SV	.031																							●	●																																
 Light Cutting	VBGT331MJ	VBGT160404-MJ	.016																							●																																	
	VBGT332MJ	VBGT160408-MJ	.031																							●																																	
 Light Cutting	VBGT331MJ-P	VBGT160404-MJ-P	.016																																																								
	VBGT332MJ-P	VBGT160408-MJ-P	.031																																																								
 Medium Cutting	VBMT331MP	VBMT160404-MP	.016	●	●	●																	●	●																																			
	VBMT332MP	VBMT160408-MP	.031	●	●	●																	●	●																																			



TURNING INSERTS [POSITIVE]



35° VB TYPE INSERTS WITH HOLE

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

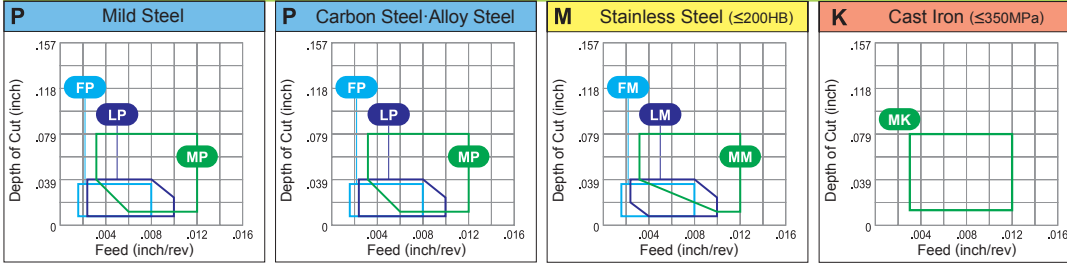
TURNING INSERTS

POSITIVE

WITH HOLE

CHIP CONTROL RANGE FOR WORK MATERIALS





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



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	Steel			Stainless Steel			Cast Iron			Non-Ferrous Metal			Heat-resistant Alloy, Titanium Alloy			Applicable Holder Page																							
	P	M	K	N	S	P	M	K	N	S	P	M	K	N	S																								
Shape	Coated			Cermet			Coated Cermet			Carbide																													
Order Number	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTI05T	HTI110	TF15	MT9005	RT9005	RT9010					
Corner Radius (inch)	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016	.016				
Medium Cutting	●	●	●																																		C028 C029 H013		
Medium Cutting															●	●	●	●	●	●																	C028 C029 H013		
Medium Cutting																																						C028 C029 H013	
Medium Cutting																																						C028 C029 H013	
Medium Cutting																																							C028 C029 H013
Medium Cutting																																							C028 C029 D010 D011 D014 D015 E009 E010 H013



Work Material					Coated														Cermet	Coated Cermet			Carbide					Applicable Holder Page															
	P	Steel	M	Stainless Steel	K	Cast Iron	N	Non-Ferrous Metal	S	Heat-resistant Alloy, Titanium Alloy	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT		VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UT120T	HT105T	HT110	TF15	MT9005
Shape	Order Number	(ISO) Number	Corner Radius (inch)																																								
 R/L SR Medium Cutting	VBET22V3RSR	VBET1103V3R-SR	.0012																																								
	VBET22V3LSR	VBET1103V3L-SR	.0012																																								
	VBET220.2RSR	VBET110301R-SR	.004																																								
	VBET220.2LSR	VBET110301L-SR	.004																																								
	VBET220.5RSR	VBET110302R-SR	.008																																								
	VBET220.5LSR	VBET110302L-SR	.008																																								
	VBET221RSR	VBET110304R-SR	.016																																								
	VBET221LSR	VBET110304L-SR	.016																																								
 R/L SN Medium Cutting	VBET22V0RSN	VBET110300R-SN	0																																								
	VBET22V0LSN	VBET110300L-SN	0																																								
	VBET22V3RSN	VBET1103V3R-SN	.0012																																								
	VBET22V3LSN	VBET1103V3L-SN	.0012																																								
	VBET220.2RSN	VBET110301R-SN	.004																																								
	VBET220.2LSN	VBET110301L-SN	.004																																								
	VBET220.5RSN	VBET110302R-SN	.008																																								
	VBET220.5LSN	VBET110302L-SN	.008																																								
	VBET221RSN	VBET110304R-SN	.016																																								
VBET221LSN	VBET110304L-SN	.016																																									
 R/LW SN (With Wiper) Medium Cutting	*VBET22V3RWSN	VBET1103V3RW-SN	.0012																																								
	*VBET22V3LWSN	VBET1103V3LW-SN	.0012																																								
 Flat Top	VBMW332	VBMW160408	.031																																								

