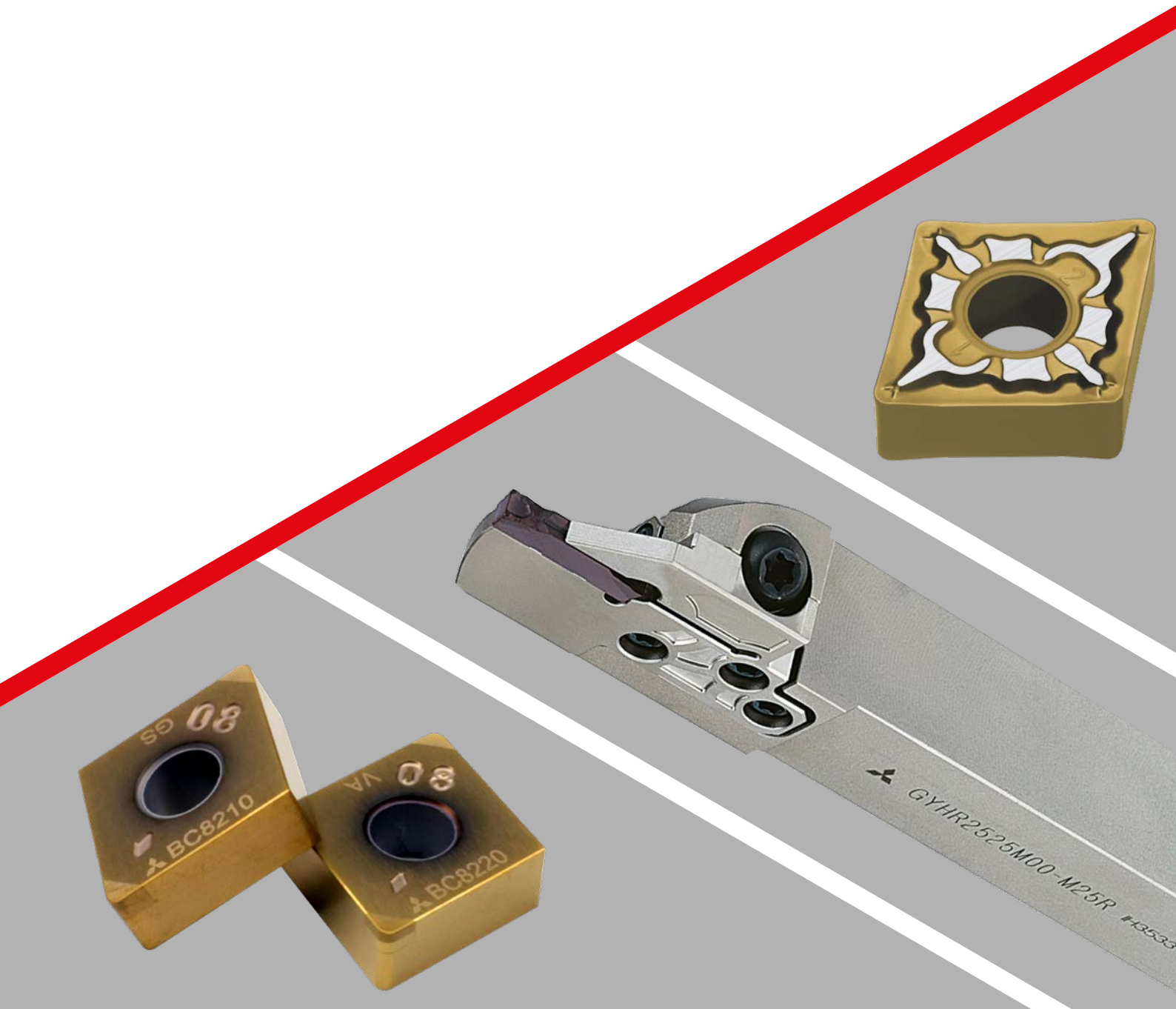
MITSUBISHI MATERIALS

TURNING TOOLS



TURNING TOOLS

QUALITY – HIGHEST STANDARDS ACROSS PRODUCTS AND SERVICES

Turning tools from Mitsubishi Materials embody this philosophy and have been convincing the global market for more than 30 years!

Mitsubishi Materials precision tools enrich the metalworking industry with durability, speed and accuracy.

Whether it is a grooving tool, an ISO insert or vibration-damping boring bar, the extensive range of turning tools has performance in mind.

DIAEDGE

BETTER. TOGETHER.

MITSUBISHI MATERIALS

2025 – 2027

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TURNING TOOLS

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GENERAL INFORMATION	

HOW TO READ THE STANDARD OF TURNING INSERTS

●How this section page is organised

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

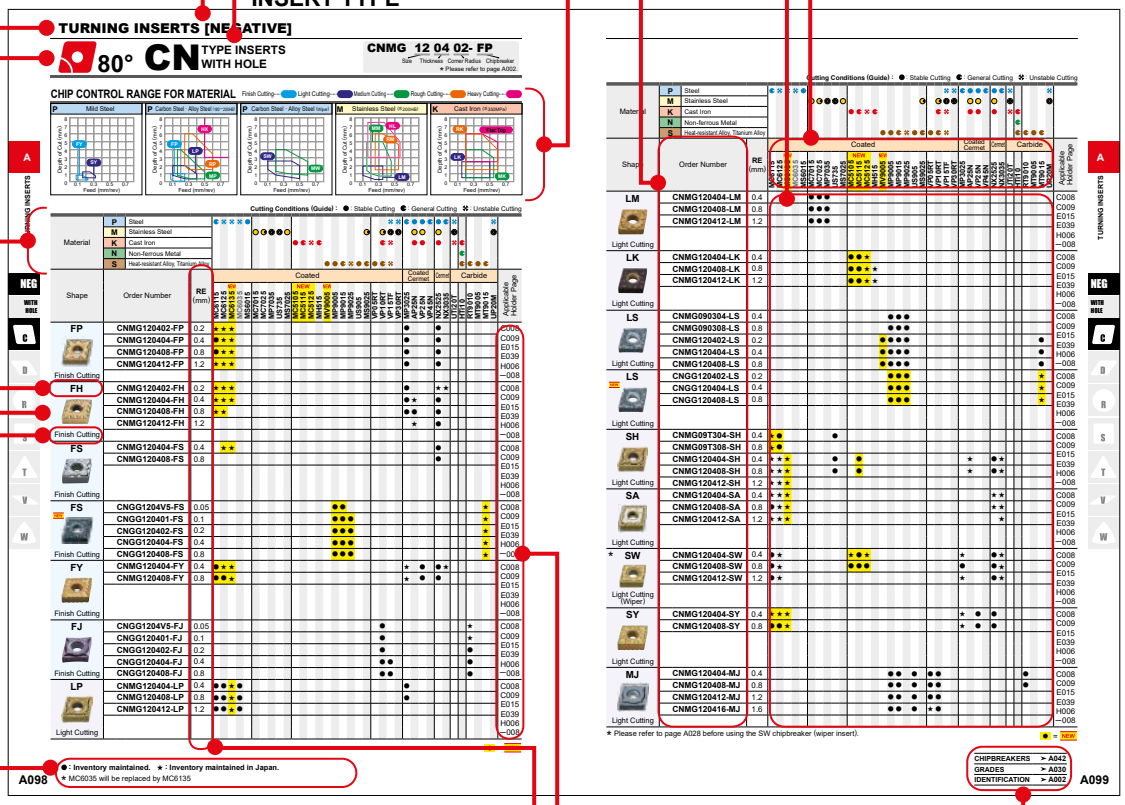
●Graph of chip control by material

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

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

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

SHAPE & ANGLE MARK
INDICATION OF NEGATIVE/ POSITIVE TYPE
PRODUCT SECTION
TITLE OF PRODUCT ACCORDING TO THE INSERT TYPE
INSERT NUMBER
STOCK STATUS
INSERT GRADES



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

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

PHOTO OF INSERT

INDICATION OF CHIPBREAKER
Indicates the designation for a chipbreaker.

CORNER RADIUS (RE)

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

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

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

TURNING

INSERT GRADES
INSERT STANDARDS

IDENTIFICATION ····· A002
HOLE GEOMETRY ····· A004
PRECISION CHIPBREAKER SYSTEM ····· A006
OUTLINE OF TOOL NAVI ····· A009
OPTIMUM GRADES AND CHIPBREAKERS FOR EXTERNAL TURNING ··· A010
PRECISION CHIPBREAKER SYSTEM ····· A026
WIPER INSERT ····· A028
GRADES FOR TURNING ····· A030
TURNING APPLICATION RANGE ····· A031
COATED CARBIDE (CVD) ····· A034
COATED CARBIDE (PVD) ····· A036
CERMET ····· A038
COATED CERMET ····· A039
CEMENTED CARBIDE ····· A040
MICRO-GRAIN CEMENTED CARBIDE (SOLID TOOLS) ····· A041
CLASSIFICATION OF INSERTS ····· A042
RECOMMENDED CUTTING CONDITIONS ····· A076

STANDARD OF INSERTS

NEGATIVE INSERTS WITH HOLE

CN○○TYPE···RHOMBIC 80° ····· A098
DN○○TYPE···RHOMBIC 55° ····· A106
RN○○TYPE···ROUND ····· A113
SN○○TYPE···SQUARE 90° ····· A114
TN○○TYPE···TRIANGULAR 60° ····· A120
VN○○TYPE···RHOMBIC 35° ····· A127
WN○○TYPE···TRIGON 80° ····· A131

NEGATIVE INSERTS WITHOUT HOLE

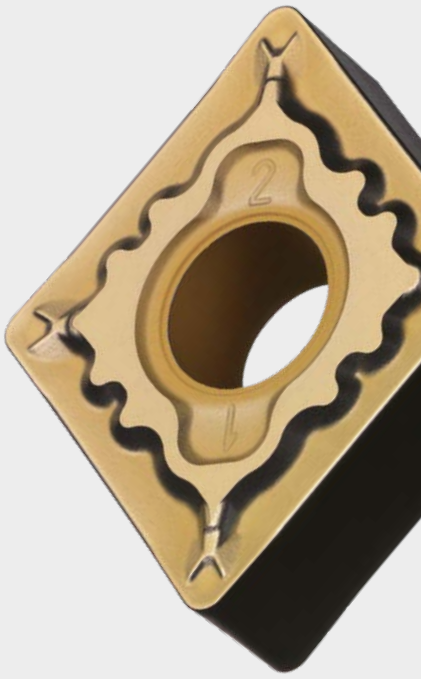
KN○○TYPE···PARALLELOGRAM 55° ··· A136
CN○○TYPE···RHOMBIC 80° ····· A137
SN○○TYPE···SQUARE 90° ····· A138
TN○○TYPE···TRIANGULAR 60° ····· A139

POSITIVE INSERTS WITH HOLE

CC○○TYPE···RHOMBIC 80° ····· A140
CP○○TYPE···RHOMBIC 80° ····· A149
DC○○TYPE···RHOMBIC 55° ····· A152
DE○○TYPE···RHOMBIC 55° ····· A159
RC○○TYPE···ROUND ····· A160
SC○○TYPE···SQUARE 90° ····· A161
SP○○TYPE···SQUARE 90° ····· A163
TB○○TYPE···TRIANGULAR 60° ····· A164
TC○○TYPE···TRIANGULAR 60° ····· A165
TE○○TYPE···TRIANGULAR 60° ····· A169
TP○○TYPE···TRIANGULAR 60° ····· A170
VB○○TYPE···RHOMBIC 35° ····· A174
VC○○TYPE···RHOMBIC 35° ····· A177
VD○○TYPE···RHOMBIC 35° ····· A181
VP○○TYPE···RHOMBIC 35° ····· A182
WB○○TYPE···TRIGON 80° ····· A183
WC○○TYPE···TRIGON 80° ····· A184
WP○○TYPE···TRIGON 80° ····· A185
XC○○TYPE···RHOMBIC 25° ····· A186

POSITIVE INSERTS WITHOUT HOLE

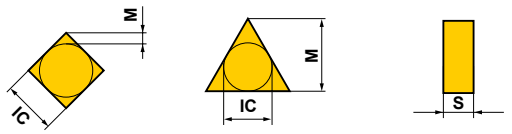
RTG TYPE ····· A187
SP○○TYPE···SQUARE 90° ····· A188
TC○○TYPE···TRIANGULAR 60° ····· A189
TP○○TYPE···TRIANGULAR 60° ····· A190

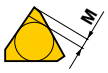


IDENTIFICATION

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 Design

① Symbol for Insert Shape





Triangular insert with a facet (Secondary Cutting Edge)

③ Symbol for Tolerance Class

Symbol	Tolerance of Nose Height **M** (mm)	Tolerance of Inscribed Circle **IC** (mm)	Tolerance of Thickness **S** (mm)
A	±0.005	±0.025	±0.025
F	±0.005	±0.013	±0.025
C	±0.013	±0.025	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.13
J	±0.005	±0.05−±0.15	±0.025
K*	±0.013	±0.05−±0.15	±0.025
L*	±0.025	±0.05−±0.15	±0.025
M*	±0.08−±0.18	±0.05−±0.15	±0.13
N*	±0.08−±0.18	±0.05−±0.15	±0.025
U*	±0.13−±0.38	±0.08−±0.25	±0.13

The surface of inserts with a * mark is sintered.

Detail of M Class Insert Tolerance

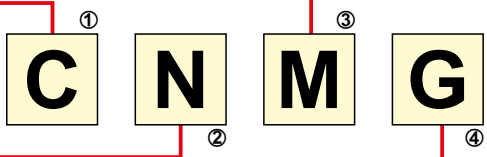
●Tolerance of Nose Height **M** (mm)

D.I.C.	Triangular	Square	Rhombic 80°	Rhombic 55°	Rhombic 35°	Round
6.35	±0.08	±0.08	±0.08	±0.11	±0.16	–
9.525	±0.08	±0.08	±0.08	±0.11	±0.16	–
12.70	±0.13	±0.13	±0.13	±0.15	–	–
15.875	±0.15	±0.15	±0.15	±0.18	–	–
19.05	±0.15	±0.15	±0.15	±0.18	–	–
25.40	–	±0.18	–	–	–	–
31.75	–	±0.20	–	–	–	–

●Tolerance of Inscribed Circle (mm)

D.I.C.	Triangular	Square	Rhombic 80°	Rhombic 55°	Rhombic 35°	Round
6.35	±0.05	±0.05	±0.05	±0.05	±0.05	–
9.525	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05
12.70	±0.08	±0.08	±0.08	±0.08	–	±0.08
15.875	±0.10	±0.10	±0.10	±0.10	–	±0.10
19.05	±0.10	±0.10	±0.10	±0.10	–	±0.10
25.40	–	±0.13	–	–	–	±0.13
31.75	–	±0.15	–	–	–	±0.15

③ Symbol for Tolerance Class



② Symbol for Normal Clearance

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

Major Normal Clearance

④ Symbol for Fixing and / or for Chipbreaker

Metric

Symbol	Hole	Hole Configuration	Chip Breaker	Figure	Symbol	Hole	Hole Configuration	Chip Breaker	Figure
W	With Hole	Cylindrical Hole + One Countersink (40−60°)	No		A	With Hole	Cylindrical Hole	No	
T	With Hole		One Sided		M	With Hole	Cylindrical Hole	One Sided	
Q	With Hole	Cylindrical Hole + Double Countersink (40−60°)	No		G	With Hole	Cylindrical Hole	Double Sided	
U	With Hole		Double Sided		N	Without Hole	–	No	
B	With Hole	Cylindrical Hole + One Countersink (70−90°)	No		R	Without Hole	–	One Sided	
H	With Hole		One Sided		F	Without Hole	–	Double Sided	
C	With Hole	Cylindrical Hole + Double Countersink (70−90°)	No		X	–	–	–	Special Design
J	With Hole		Double Sided						

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

⑤ Symbol for Insert Size

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

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

⑥ Symbol for Insert Thickness

⑤	⑥	⑦	⑧	⑨		⑩
12	04	08	(E)	(N)	-	MP

⑦ Symbol for Insert Corner Size

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

⑧ Symbol for Cutting Edge Type

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

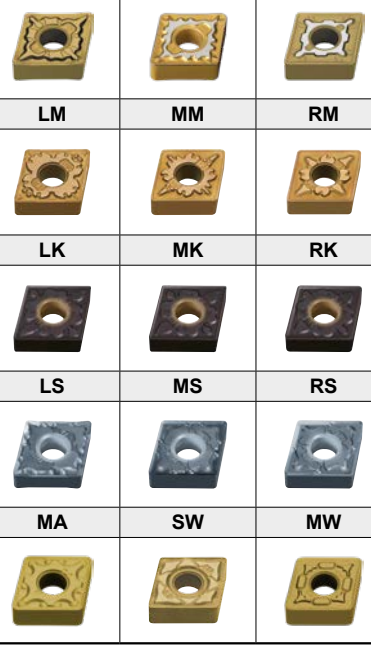
Mitsubishi Materials omit the honing symbol.

⑨ Symbol for Cutting Direction

Figure	Hand	Symbol
	Right	R
	Left	L
	Neutral	N

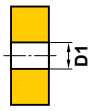
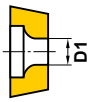
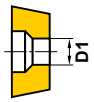
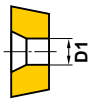
⑩ Symbol for Chipbreaker

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



The table above is shown as reference example.

HOLE GEOMETRY

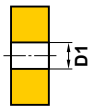
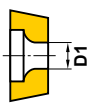
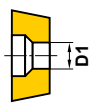
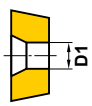
Type A	Type B	Type C	Type D
			

NEGATIVE

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

POSITIVE

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

Type A	Type B	Type C	Type D
			

POSITIVE

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

*D1 of MD220 is 3.0.

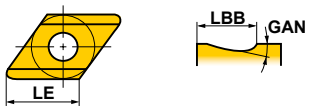
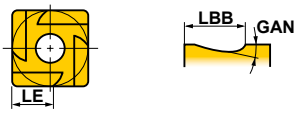
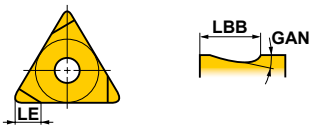
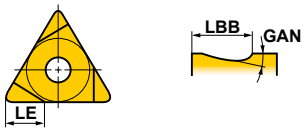
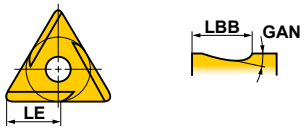
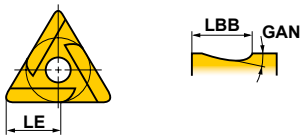
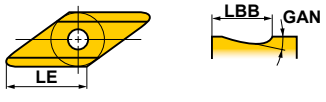
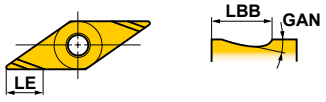
Insert Number		Dimensions (mm) D1	Hole Type
VBET VBGT VBMT VBGW	1103○○	2.9	B
	1604○○	4.4	B
VCGT VCMT VCGW VCMW	0802○○	2.4	B
	1103○○	2.8	B
	1303○○	3.4	B
	1604○○	4.4	B
VDGX	1603○○	4.5	D
VPET VPGT	0802○○	2.42	B
	1103○○	2.85	B
WBGT WBMT	0201○○	2.3	B
	L302○○	2.3	B
WCGT WCMT WCGW WCMW	0201○○	2.3	B
	L302○○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

PRECISION CHIPBREAKER SYSTEM

STANDARD OF INSERTS WITH HAND OF TOOL

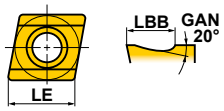
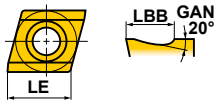
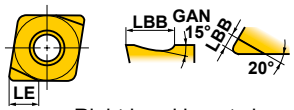
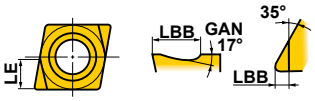
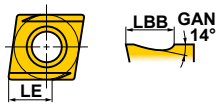
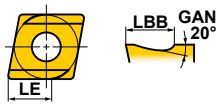
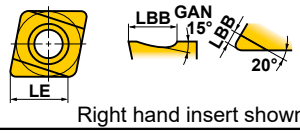
●NEGATIVE INSERTS

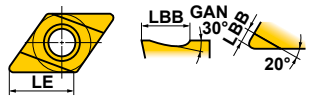
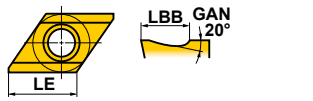
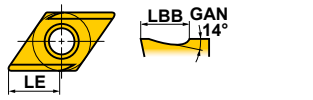
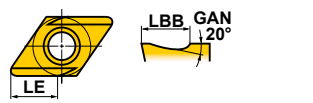
Unit : mm

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

●POSITIVE INSERTS

Unit : mm

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

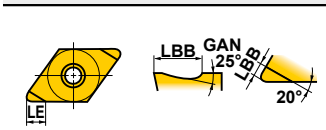
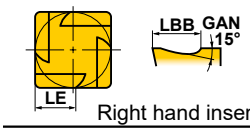
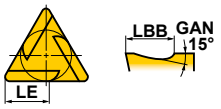
Geometry	Insert Number	LBB	LE
Right hand insert shown.	DCGT11T301MR-SRF	1.0	3.1
	DCGT11T302MR-SRF	1.0	3.2
	DCGT11T304MR-SRF	1.0	3.4
 Right hand insert shown.	DCET0702V3R/L-SR	2.5	7.7
	DCET070201R/L-SR	2.5	7.6
	DCET070202R/L-SR	2.5	7.4
	DCET070204R/L-SR	2.5	7.1
	DCET11T3V3R/L-SR	3.7	11.6
	DCET11T301R/L-SR	3.7	11.4
	DCET11T302R/L-SR	3.7	11.3
	DCET11T304R/L-SR	3.7	11.0
Right hand insert shown.	DCET070200R/L-SN	1.0	7.7
	DCET0702V3R/L-SN	1.0	7.7
	DCET070201R/L-SN	1.0	7.6
	DCET070202R/L-SN	1.0	7.4
	DCET070204R/L-SN	1.0	7.1
	DCET11T300R/L-SN	1.5	11.6
	DCET11T3V3R/L-SN	1.5	11.6
	DCET11T301R/L-SN	1.5	11.4
	DCET11T302R/L-SN	1.5	11.3
	DCET11T304R/L-SN	1.5	11.0
 Right hand insert shown.	DCET0702V3R/LW-SN	1.0	7.7
	DCET11T3V3R/LW-SN	1.5	11.6
*DCGT11T3○○type : 14° Right hand insert shown.	DCGT070202R/L-F	1.0	3.0
	DCGT070204R/L-F	1.0	3.2
	DCGT11T302R/L-F	1.0	3.0
	DCGT11T304R/L-F	1.0	3.2
 Right hand insert shown.	DCGT0702V3R/L-SS	1.0	3.5
	DCGT070201R/L-SS	1.0	3.5
	DCGT070202(M)R/L-SS	1.0	3.5
	DCGT11T3V3R-SS	1.0	6.5
	DCGT11T301(M)R/L-SS	1.0	6.5
	DCGT11T302(M)R/L-SS	1.0	6.5
	DCGT11T304MR/L-SS	1.0	6.5
 Right hand insert shown.	DCGT0702V3R-SN	1.0	3.5
	DCGT070201(M)R/L-SN	1.0	3.5
	DCGT070202(M)R/L-SN	1.0	3.5
	DCGT11T3V3R/L-SN	1.5	6.5
	DCGT11T301(M)R/L-SN	1.5	6.5
	DCGT11T302(M)R/L-SN	1.5	6.5
	DCGT11T304(M)R/L-SN	1.5	6.5
Right hand insert shown.	DEGX150402R/L	2.8	15.2
	DEGX150404R/L	2.8	14.9

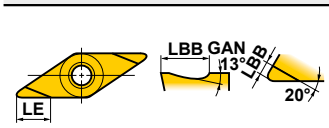
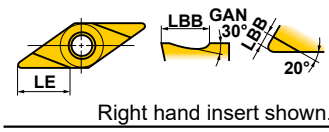
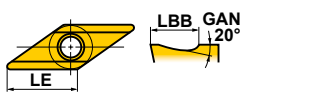
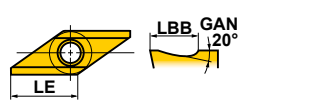
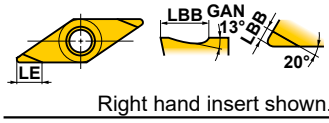
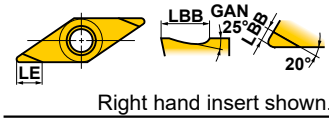
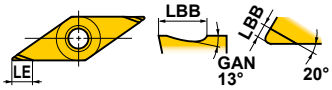
PRECISION CHIPBREAKER SYSTEM

STANDARD OF INSERTS WITH HAND OF TOOL

●POSITIVE INSERTS

Unit : mm

Geometry	Insert Number	LBB	LE
 Right hand insert shown.	DEGX150402R/L-F	2.5	7.4
	DEGX150404R/L-F	2.5	7.6
 Right hand insert shown.	SPGR090304R	1.8	1.6
Left hand insert shown.	TCGT0601V3L-F	1.0	2.9
	TCGT060101L-F	1.0	3.0
	TCGT060102R/L-F	1.0	3.0
	TCGT060104R/L-F	1.0	3.2
Right hand insert shown.	TEGX160302R/L	2.0	6.0
	TEGX160304R/L	2.0	6.0
✱TPGH1603○○type : 14° Right hand insert shown.	TPGH080202R/L-FS	0.9	2.7
	TPGH080204R/L-FS	0.9	2.9
	TPGH090202R/L-FS	1.0	3.0
	TPGH090204R/L-FS	1.0	3.2
	TPGH110302R/L-FS	1.4	4.2
	TPGH110304R/L-FS	1.4	4.4
	TPGH160304R/L-FS	2.0	6.1
	TPGH160308R/L-FS	2.0	6.5
 Right hand insert shown.	TPGR110304R/L	1.3	3.0
	TPGR160304R/L	2.3	5.4
	TPGR160308R/L	2.3	5.1
Right hand insert shown.	TPGX080202R/L	1.3	3.9
	TPGX080204R/L	1.3	4.1
	TPGX090202R/L	1.6	4.8
	TPGX090204R/L	1.6	5.0
	TPGX090208R/L	1.4	4.7
	TPGX110302L	1.8	5.4
	TPGX110304R/L	1.8	5.5
	TPGX110308R/L	1.8	5.9

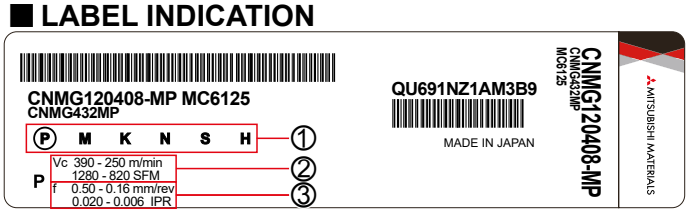
Geometry	Insert Number	LBB	LE
 Right hand insert shown.	VBGT110302R/L-F	1.0	3.0
	VBGT110304R/L-F	1.0	3.2
	VBGT160402R/L-F	1.5	4.5
	VBGT160404R/L-F	1.5	4.7
 Right hand insert shown.	VBET1103V3R/L-SR	2.5	7.3
	VBET110301R/L-SR	2.5	7.3
	VBET110302R/L-SR	2.5	7.4
	VBET110304R/L-SR	2.5	7.6
 Right hand insert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

TOOL NAVI

■ OUTLINE

TOOL NAVI provides information and suitable cutting conditions for each material by selecting the optimum indexable insert together with a suitable tool life expectancy.

■ LABEL INDICATION



*1 Some inserts will have multiple material recommendations.
*2 Please contact us for recommended cutting conditions when using coefficient values other than above.

①Materials

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

②Cutting speed standards (Performance versus tool life)

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

③Feed rate standards

Minimum and maximum feed rates shown are based on the chip control range and are dependant on the chipbreaker geometry.

*3 N : Life based on each grade. For stable conditions choose the performance cutting speed, for unstable conditions choose the tool life feed rate.
*4 The tool life is based on the following (VB wear). Some materials include elements other than this.
PMKS ··· VB=0.3mm
H ··· VB=0.1mm

■ TOOL LIFE

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

● P Grade (Steel) cutting speed coefficient values.

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

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

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

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

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

(ex.) Medium cutting of steel
The 1st recommendation : MC6125
Indexable inserts : CNMG120408-MP
Recommended cutting speed : Vc=390m/min
(Tool life : 15min.)

↓

Tool life required : 30min.