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

TURNING INSERTS [POSITIVE]



35° VC TYPE INSERTS WITH HOLE

VCMT 2 2 0.5 FP

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

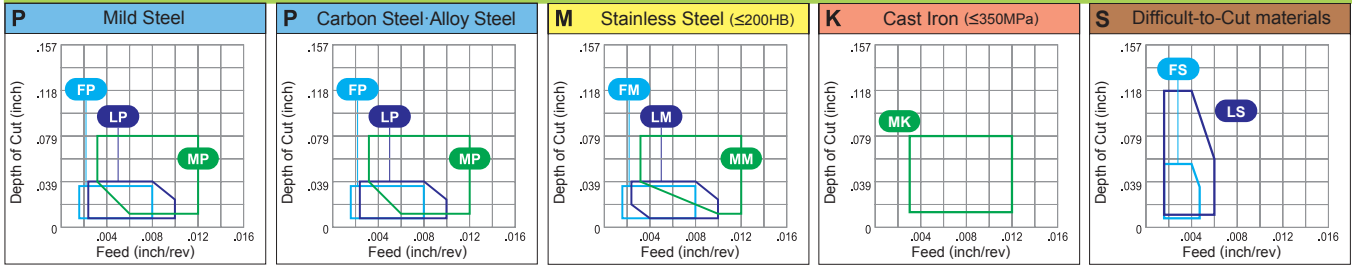
TURNING INSERTS

POSI 7°

WITH HOLE

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ✦ Unstable Cutting

FS, LS : G class inserts

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	Coated										Cermet	Coated Cermet	Carbide		Applicable Holder Page																						
	Corner Radius (inch)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005		MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTI05T	HTI10	TF15	MT9005	RT9005	RT9010			
Finish Cutting	FP	VCMT220.5FP	VCMT110302-FP	.008	●	●	●																	●	●														
		VCMT221FP	VCMT110304-FP	.016	●	●	●																		●	●													
		VCMT331FP	VCMT160404-FP	.016	●	●	●																		●	●													
		VCMT332FP	VCMT160408-FP	.031	●	●	●																		●	●													
Finish Cutting	FM	VCMT220.5FM	VCMT110302-FM	.008																		●																	
		VCMT221FM	VCMT110304-FM	.016																		●																	
		VCMT331FM	VCMT160404-FM	.016																		●																	
		VCMT332FM	VCMT160408-FM	.031																		●																	
Finish Cutting	FV	VCMT1.51.50.5FV	VCMT080202-FV	.008			●																	●	★	●													
		VCMT1.51.51FV	VCMT080204-FV	.016			●																		●	★	●												
		VCMT331FV	VCMT160404-FV	.016	★																				★	●	●												
		VCMT332FV	VCMT160408-FV	.031	★																				★	●	●												
Finish Cutting	NEW LS	VCGT220.2MLS	VCGT110301M-LS	.004												●	●																						
		VCGT220.5MLS	VCGT110302M-LS	.008												●	●																						
		VCGT221MLS	VCGT110304M-LS	.016												●	●																						
		VCGT2.520.2MLS	VCGT130301M-LS	.004												●	●																						
		VCGT2.520.5MLS	VCGT130302M-LS	.008												●	●																						
		VCGT2.521MLS	VCGT130304M-LS	.016												●	●																						
Mirror Finish Cutting	LS-P	VCGT220.2MLS-P	VCGT110301M-LS-P	.004																																●			
		VCGT220.5MLS-P	VCGT110302M-LS-P	.008																																●			
		VCGT221MLS-P	VCGT110304M-LS-P	.016																																●			
		VCGT2.520.2MLS-P	VCGT130301M-LS-P	.004																																●			
		VCGT2.520.5MLS-P	VCGT130302M-LS-P	.008																																●			
		VCGT2.521MLS-P	VCGT130304M-LS-P	.016																																●			



TURNING INSERTS [POSITIVE]