390×0.83≒323m/min

■ HARDNESS OF THE MATERIAL

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

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

OPTIMUM GRADES AND CHIPBREAKERS FOR EXTERNAL TURNING

●Selection of optimum inserts for turning

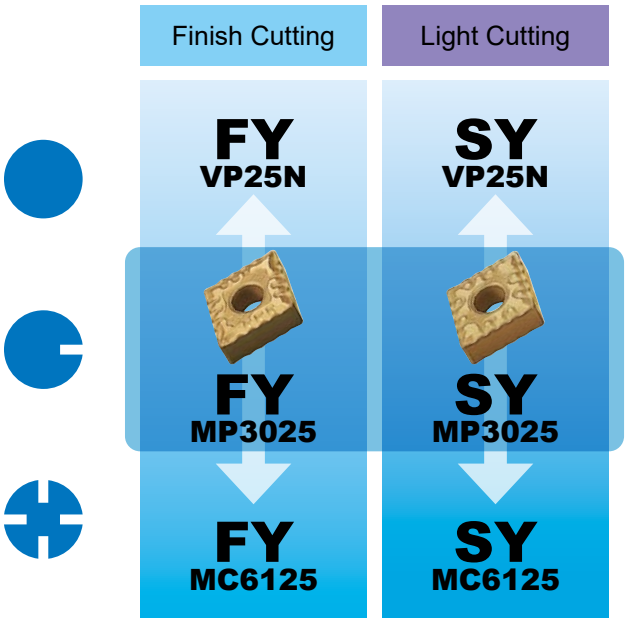
The following diagrams show for each type of material, the optimal combination of suitable grades and chipbreakers for each application area in turning.

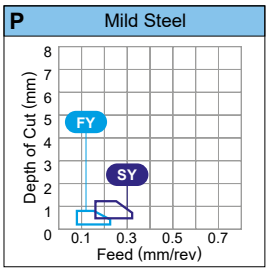
■CUTTING CONDITIONS

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

■CUTTING AREA

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





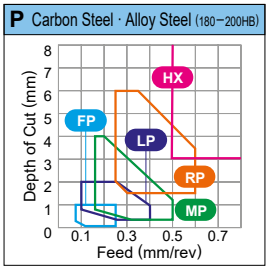
P Mild Steel* (ex. St37-2, Ck10)

NEGATIVE INSERTS

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

	Cutting Area	1st Recommendation				
		Chipbreaker	Grade	Vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	**FY**	**VP25N**	285—450	0.09—0.23	0.20—0.80
	L	**SY**	**VP25N**	260—410	0.16—0.33	0.50—1.20
General Cutting	F	**FY**	**MP3025**	275—425	0.09—0.23	0.20—0.80
	L	**SY**	**MP3025**	255—385	0.16—0.33	0.50—1.20
Unstable Cutting	F	**FY**	**MC6125**	385—605	0.09—0.23	0.20—0.80
	L	**SY**	**MC6125**	350—550	0.16—0.33	0.50—1.20

*Please refer to page A076 for other steels.



- Stable Cutting
- General Cutting
- Unstable Cutting

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

	Finish Cutting	Light Cutting	Medium Cutting	Rough Cutting	Heavy Cutting
Stable Cutting	FP NX2525	LP MC6115	MP MC6115	RP MC6115	HX MC6125
General Cutting	FP MP3025	LP MC6115	MP MC6125	RP MC6125	HX MC6135
Unstable Cutting	FP MC6135	LP MC6135	MP MC6135	RP MC6135	HX MC6135

P Carbon Steel • Alloy Steel* (ex. Ck45, 42CrMo4)

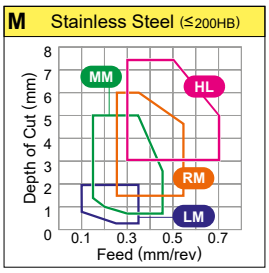
NEGATIVE INSERTS

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

	Cutting Area	Chipbreaker	1st Recommendation Grade	Vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	FP	NX2525	210–300	0.08–0.25	0.10–1.00
	L	LP	MC6115	250–480	0.10–0.40	0.30–2.00
	M	MP	MC6115	230–440	0.16–0.50	0.30–4.00
	R	RP	MC6115	215–415	0.25–0.60	1.50–6.00
	H	HX	MC6125	210–330	0.50–1.26	3.00–11.00
General Cutting	F	FP	MP3025	215–330	0.08–0.25	0.10–1.00
	L	LP	MC6115	250–480	0.10–0.40	0.30–2.00
	M	MP	MC6125	250–390	0.16–0.50	0.30–4.00
	R	RP	MC6125	235–370	0.25–0.60	1.50–6.00
	H	HX	MC6135	170–260	0.50–1.26	3.00–11.00
Unstable Cutting	F	FP	MC6135	245–370	0.08–0.25	0.10–1.00
	L	LP	MC6135	225–340	0.10–0.40	0.30–2.00
	M	MP	MC6135	205–310	0.16–0.50	0.30–4.00
	R	RP	MC6135	190–290	0.25–0.60	1.50–6.00
	H	HX	MC6135	170–260	0.50–1.26	3.00–11.00

*Please refer to page A076 for other steels.

OPTIMUM GRADES AND CHIPBREAKERS FOR EXTERNAL TURNING



- Stable Cutting
- General Cutting
- Unstable Cutting

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

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

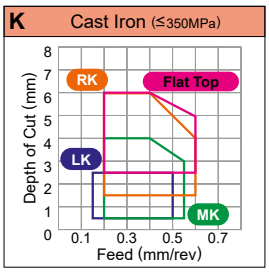
M Stainless Steel* (ex. X5CrNi189, X5CrNiMo1810)

NEGATIVE INSERTS

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

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

*Please refer to page A077 for other stainless steel.



● Stable Cutting	L Light Cutting
◔ General Cutting	M Medium Cutting
✚ Unstable Cutting	R Rough Cutting
	H Heavy Cutting

K Cast Iron* (ex. GG30)

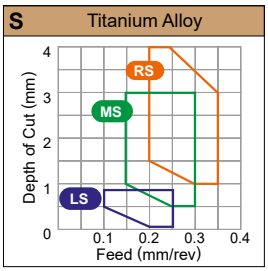
NEGATIVE INSERTS

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

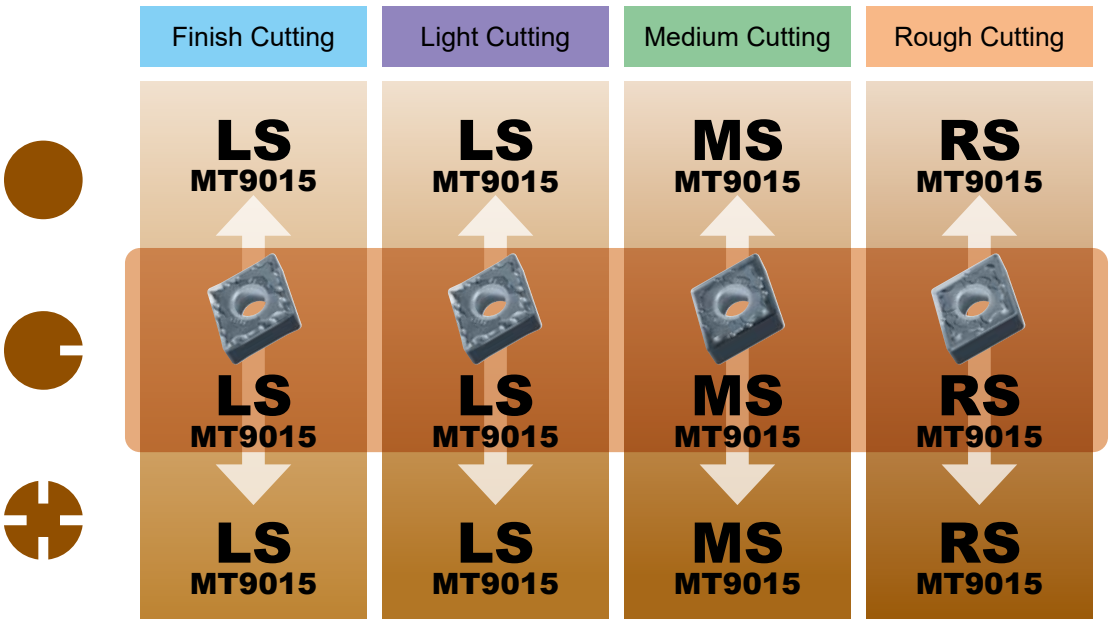
	Cutting Area	1st Recommendation				
		Chipbreaker	Grade	Vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	L	**LK**	**MC5105**	230—365	0.10—0.50	0.50—2.50
	M	**MK**	**MC5105**	210—335	0.20—0.55	0.50—4.00
	R	**RK**	**MC5105**	195—315	0.20—0.60	1.50—6.00
	H	**Flat Top**	**MC5105**	195—315	0.20—0.60	2.50—6.00
General Cutting	L	**LK**	**MC5105**	205—335	0.10—0.50	0.50—2.50
	M	**MK**	**MC5105**	190—305	0.20—0.55	0.50—4.00
	R	**RK**	**MC5105**	180—285	0.20—0.60	1.50—6.00
	H	**Flat Top**	**MC5105**	180—285	0.20—0.60	2.50—6.00
Unstable Cutting	L	**LK**	**MC5115**	205—335	0.10—0.50	0.50—2.50
	M	**MK**	**MC5115**	190—305	0.20—0.55	0.50—4.00
	R	**RK**	**MC5115**	180—285	0.20—0.60	1.50—6.00
	H	**Flat Top**	**MC5115**	180—285	0.20—0.60	2.50—6.00

*Please refer to page A081 for other types of cast iron.

OPTIMUM GRADES AND CHIPBREAKERS FOR EXTERNAL TURNING



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

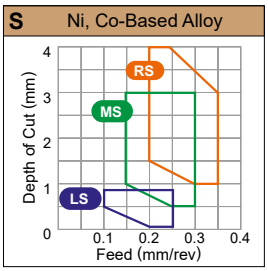


S Titanium Alloy (ex. Ti-6Al-4V)

NEGATIVE INSERTS

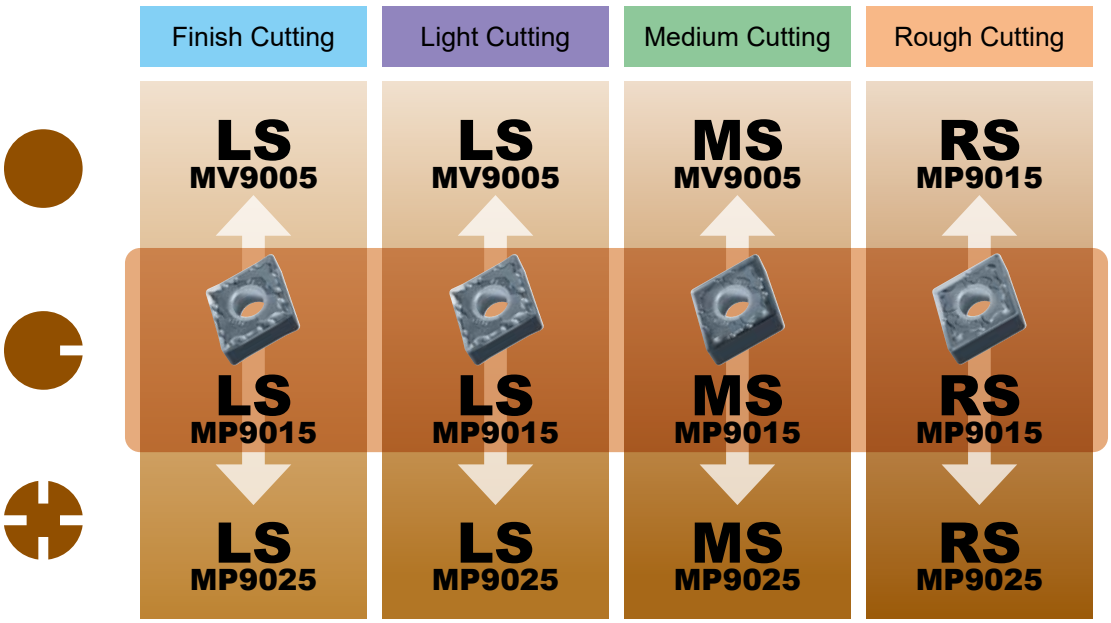
Vc : Cutting Speed
f : Feed
ap : Depth of Cut

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



Stable Cutting
General Cutting
Unstable Cutting

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



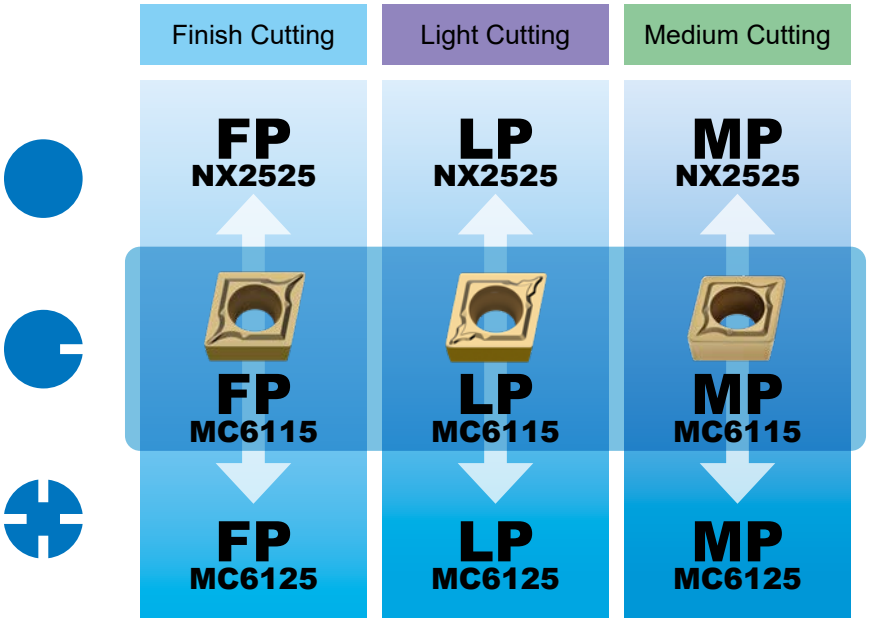
S Ni, Co-Based Alloy (ex. Inconel®718)

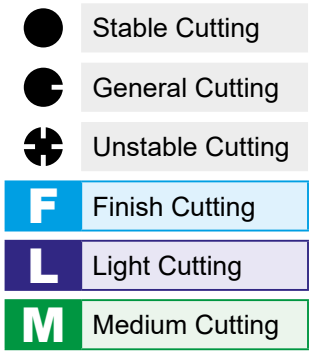
NEGATIVE INSERTS

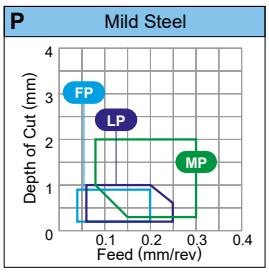
Vc : Cutting Speed
f : Feed
ap : Depth of Cut

	Cutting Area	Chipbreaker	Grade	1st Recommendation Vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	LS	MV9005	75—140	0.10—0.25	0.20—0.80
	L	LS	MV9005	75—140	0.10—0.25	0.20—0.80
	M	MS	MV9005	70—130	0.15—0.30	0.50—3.00
	R	RS	MP9015	35—75	0.20—0.35	1.00—4.00
General Cutting	F	LS	MP9015	40—85	0.10—0.25	0.20—0.80
	L	LS	MP9015	40—85	0.10—0.25	0.20—0.80
	M	MS	MP9015	40—80	0.15—0.30	0.50—3.00
	R	RS	MP9015	35—75	0.20—0.35	1.00—4.00
Unstable Cutting	F	LS	MP9025	30—45	0.10—0.25	0.20—0.80
	L	LS	MP9025	30—45	0.10—0.25	0.20—0.80
	M	MS	MP9025	30—45	0.15—0.30	0.50—3.00
	R	RS	MP9025	25—40	0.20—0.35	1.00—4.00

OPTIMUM GRADES AND CHIPBREAKERS FOR EXTERNAL TURNING







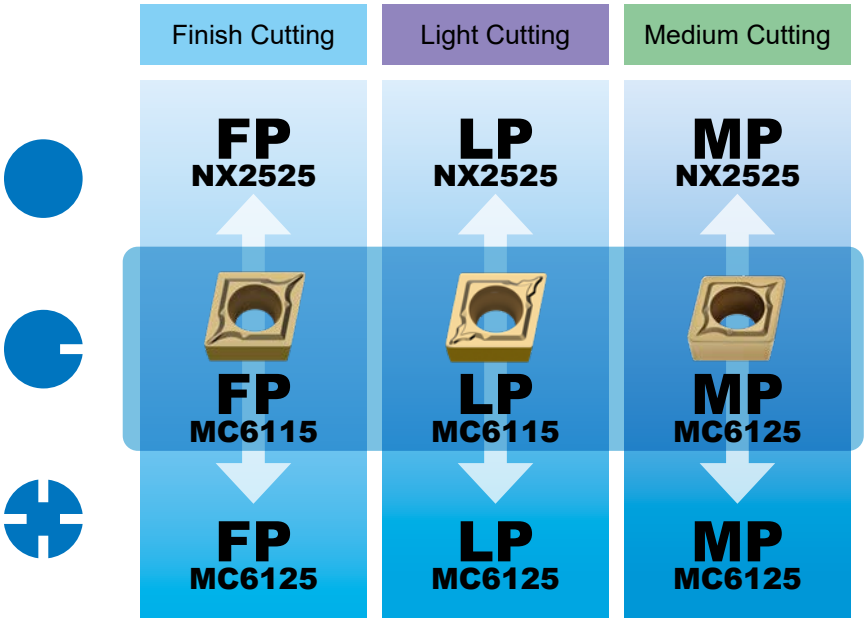
P Mild Steel* (ex. St37-2, Ck10)

7° POSITIVE INSERTS WITH HOLE

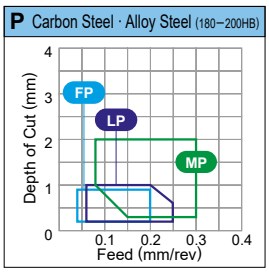
Vc : Cutting Speed
f : Feed
ap : Depth of Cut

	Cutting Area	Chipbreaker	Grade	1st Recommendation Vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	FP	NX2525	225—320	0.04—0.20	0.20—0.90
	L	LP	NX2525	225—320	0.06—0.25	0.20—1.00
	M	MP	NX2525	185—270	0.08—0.30	0.30—2.00
General Cutting	F	FP	MC6115	295—570	0.04—0.20	0.20—0.90
	L	LP	MC6115	295—570	0.06—0.25	0.20—1.00
	M	MP	MC6115	245—475	0.08—0.30	0.30—2.00
Unstable Cutting	F	FP	MC6125	320—505	0.04—0.20	0.20—0.90
	L	LP	MC6125	320—505	0.06—0.25	0.20—1.00
	M	MP	MC6125	270—420	0.08—0.30	0.30—2.00

*Please refer to page A085 for other steel.



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



P Carbon Steel • Alloy Steel* (ex. Ck45, 42CrMo4)

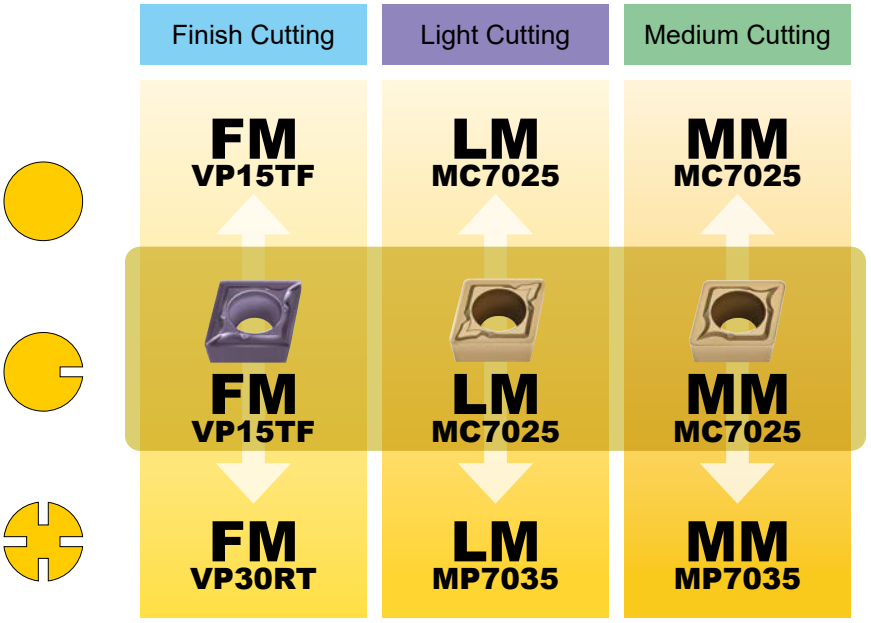
7° POSITIVE INSERTS WITH HOLE

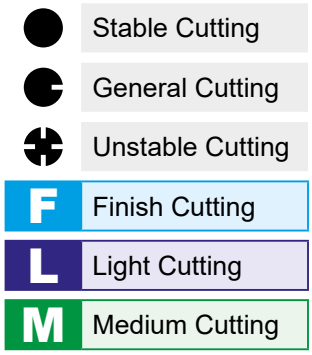
Vc : Cutting Speed
f : Feed
ap : Depth of Cut

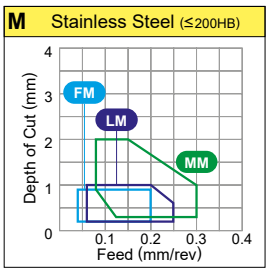
	Cutting Area	Chipbreaker	1st Recommendation Grade	Vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	FP	NX2525	165–240	0.04–0.20	0.20–0.90
	L	LP	NX2525	165–240	0.06–0.25	0.20–1.00
	M	MP	NX2525	140–200	0.08–0.30	0.30–2.00
General Cutting	F	FP	MC6115	220–420	0.04–0.20	0.20–0.90
	L	LP	MC6115	220–420	0.06–0.25	0.20–1.00
	M	MP	MC6125	200–310	0.08–0.30	0.30–2.00
Unstable Cutting	F	FP	MC6125	240–370	0.04–0.20	0.20–0.90
	L	LP	MC6125	240–370	0.06–0.25	0.20–1.00
	M	MP	MC6125	200–310	0.08–0.30	0.30–2.00

*Please refer to page A085 for other steel.

OPTIMUM GRADES AND CHIPBREAKERS FOR EXTERNAL TURNING







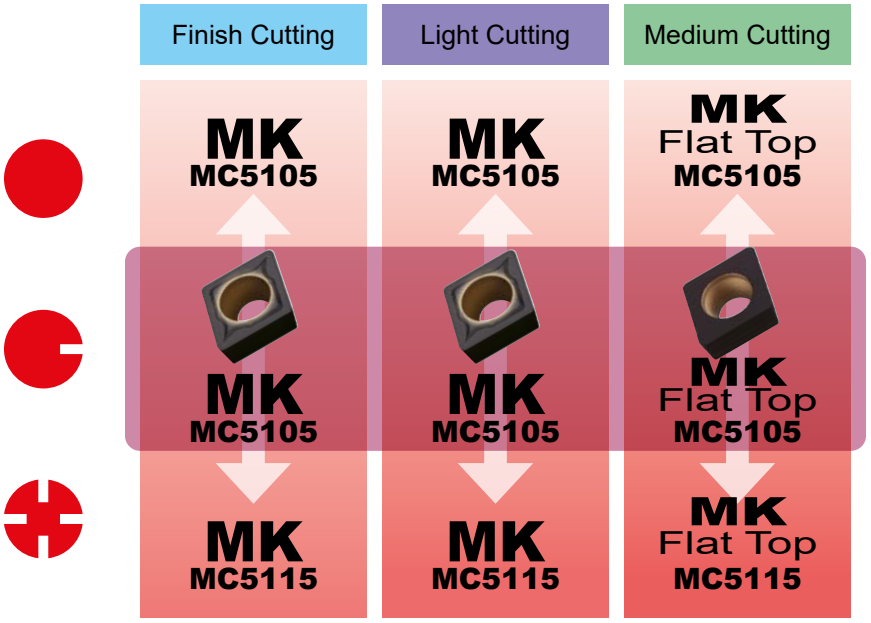
M Stainless Steel* (ex. X5CrNi189, X5CrNiMo1810)

7° POSITIVE INSERTS WITH HOLE

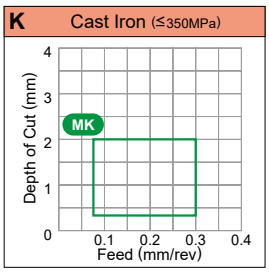
Vc : Cutting Speed
f : Feed
ap : Depth of Cut

	Cutting Area	Chipbreaker	Grade	1st Recommendation Vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	FM	VP15TF	75—125	0.04—0.20	0.20—0.90
	L	LM	MC7025	140—190	0.06—0.25	0.20—1.00
	M	MM	MC7025	120—160	0.08—0.30	0.30—2.00
General Cutting	F	FM	VP15TF	75—125	0.04—0.20	0.20—0.90
	L	LM	MC7025	140—190	0.06—0.25	0.20—1.00
	M	MM	MC7025	120—160	0.08—0.30	0.30—2.00
Unstable Cutting	F	FM	VP30RT	50—90	0.04—0.20	0.20—0.90
	L	LM	MP7035	85—135	0.06—0.25	0.20—1.00
	M	MM	MP7035	70—115	0.08—0.30	0.30—2.00

*Please refer to page A086 for other stainless steel.



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



K Cast Iron* (ex. GG30)

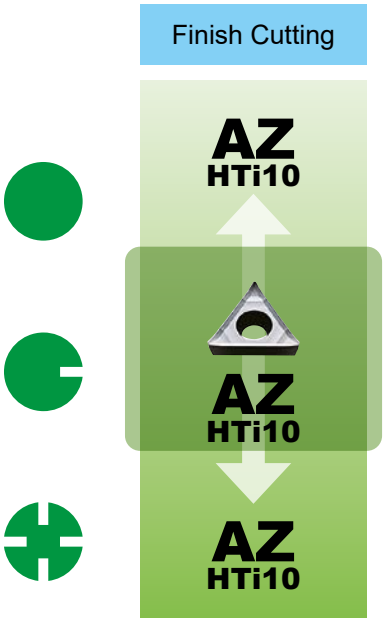
7° POSITIVE INSERTS WITH HOLE

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

	Cutting Area	Chipbreaker	Grade	1st Recommendation Vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	**MK**	**MC5105**	200—610	0.06—0.25	0.20—1.00
	L	**MK**	**MC5105**	200—610	0.06—0.25	0.20—1.00
	M	**MK, Flat Top**	**MC5105**	165—510	0.08—0.30	0.30—2.00
General Cutting	F	**MK**	**MC5105**	200—610	0.06—0.25	0.20—1.00
	L	**MK**	**MC5105**	200—610	0.06—0.25	0.20—1.00
	M	**MK, Flat Top**	**MC5105**	165—510	0.08—0.30	0.30—2.00
Unstable Cutting	F	**MK**	**MC5115**	180—335	0.06—0.25	0.20—1.00
	L	**MK**	**MC5115**	180—335	0.06—0.25	0.20—1.00
	M	**MK, Flat Top**	**MC5115**	150—280	0.08—0.30	0.30—2.00

*Please refer to page A089 for other types of cast iron.

OPTIMUM GRADES AND CHIPBREAKERS FOR EXTERNAL TURNING



Stable Cutting
General Cutting
Unstable Cutting
F Finish Cutting

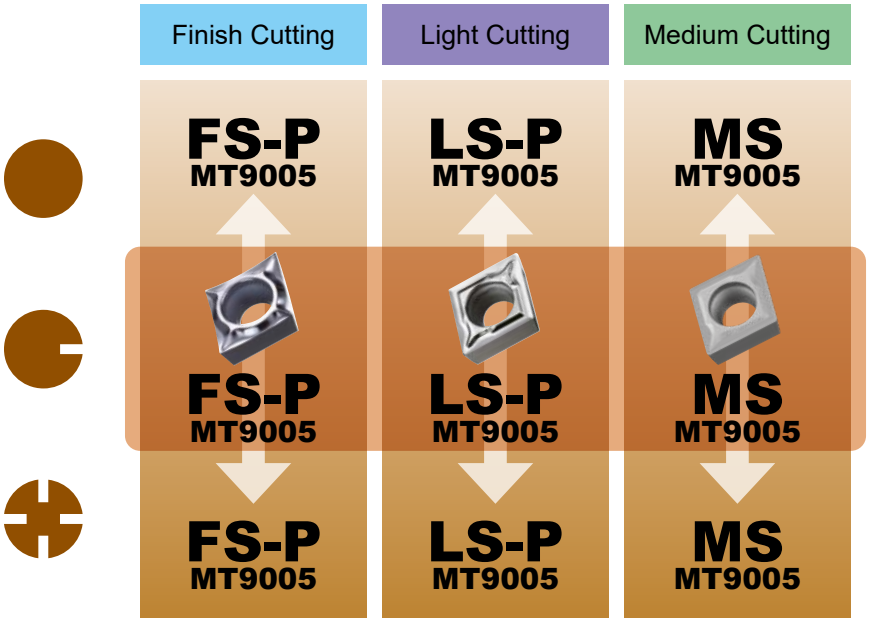
N Aluminium Alloy* (ex. A6061, A7075)

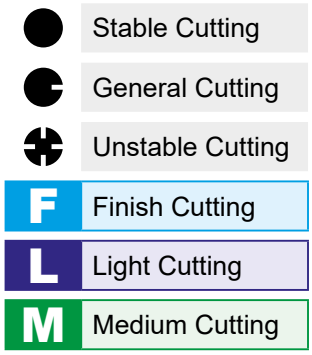
7° POSITIVE INSERTS WITH HOLE

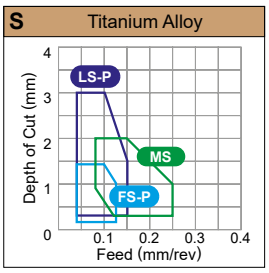
Vc : Cutting Speed
f : Feed
ap : Depth of Cut

	Cutting Area	Chipbreaker	Grade	1st Recommendation Vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	**AZ**	**HTi10**	300—700	0.10—0.40	0.20—3.00
General Cutting	F	**AZ**	**HTi10**	300—700	0.10—0.40	0.20—3.00
Unstable Cutting	F	**AZ**	**HTi10**	300—700	0.10—0.40	0.20—3.00

*Please refer to page A091 for other aluminium alloys.