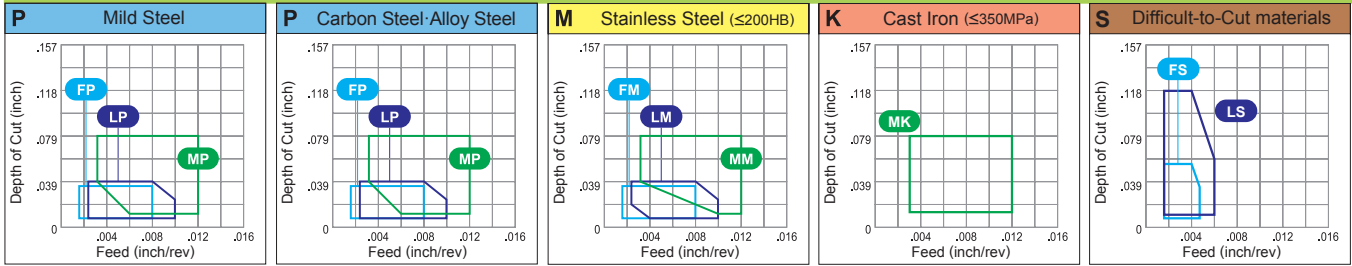
35° VC TYPE INSERTS WITH HOLE

VCMT 3 3 1 MS

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

CHIP CONTROL RANGE FOR WORK MATERIALS

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



Cutting Conditions : ● Stable Cutting ● General Cutting ✦ Unstable Cutting

FS, LS : G class inserts

Work Material	P Steel	M Stainless Steel	K Cast Iron	N Non-Ferrous Metal	S Heat-resistant Alloy, Titanium Alloy	Coated														Cermet	Coated Cermet	Carbide			Applicable Holder Page								
						UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MP7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF		UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N
Shape	Order Number	(ISO) Number	Corner Radius (inch)																														
MS 	VCMT331MS	VCMT160404-MS	.016																														
	VCMT332MS	VCMT160408-MS	.031																							C036 E016 E017 E046							
MK 	VCMT331MK	VCMT160404-MK	.016																														
	VCMT332MK	VCMT160408-MK	.031																							C036 E016 E017 E046							
Standard 	VCMT221	VCMT110304	.016																														
	VCMT331	VCMT160404	.016																							C036 D048 D049							
	VCMT332	VCMT160408	.031																							E016 E017 E046							
	VCMT333	VCMT160412	.047																														
MV 	VCMT1.51.50.5MV	VCMT080202-MV	.008																														
	VCMT1.51.51MV	VCMT080204-MV	.016																							E009 E010							
Flat Top 	VCMW221	VCMW110304	.016																														
	VCMW331	VCMW160404	.016																							C036 D048 D049							
	VCMW332	VCMW160408	.031																							E016 E017							





35° VD TYPE INSERTS WITH HOLE

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

TURNING INSERTS

POSI 15°

WITH HOLE

C

D

R

S

T

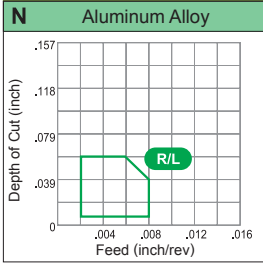
V

W

X

CHIP CONTROL RANGE FOR WORK MATERIALS

Medium Cutting...



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material				Cutting Conditions																											Applicable Holder Page								
	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					C043											
				UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025		AP25N	VP25N	VP45N	UT120T	HT105T	HT110	TF15	MT9005	RT9005	RT9010	
	VDGX320.5R	VDGX160302R	.008	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	VDGX320.5L	VDGX160302L	.008																																				
	VDGX321R	VDGX160304R	.016																																				
	VDGX321L	VDGX160304L	.016																																				



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.