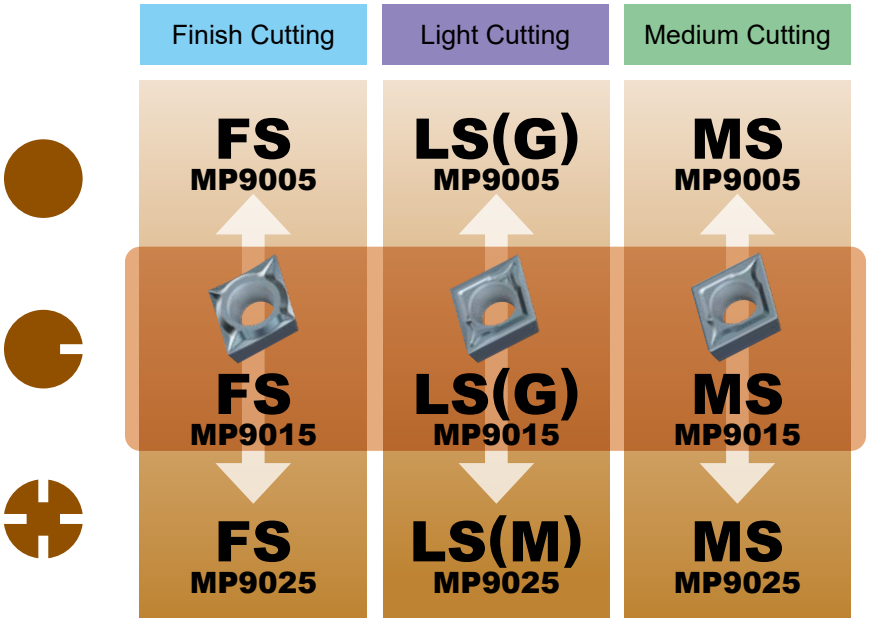
S Titanium Alloy (ex. Ti-6Al-4V)

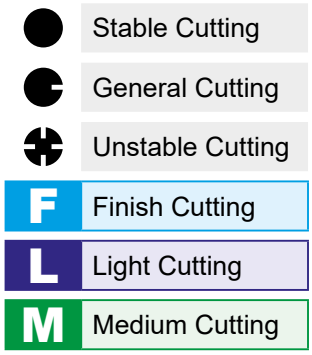
7° POSITIVE INSERTS WITH HOLE

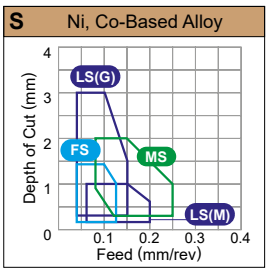
Vc : Cutting Speed
f : Feed
ap : Depth of Cut

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

OPTIMUM GRADES AND CHIPBREAKERS FOR EXTERNAL TURNING







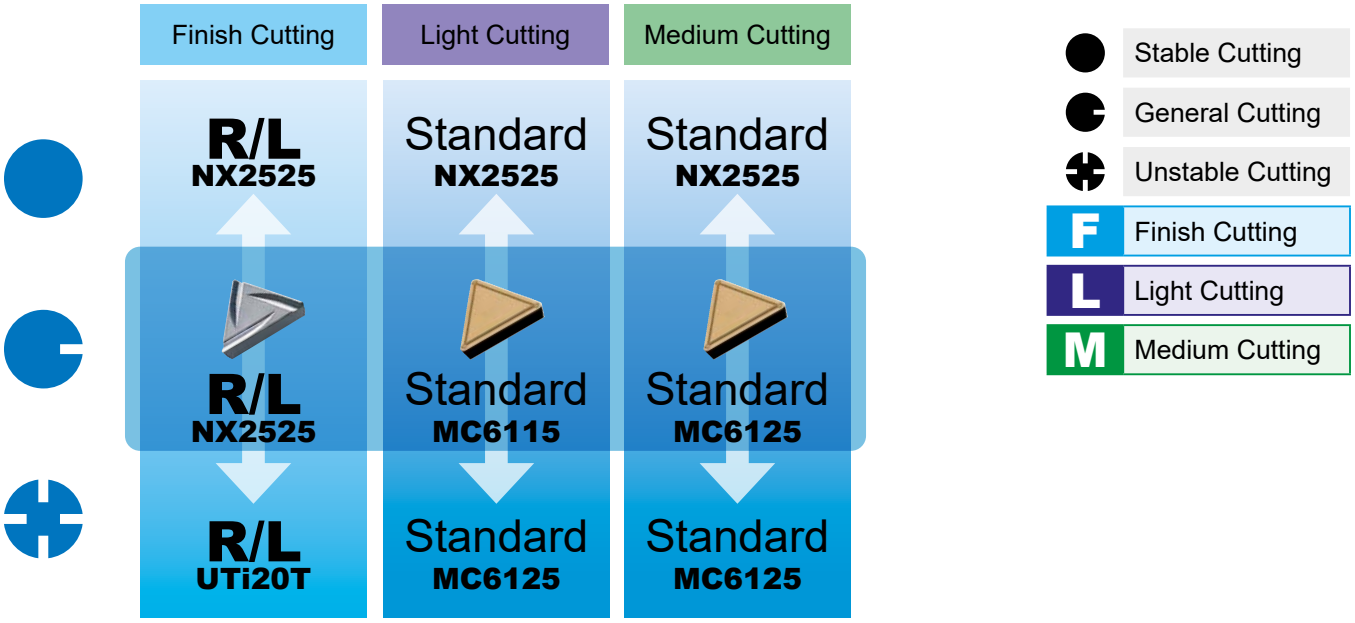
S Ni, Co-Based Alloy* (ex. Inconel®718)

7° POSITIVE INSERTS WITH HOLE

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

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

* G class is recommended for the above FS/LS chipbreaker



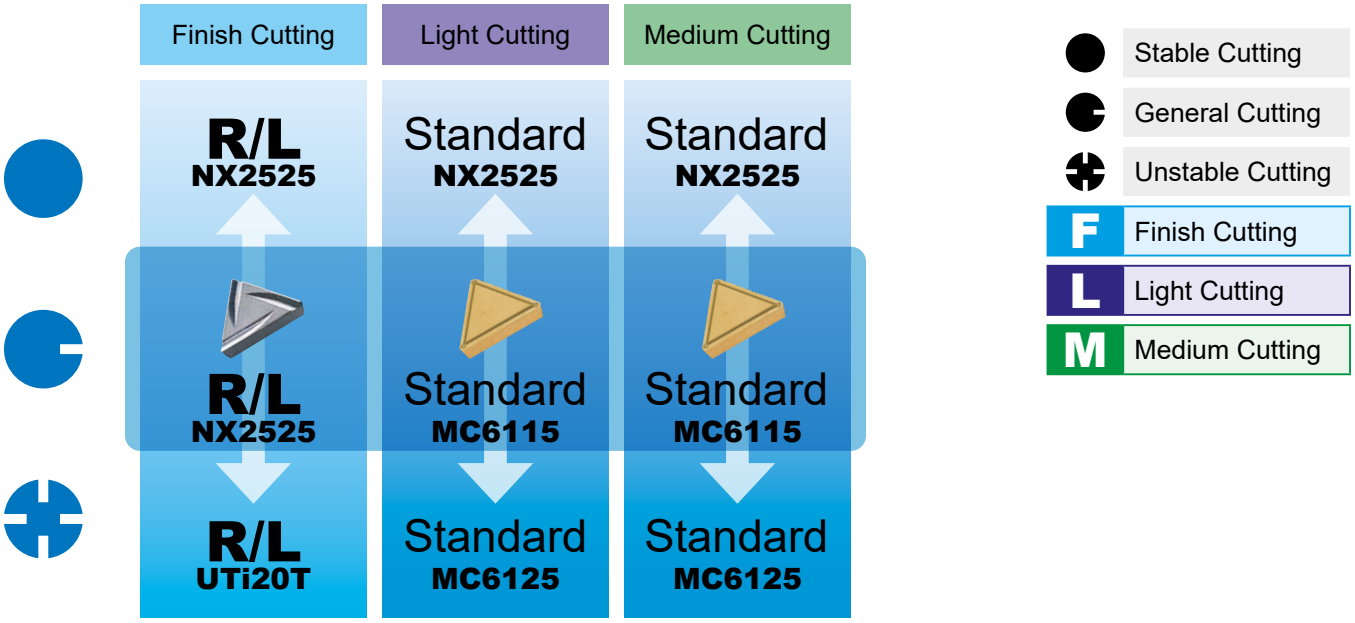
P Mild Steel (ex. St37-2, Ck10)

11° POSITIVE INSERTS WITHOUT HOLE

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

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

OPTIMUM GRADES AND CHIPBREAKERS FOR EXTERNAL TURNING

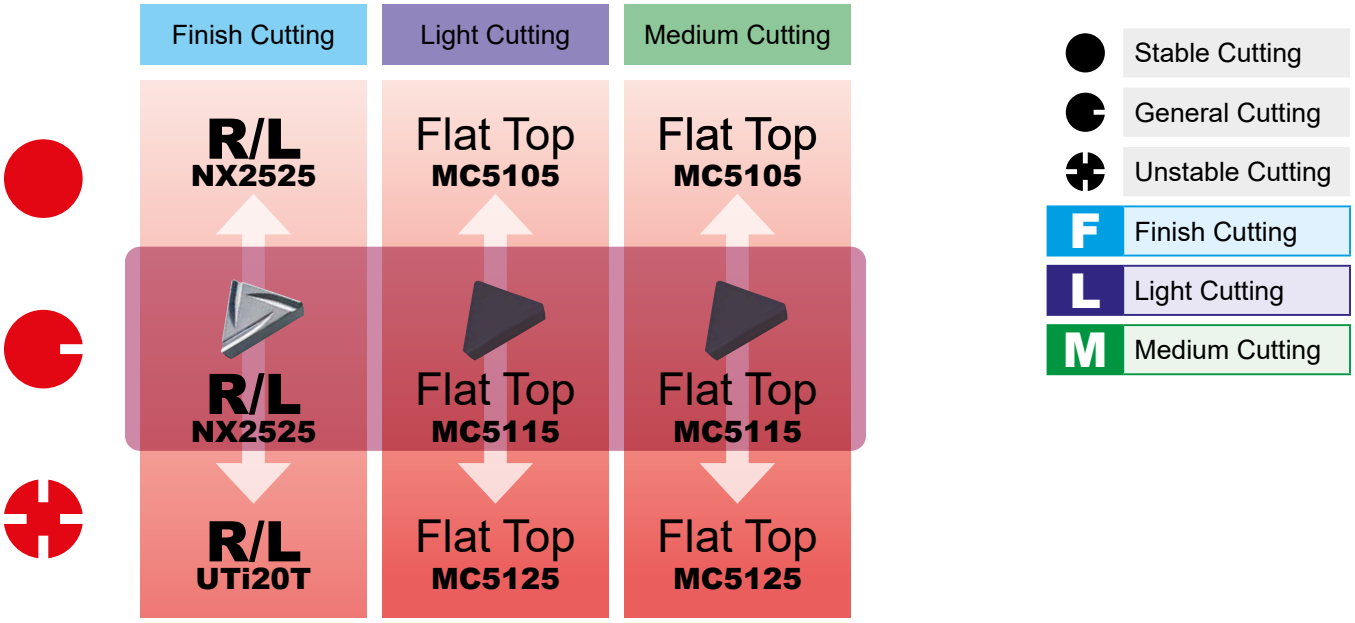


P Carbon Steel • Alloy Steel (ex. Ck45, 42CrMo4)

11° POSITIVE INSERTS WITHOUT HOLE

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

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



K Cast Iron* (ex. GG30)

11° POSITIVE INSERTS WITHOUT HOLE

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

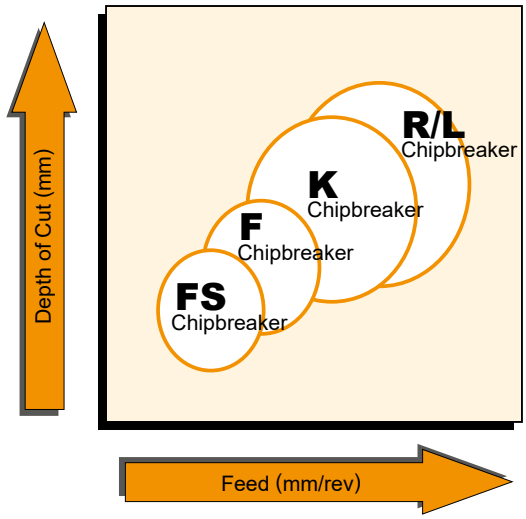
	Cutting Area	Chipbreaker	Grade	1st Recommendation Vc (m/min)	f (mm/rev)	ap (mm)
Stable Cutting	F	**R/L**	**NX2525**	145—200	0.06—0.25	0.30—1.50
	L	**Flat Top**	**MC5105**	165—265	0.08—0.30	0.30—2.00
	M	**Flat Top**	**MC5105**	165—265	0.08—0.30	0.30—2.00
General Cutting	F	**R/L**	**NX2525**	145—200	0.06—0.25	0.30—1.50
	L	**Flat Top**	**MC5115**	150—240	0.08—0.30	0.30—2.00
	M	**Flat Top**	**MC5115**	150—240	0.08—0.30	0.30—2.00
Unstable Cutting	F	**R/L**	**UTi20T**	80—115	0.06—0.25	0.30—1.50
	L	**Flat Top**	**MC5125**	115—160	0.08—0.30	0.30—2.00
	M	**Flat Top**	**MC5125**	115—160	0.08—0.30	0.30—2.00

*Please refer to page A095 for other types of cast iron.