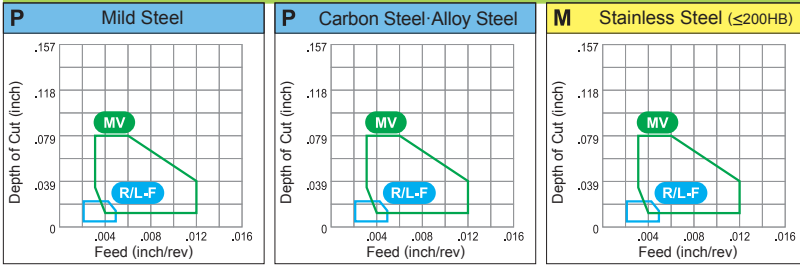
TURNING INSERTS

POSI 5°

WITH HOLE

CHIP CONTROL RANGE FOR WORK MATERIALS

Finish Cutting--- R/L-F Medium Cutting--- MV



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	Steel			Stainless Steel		Cast Iron		Non-Ferrous Metal		Heat-resistant Alloy, Titanium Alloy		Applicable Holder Page																					
	P	M	K	N	S	Coated	Cermets	Coated Cermets	Carbides																								
	UE6105	UE6110	UE6020	MC6015	MC6025					UH6400	MC7025		MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTI05T	HTI10	TF-15	MT9005	RT9005	RT9010
Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated		Cermets	Coated Cermets	Carbides	E009 E029																								
	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																													
		WBGT1.51.50.2LF	WBGTL30201L-F	.004																													
		WBGT1.51.50.5RF	WBGTL30202R-F	.008																													
		WBGT1.51.50.5LF	WBGTL30202L-F	.008																													
	Finish Cutting	WBGT1.51.51RF	WBGTL30204R-F	.016																													
	WBGT1.51.51LF	WBGTL30204L-F	.016																														
	R/L MV	WBMT1.51.50.5RMV	WBMTL30202R-MV	.008		●																											
		WBMT1.51.50.5LMV	WBMTL30202L-MV	.008		●																											
		WBMT1.51.51RMV	WBMTL30204R-MV	.016		●																											
		WBMT1.51.51LMV	WBMTL30204L-MV	.016		●																											
Medium Cutting																																	

TURNING INSERTS [POSITIVE]

80° WC TYPE INSERTS WITH HOLE

WCGT 2 1.5 V5 FJ-P

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

TURNING INSERTS

POS
7°

WITH HOLE

C

D

R

S

T

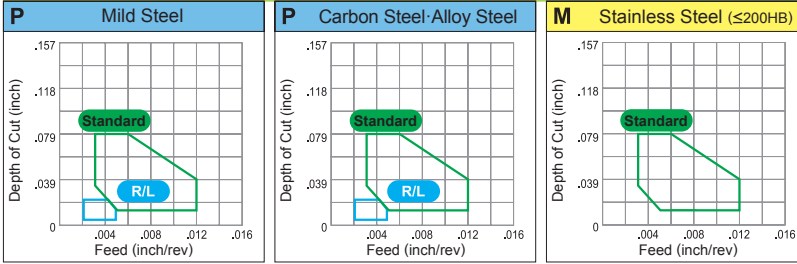
V

W

X

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			Applicable Holder Page																							
	Coated			Cermet			Coated Cermet			Carbide																													
Shape	Order Number	(ISO) Number	Corner Radius (inch)	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	VP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HT105T	HT110	TF15	MT9005	RT9005	RT9010		
FJ-P	WCGT21.5V5FJ-P	WCGT0402V5-FJ-P	.002																																				
	WCGT21.50.2FJ-P	WCGT040201-FJ-P	.004																																				
	WCGT21.50.5FJ-P	WCGT040202-FJ-P	.008																																				
	WCGT32.5V5FJ-P	WCGT06T3V5-FJ-P	.002																																				
	WCGT32.50.2FJ-P	WCGT06T301-FJ-P	.004																																				
	WCGT32.50.5FJ-P	WCGT06T302-FJ-P	.008																																				
R/L	WCGT1.210.5R	WCGT020102R	.008																								*												
	WCGT1.210.5L	WCGT020102L	.008																								*												
	WCGT1.211R	WCGT020104R	.016																								*												
	WCGT1.211L	WCGT020104L	.016																								*												
	WCGT1.51.50.5L	WCGTL30202L	.008																								*												
	WCGT1.51.51L	WCGTL30204L	.016																								*												
MJ	WCGT21.51MJ	WCGT040204-MJ	.016																																				
	WCGT32.51MJ	WCGT06T304-MJ	.016																																				
	WCGT32.52MJ	WCGT06T308-MJ	.031																																				
MJ-P	WCGT21.51MJ-P	WCGT040204-MJ-P	.016																																				
	WCGT32.51MJ-P	WCGT06T304-MJ-P	.016																																				
	WCGT32.52MJ-P	WCGT06T308-MJ-P	.031																																				
Standard	WCMT1.210.5	WCMT020102	.008	●																						*	●	●	●	●	●	●	●	●	●	●	●	●	●
	WCMT1.211	WCMT020104	.016	●																							*	●	●	●	●	●	●	●	●	●	●	●	●
	WCMT1.51.50.5	WCMTL30202	.008	●																							*	●	●	●	●	●	●	●	●	●	●	●	●
	WCMT1.51.51	WCMTL30204	.016	●																							*	●	●	●	●	●	●	●	●	●	●	●	●
	WCMT21.50.5	WCMT040202	.008	●																							*	●	●	●	●	●	●	●	●	●	●	●	●
	WCMT21.51	WCMT040204	.016	●																							*	●	●	●	●	●	●	●	●	●	●	●	●
	WCMT32.51	WCMT06T304	.016	●																							*	●	●	●	●	●	●	●	●	●	●	●	●
	WCMT32.52	WCMT06T308	.031	●																							*	●	●	●	●	●	●	●	●	●	●	●	●