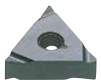
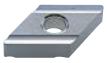
PRECISION CHIPBREAKER SYSTEM

ANGULAR AND PARALLEL CHIPBREAKERS (NEGATIVE INSERTS)

■CHIP CONTROL RANGE

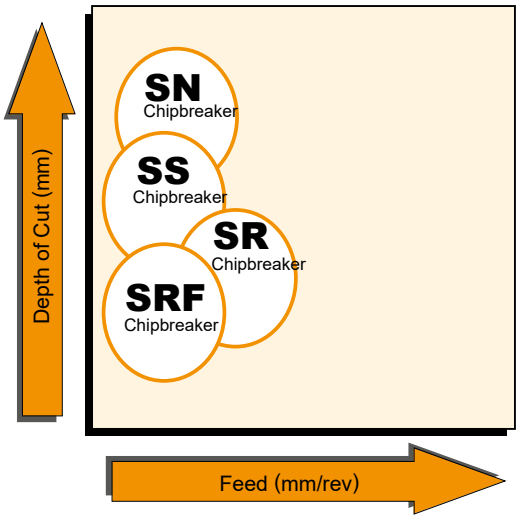


■FEATURES OF CHIPBREAKER

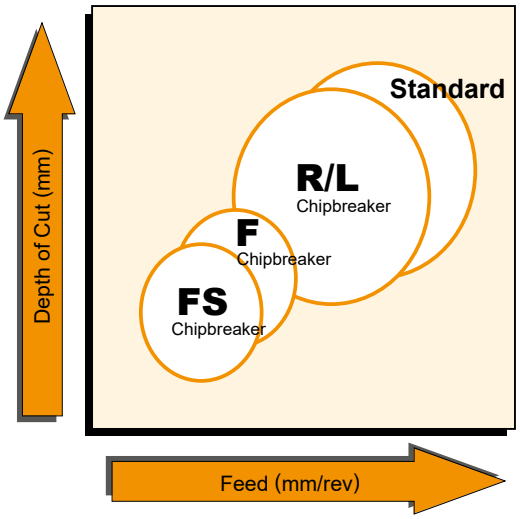
Chipbreaker	Features	DNGG Type	SNGG Type	TNGG Type	VNGG Type
FS	● For precision finishing. ● Small width lead chipbreaker for good chip control. ● Sharp cutting edge gives a good surface finish.	—	—		—
F	● For finish cutting. ● Lead chipbreaker controls chip flow. ● Sharp cutting edge gives a good surface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

ANGULAR AND PARALLEL CHIPBREAKER

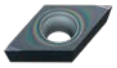
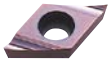
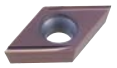
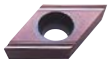
■For turning small, high precision parts



■For general turning



■FEATURES OF CHIPBREAKER

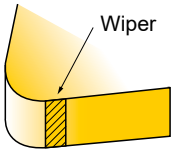
Chipbreaker	Features	**CCET** Type	**CCGT** Type	**DCET** Type	**DCGT** Type	**VBET** Type
SRF	● The wide lead chipbreaker for medium cutting is suitable for automatic lathe machining. ● The insert designed for low resistance controls chip flow.	—	—	—		
SR	● The wide lead chipbreaker for medium cutting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

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

WIPER INSERT

What is a Wiper Insert?

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



●Improving Surface Finish
Under the same machining conditions as conventional chipbreakers, but with the feed rate increased, the surface finish of the material can be improved.

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

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

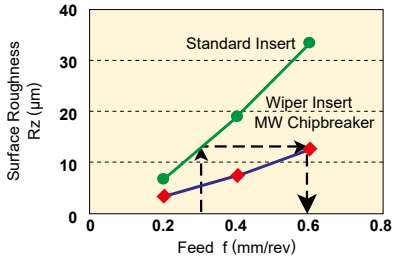
●Improving Chip Control
Under high feed conditions, the chips generated become thicker and are more easily broken, thus, chip control is improved.

Wiper insert + High feed (The feed rate is doubled.)

Finished surface Same surface roughness =

Standard insert + The conventional feed condition

*Please use a wiper insert at a high feed rate.



<Cutting Conditions>
Material : DIN Ck45
Insert : CNMG120408-◯◯
Cutting Speed=200m/min
Depth of Cut=1.5mm
Feed Speed=0.2−0.6mm/rev
Wet Outer Diameter Cutting

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

■A wiper insert + machining at high feed rate
- Reduced machining time (per workpiece)
- Increased number of workpieces (per definitive time period)
- Improving chip control

■A wiper insert + machining at conventional feed rate
- Eliminating the finishing step by roughing and finishing together (Separate roughing and finishing steps → Single-step machining)

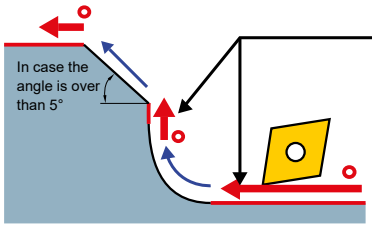
- Reducing cycle times
- Increased productivity
- Avoiding Line-Stoppage

The Realisation of Reduced Costs!!

■ Estimating the finished surface roughness when using a wiper insert

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

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



Rz(W)=Rz×0.5

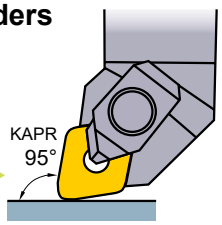
Rz(W) = Finished surface roughness when using a wiper insert.
Rz : Finished surface roughness from conventional conditions. (When using a standard insert)

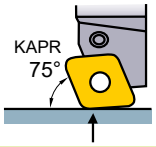
Effective usage of a wiper insert
Non effective usage of a wiper insert

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

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

No restriction →

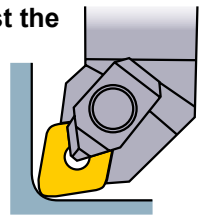




The CNMG type can be used as a wiper at the 100°corner.

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

Not necessary to adjust →

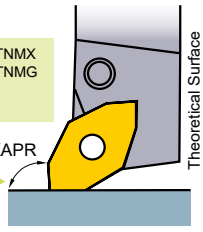


■ Special attention is necessary when using the DNMX • TNMX types due to the special top face geometry

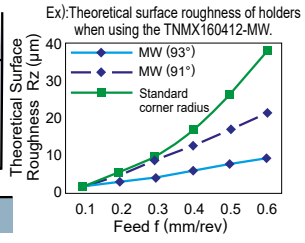
●Restriction for Holders
Use a holder with a cutting edge angle (KAPR) of 93° for improving wiper efficiency. A holder with an end cutting angle of 91° can also improve wiper efficiency (see the following figure), however, there is no wiper efficiency with other cutting edge angles (60°, 90°, 107°etc.).

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

93° (Specified) →

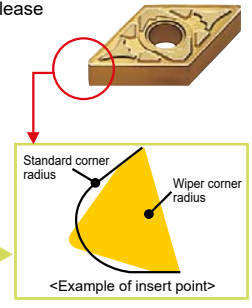


Ex):Theoretical surface roughness of holders when using the TNMX160412-MW.



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

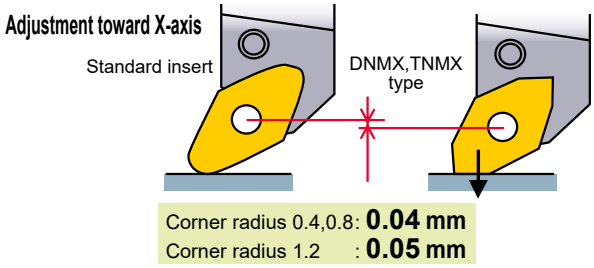
Adjustment necessary →



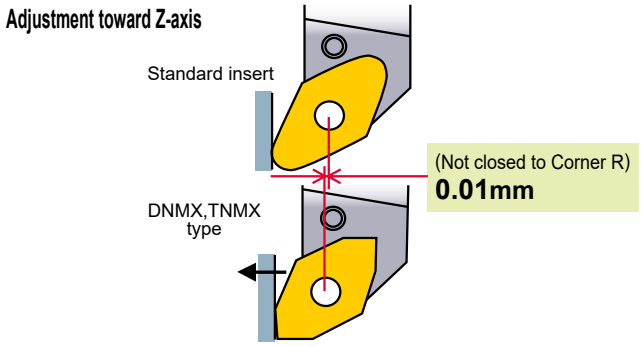
■ Adjustment of machining programmes for DNMX • TNMX types

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

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



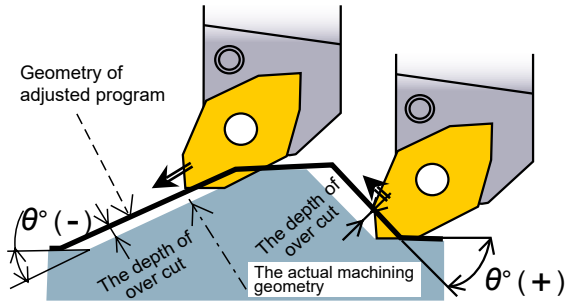
Corner radius 0.4,0.8: **0.04 mm**
Corner radius 1.2 : **0.05 mm**



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

Adjust the relief angle toward the normal line.

Note 1) Adjust the angle toward the normal line in the case where the adjustment number is minus (θ =60°—70°) and is not machined completely.



Classification

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

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

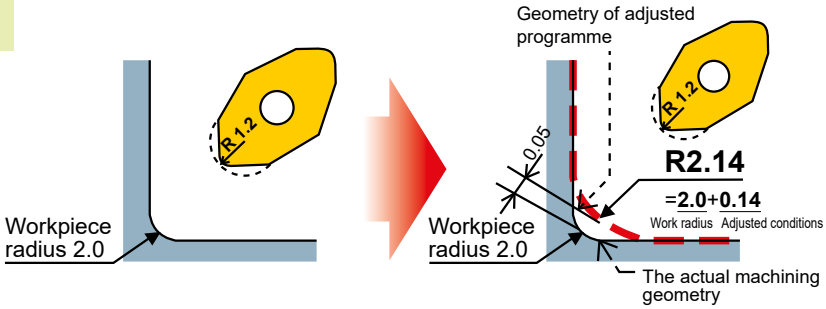
B) Adjusting a Corner R ⁎Necessary to maintain a correct corner radius.

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

The value of adjustment to workpiece R = Workpiece R + the adjustment value
⁎No adjustment of the corner radius in this case.

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

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



The Easy-to-correct Method

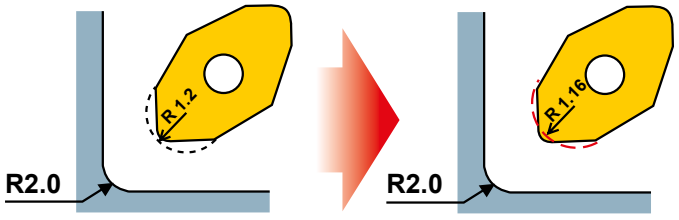
When correcting corner radius:
It is not necessary to adjust the machining programme, however, machining errors can occur within max. ±0.03mm due to corrections by an approximate number.

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

The value of corrected corner radius = approximation
⁎No need to adjust the programme in this case.

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

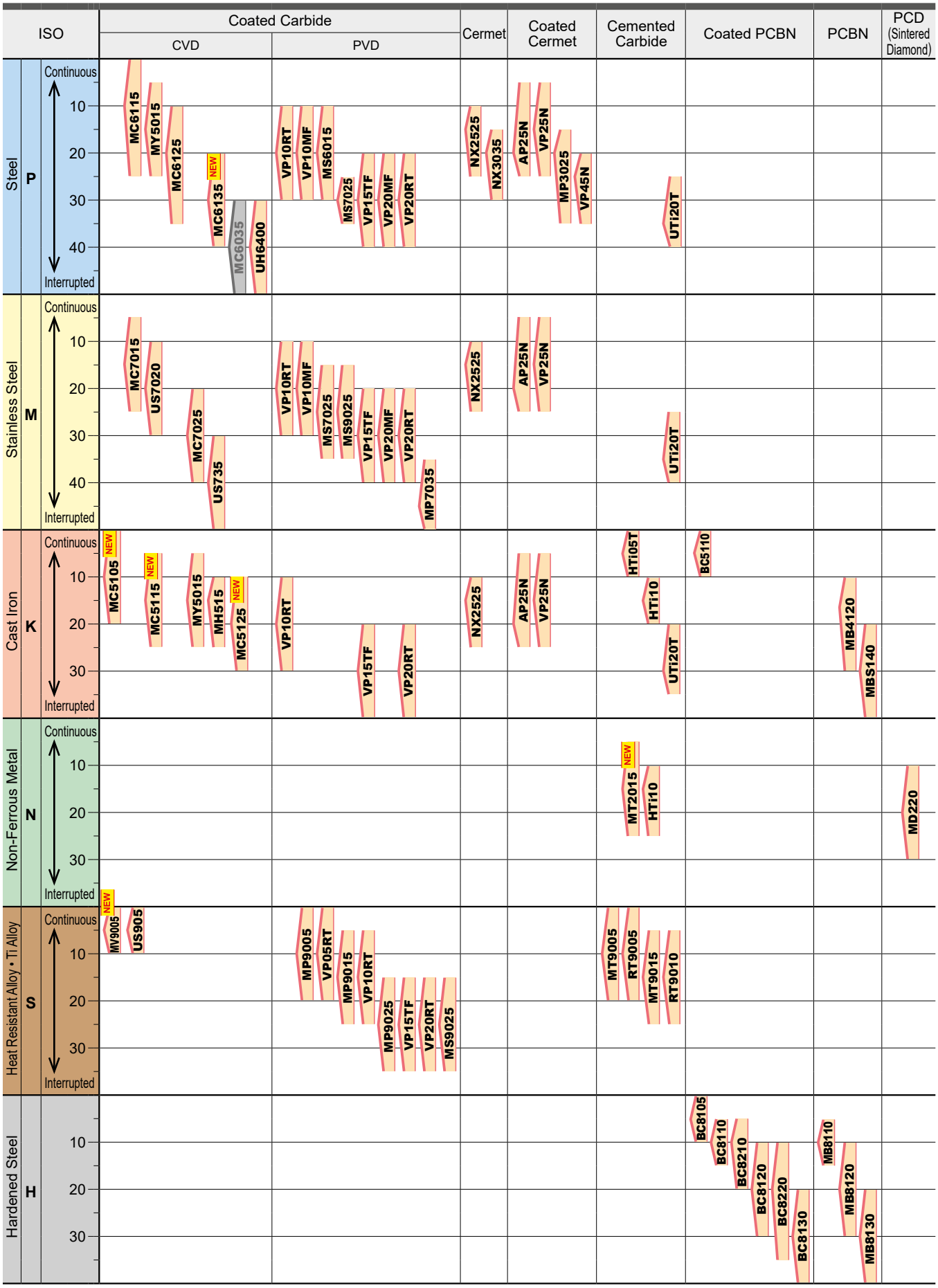
Ex : In the case of machining a corner with a radius R 2.0 when using an insert with a corner radius R 1.2.



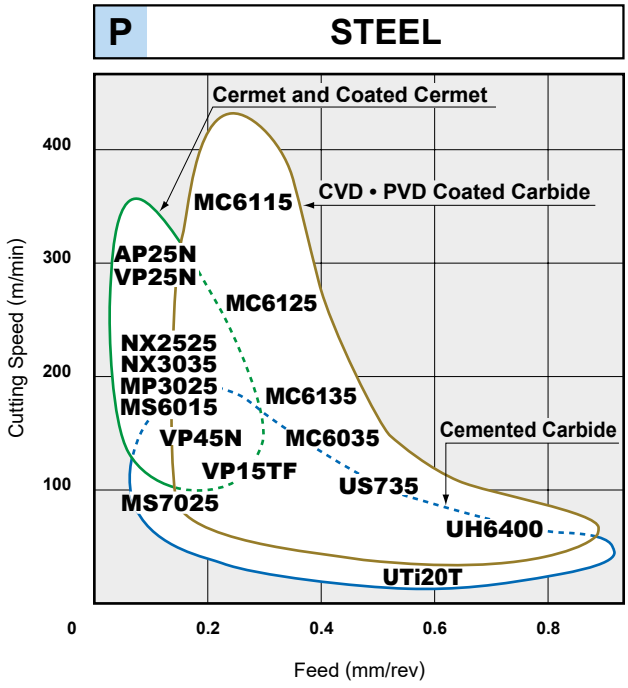
Others : The value of correction is same for both DNMX and TNMX. Differentiate between them by the size of corner radius.

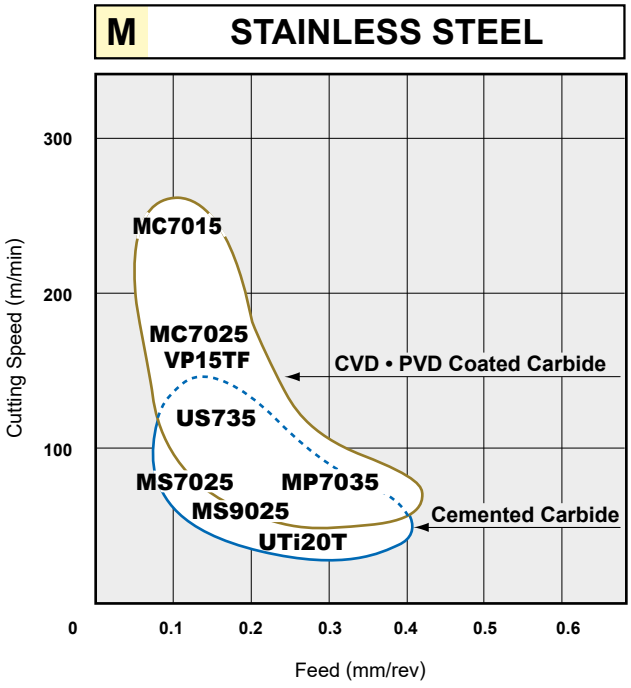
GRADES FOR TURNING

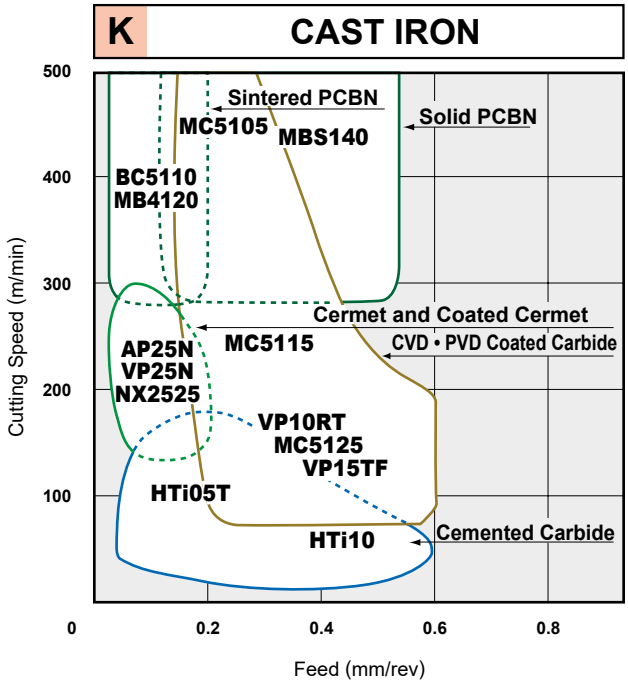
●INDEXABLE INSERT GRADES FOR TURNING

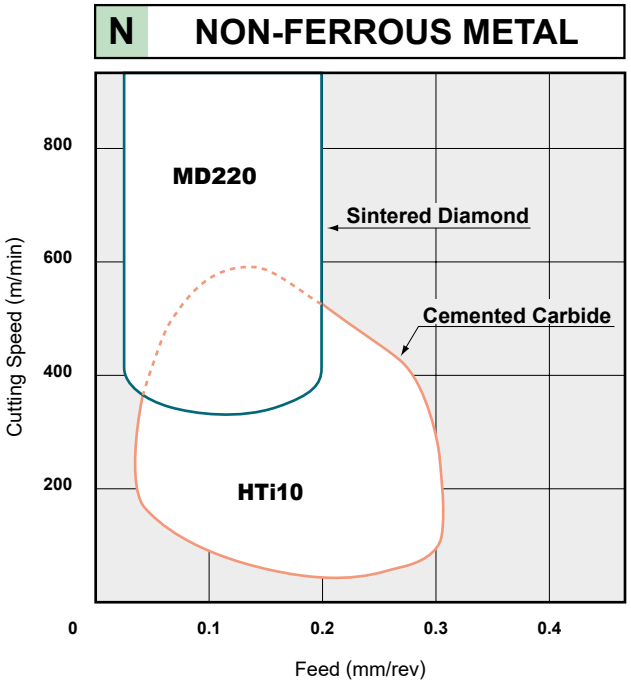


TURNING APPLICATION RANGE





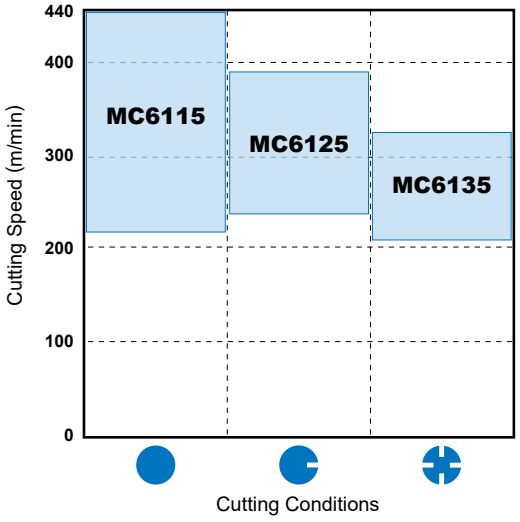




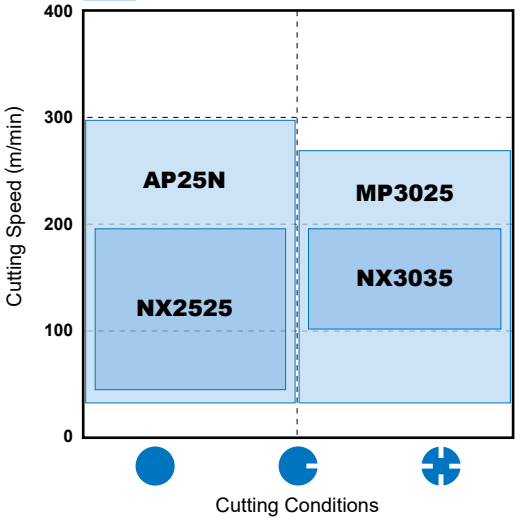
TURNING APPLICATION RANGE

●Recommended insert grade based on cutting speed and conditions for each material.

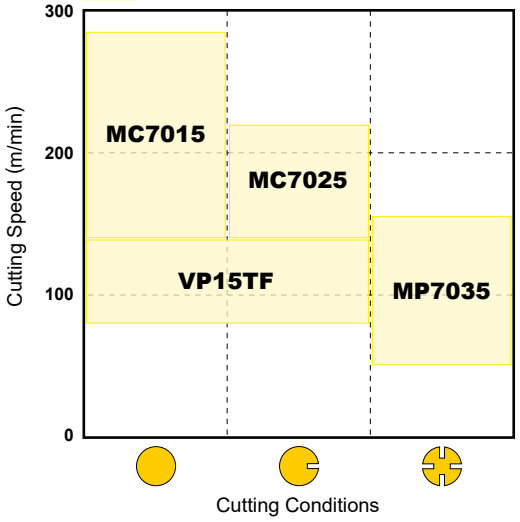
P STEEL (Medium-Rough Cutting)



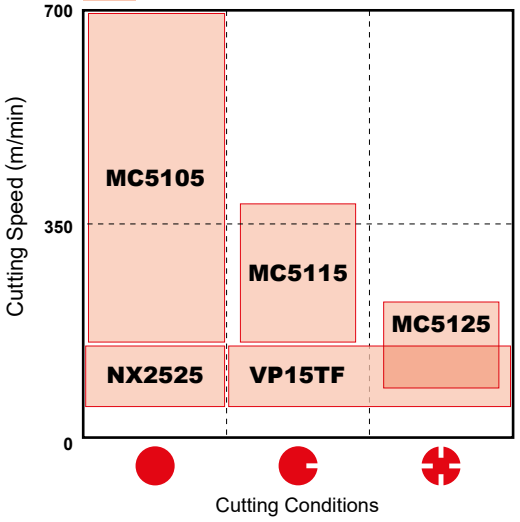
P STEEL (Finish Cutting)



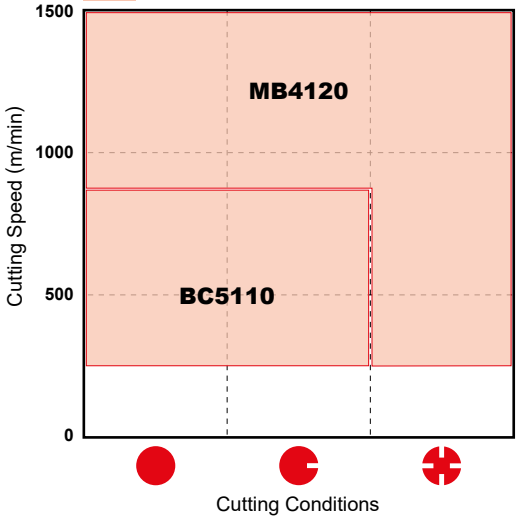
M STAINLESS STEEL



K CAST IRON



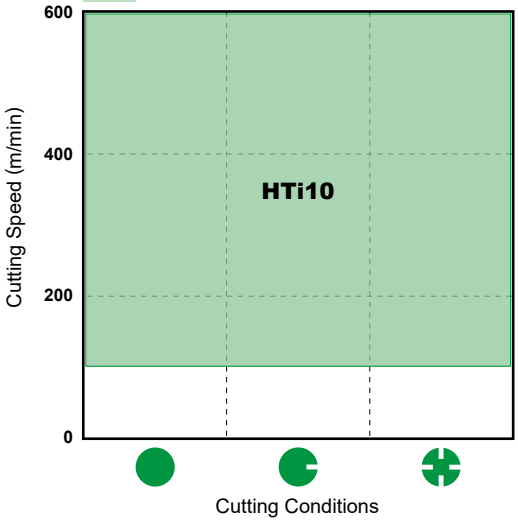
K CAST IRON (PCBN)



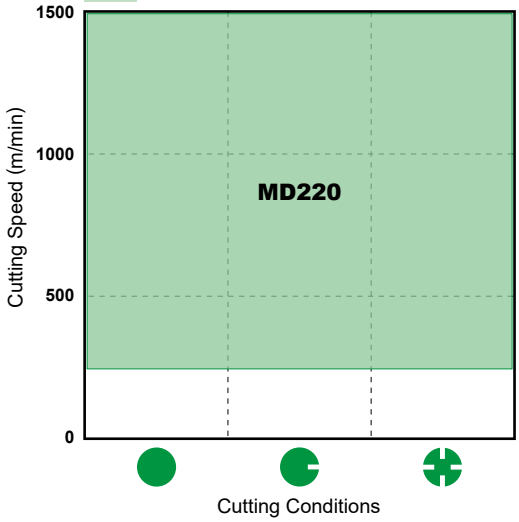
■CUTTING CONDITIONS

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

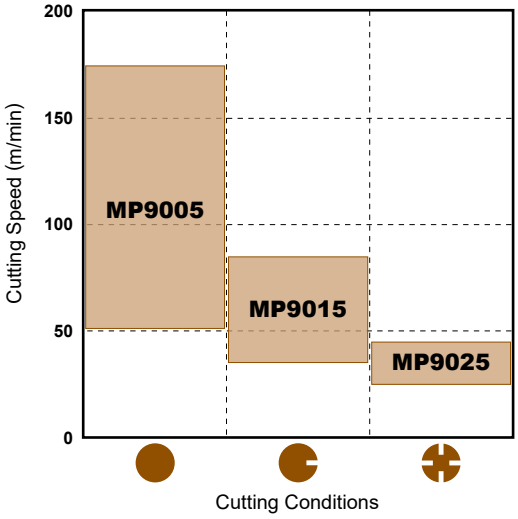
N NON-FERROUS METAL



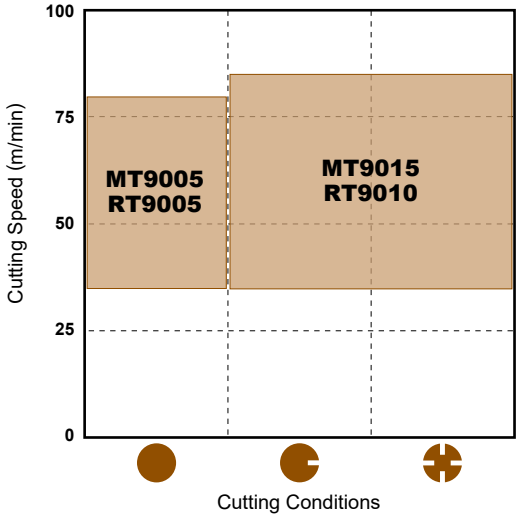
N NON-FERROUS METAL (PCD)