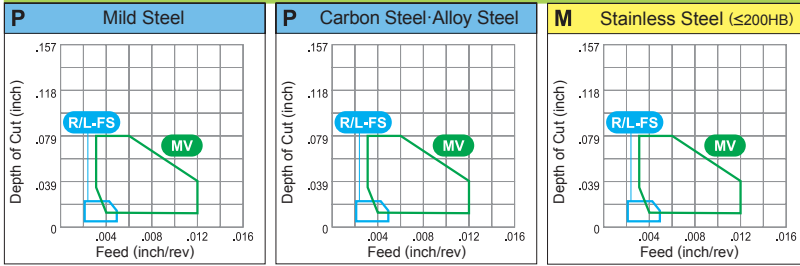
● : Inventory maintained. ★ : Inventory maintained in Japan.
<10 inserts in one case>

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	Shape	Order Number	(ISO) Number	Corner Radius (inch)	Coated																		Cermet	Coated Cermet	Carbide		Applicable Holder Page													
	M	Stainless Steel					UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	VP20M	MS6015	NX2525		NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTi05T	HTi10	TF-15	MT9005	RT9005	RT9010	
 Finish Cutting				WPGT21.51RFS	WPGT040204R-FS	.016																																				
				WPGT21.51LFS	WPGT040204L-FS	.016																																				
				WPGT321RFS	WPGT060304R-FS	.016																																				
				WPGT321LFS	WPGT060304L-FS	.016																																				
 Medium Cutting				WPMT21.50.5MV	WPMT040202-MV	.008																																				
				WPMT21.51MV	WPMT040204-MV	.016																																				
				WPMT321MV	WPMT060304-MV	.016																																				
				WPMT322MV	WPMT060308-MV	.031																																				

TURNING INSERTS

POSI 11°

WITH HOLE

C

D

R

S

T

V

W

X

CHIP BREAKER > A072
 IDENTIFICATION > A002

TURNING INSERTS [POSITIVE]



25° XC TYPE INSERTS WITH HOLE

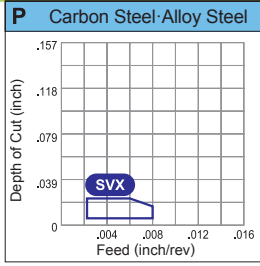
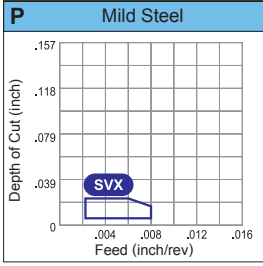
XCMT 2 2 0.5 SVX

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

TURNING INSERTS

CHIP CONTROL RANGE FOR WORK MATERIALS

Light Cutting...



POSI
7°

WITH
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		Coated		Cermet	Coated Cermet	Carbide	Applicable Holder Page																					
	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005		MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTi05T	HTi10	TF15	MT9005	RT9005	RT9010		
	.008	.016	.031																																		
	XCMT220.5SVX	XCMT150302-SVX																																			
	XCMT221SVX	XCMT150304-SVX																																			
	XCMT222SVX	XCMT150308-SVX																																			
Light Cutting																																					
																																					C038

TURNING INSERTS [POSITIVE]



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

TURNING INSERTS

POSI
11°

WITHOUT HOLE

C

D

R

S

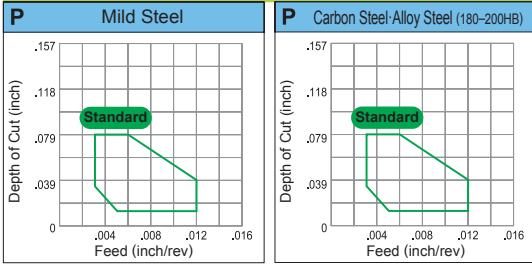
T

V

W

X

CHIP CONTROL RANGE FOR WORK MATERIALS Medium Cutting



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

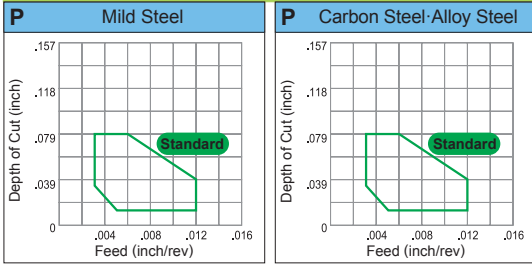
Work Material	P	Steel																																																	
	M	Stainless Steel																																																	
Shape	K	Cast Iron																																																	
	N	Non-Ferrous Metal																																																	
Shape	S	Heat-resistant Alloy, Titanium Alloy																																																	
Order Number	(ISO) Number		Corner Radius (inch)	Coated						Cermet	Coated Cermet		Carbide				Applicable Holder Page																																		
	UE6105	UE6110		UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005		MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HT105T	HT110	TF15	MT9005	RT9005	RT9010															
R	SPGR321R	SPGR090304R	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●																
Standard	SPMR321	SPMR090304	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●													
Light to Medium Cutting	SPMR322	SPMR090308	.031	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●												
	SPMR421	SPMR120304	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●											
	SPMR422	SPMR120308	.031	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●									
	Flat Top	SPMN321	SPMN090304	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●									
Flat Top	SPG321	SPGN090304	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●									
	SPG322	SPGN090308	.031	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
	SPG421	SPGN120304	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●							
	SPG422	SPGN120308	.031	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
	SPG423	SPGN120312	.047	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
	SPG431	SPGN120404	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●						
	SPG432	SPGN120408	.031	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
	SPG531	SPGN150404	.016	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●					
	SPG532	SPGN150408	.031	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				

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

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	Coated	Cermets	Coated Cermets	Carbides	Applicable Holder Page																							
											UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035
Flat Top	TCG1.211	TCGN060104	.016																														
	TCG1.81.51	TCGN090204	.016																														

TURNING INSERTS

POSI 7°

WITHOUT HOLE

C

D

R

S

T

V

W

X

TURNING INSERTS [POSITIVE]



60° TP TYPE INSERTS WITHOUT HOLE

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

TURNING INSERTS

POSI
11°

WITHOUT
HOLE

C

D

R

S

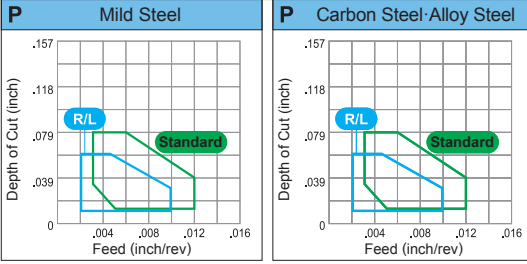
T

V

W

X


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



Cutting Conditions : ● Stable Cutting ● General Cutting ⊕ Unstable Cutting

Work Material	P	Steel	UE6105	UE6110	UE6020	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT	VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UTI20T	HTI05T	HTI10	TF15	MT9005	RT9005	RT9010	Applicable Holder Page																
	M	Stainless Steel	Mild Steel	Carbon Steel-Alloy Steel	Cast Iron	Non-Ferrous Metal	Heat-resistant Alloy, Titanium Alloy	Coated	Cermet	Coated Cermet	Carbide																																										
Shape	Order Number	(ISO) Number																										Corner Radius (inch)																									
	TPGR221R	TPGR110304R	●																									.016																									
	TPGR221L	TPGR110304L	●																									.016																									
	TPGR321R	TPGR160304R	●																									.016																									
	TPGR321L	TPGR160304L	●																									.016																									
	TPGR322R	TPGR160308R	●																									.031																									
	TPGR322L	TPGR160308L	●																									.031																									
	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																									
<small>Light to Medium Cutting</small>	TPMR323	TPMR160312	●																									.047																									
	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																									

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

Work Material	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	UE620	MC6015	MC6025	UH6400	MC7025	MP7035	US735	US905	MC5005	MC5015	UC5105	UC5115	MP9005	MP9015	VP05RT	VP10RT		VP15TF	UP20M	MS6015	NX2525	NX3035	MP3025	AP25N	VP25N	VP45N	UT120T	HT105T	HT110	TF15	MT9005	RT9005	RT9010
Flat Top 	TPG220.5	TPGN110302	.008	●	●	●	●	●																●														
	TPG221	TPGN110304	.016																						★									★	●			
	TPG222	TPGN110308	.031																																			
	TPG320.5	TPGN160302	.008																																			
	TPG321	TPGN160304	.016																								●											
	TPG322	TPGN160308	.031																																			
	TPG323	TPGN160312	.047																																			
	TPG324	TPGN160316	.063																																			
	TPG332	TPGN160408	.031																																			
	TPG431	TPGN220404	.016																																			
TPG432	TPGN220408	.031																																				