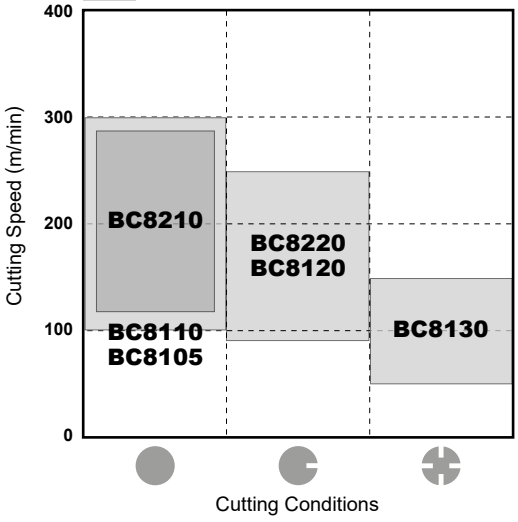
S HEAT RESISTANT ALLOY



S TITANIUM ALLOY



H HARDENED MATERIALS (PCBN)



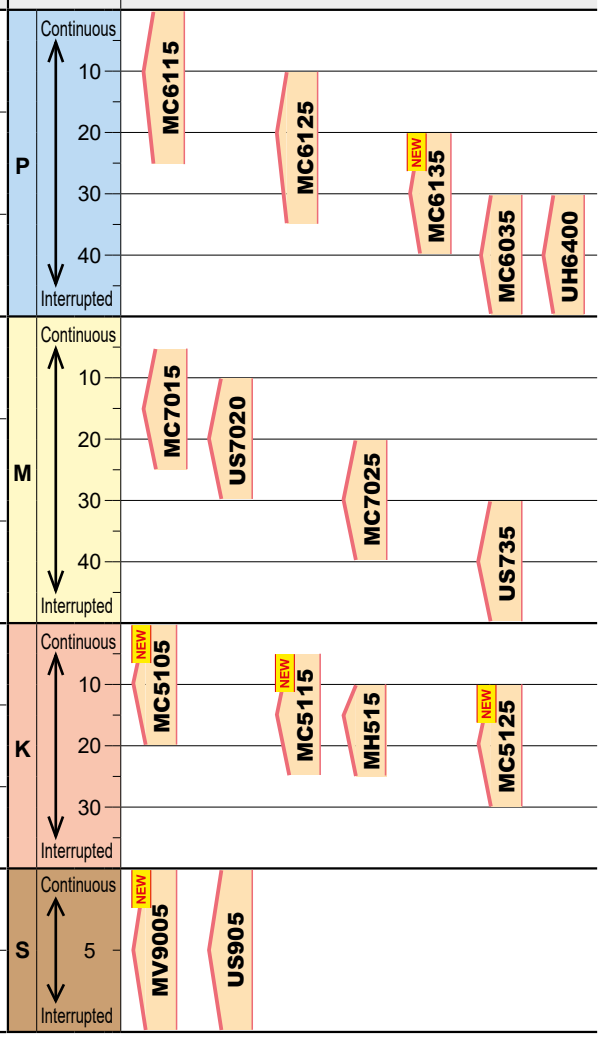
COATED CARBIDE (CVD)

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

■ SELECTION STANDARD

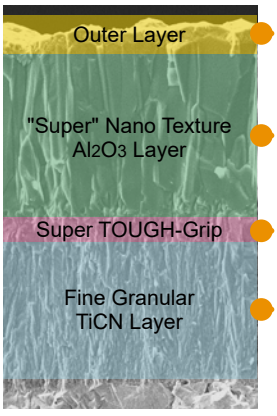
● TURNING

	Material	Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)
P	Steel	Continuous Cutting	MC6115	340 (215 – 480)
			MC6125	330 (210 – 465)
		Interrupted Cutting	NEW MC6135	310 (140 – 480)
M	Stainless Steel	Continuous Cutting	MC7015	220 (155 – 285)
			MC7025	180 (140 – 220)
		Continuous and Interrupted Cutting	US735	130 (75 – 185)
K	Cast Iron Ductile Cast Iron	Continuous Cutting	NEW MC5105	430 (160 – 700)
			NEW MC5115	270 (150 – 390)
		Interrupted Cutting	NEW MC5125	150 (80 – 220)
S	Heat Resistant Alloy	Continuous Cutting	NEW MV9005	105 (70 – 140)
		Continuous and Interrupted Cutting	US905	70 (45 – 95)



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

MC6115



- Better identification of corner use.
- Outstanding wear resistance especially at high temperatures.
- Strong adhesion between the tough coating layers.
- Coating for high wear resistance.

■ Super Nano Texture Technology

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

■ Super TOUGH-Grip

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

■ GRADE CHARACTERISTICS

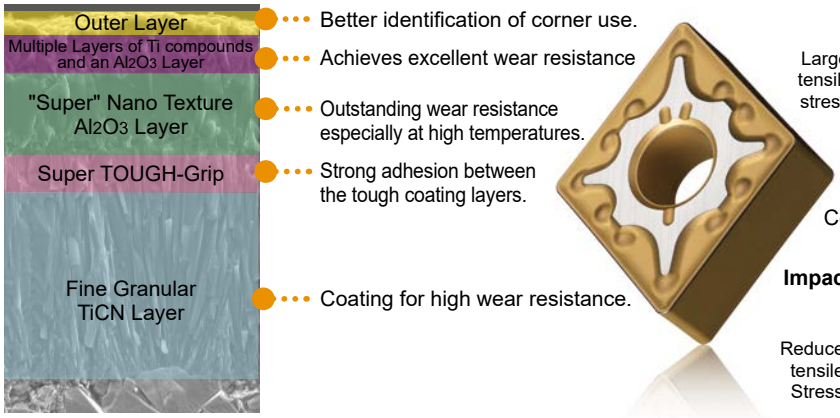
Material		Grade	Substrate	Coating Layer	
			Hardness (HRA)	Composition	Thickness
P	Steel	**MC6115**	90.8	Accumulated TiCN-Al_2O_3-TiN Compound	Thick
		MC6125	90.0	Accumulated TiCN-Al_2O_3-TiN Compound	Thick
		NEW **MC6135**	90.0	Accumulated TiCN-Al_2O_3-TiN Compound	Thick
		MC6035	89.5	TiCN-Al_2O_3	Thick
		UH6400	89.5	Accumulated TiCN-Al_2O_3-TiN Compound	Thick
M	Stainless Steel	**MC7015**	90.7	TiCN-Al_2O_3-TiN	Thin
		US7020	90.5	TiCN-Al_2O_3-TiN	Thin
		MC7025	89.4	TiCN-Al_2O_3-TiN	Thin
		US735	89.0	TiN Compound	Thin
K	Cast Iron Ductile Cast Iron	NEW **MC5105**	92.2	TiCN-Al_2O_3	Thick
		NEW **MC5115**	91.0	TiCN-Al_2O_3	Thick
		NEW **MC5125**	91.0	TiCN-Al_2O_3	Thick
	Heat Resistant Cast Steel	**MH515**	91.0	TiCN-Al_2O_3	Thick
S	Heat Resistant Alloy	**US905**	92.2	TiCN-Al_2O_3-TiN	Thin
		MV9005	93.0	Al, Ti N	Thick

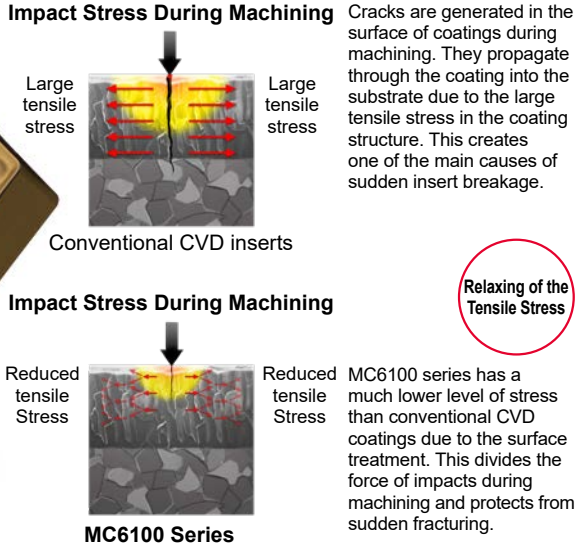
Note 1) Hardness shows representative value of the substrate.

Strengthened chipping resistance

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

MC6125





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

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

COATED CARBIDE (PVD)

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

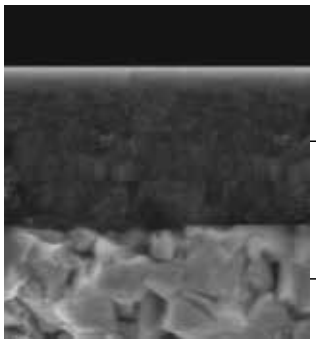
■ SELECTION STANDARD

●TURNING

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

ISO Turning Inserts for Difficult to Cut Materials

MP9005/MP9015/MP9025



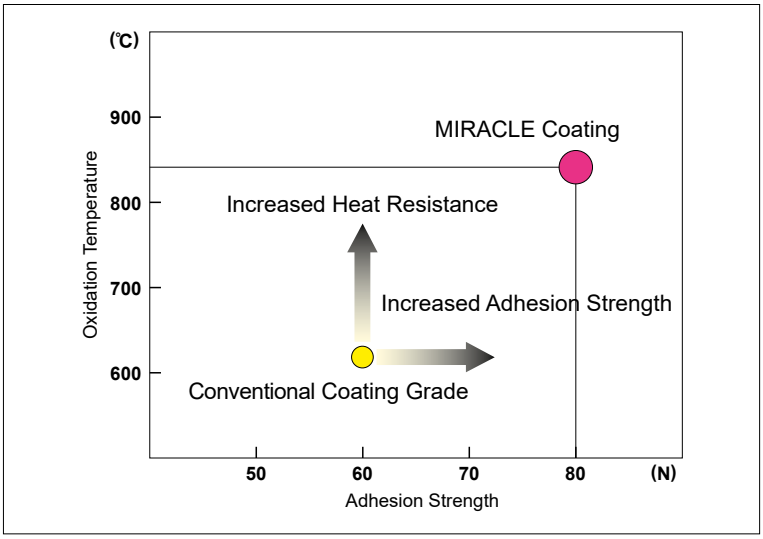
High Al-(Al,Ti)N single layer coating

Special carbide substrate

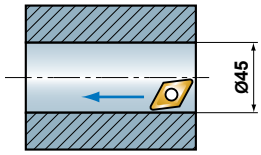
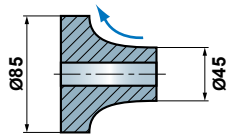
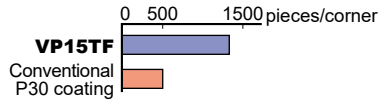
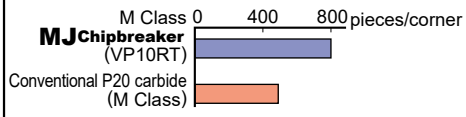
ISO Grade	Grade	Concept	Application
S01	**MP9005**	Top-quality grade focusing on wear resistance	Heat Resistant Alloy Finish-Medium Cutting
S10	**MP9015**	First recommendation for general applications	Heat Resistant Alloy Medium-Rough Cutting
S30	**MP9025**	Prevents severe damage for increased stability.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

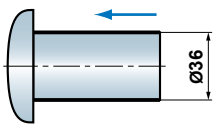
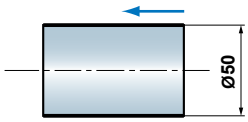
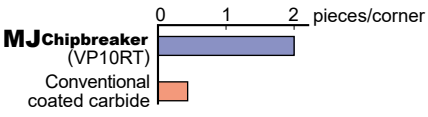
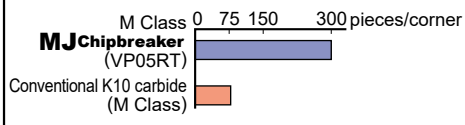
FEATURES OF VP (MIRACLE) COATING

Compared to conventional coating technology, VP (MIRACLE) coating features (Al,Ti)N coating with an increased heat resistance and adhesion strength.



■ APPLICATION EXAMPLES

Insert (Grade)		DCMT11T304-MV(VP15TF)	CNMG120408-MJ(VP10RT)
Workpiece		Alloy steel 	Stainless Steel (Fan parts) 
Cutting Conditions	Cutting Speed (m/min)	170	200
	Feed (mm/rev)	0.14	0.25
	Depth of Cut (mm)	0.25	0.5
	Coolant	Wet cutting	Wet cutting
Result		 The VP15TF type did not suffer from edge chipping. This enables stable machining and much longer tool life.	 MJ chipbreaker achieved 1.5 times longer tool life.

Insert (Grade)		CNMG120408-MJ(VP10RT)	TNMG160408-MJ(VP05RT)
Workpiece		Inconel®718 (Pin) 	Sintered iron parts (FH655) 
Cutting Conditions	Cutting Speed (m/min)	31	120
	Feed (mm/rev)	0.2	0.05
	Depth of Cut (mm)	2.3	0.5
	Coolant	Wet cutting	Wet cutting
Result		 VP10RT achieved 4 times longer tool life. MJ chipbreaker for excellent chip disposal and vastly increased tool life.	 MJ chipbreaker achieved 5 times longer tool life.

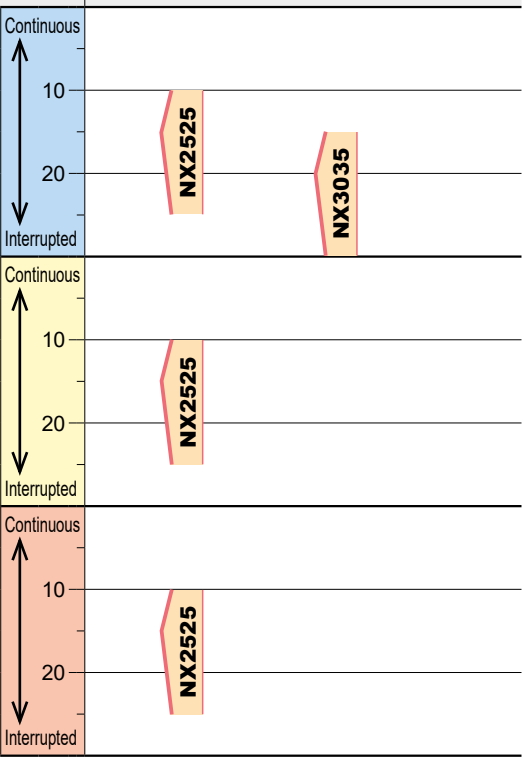
CERMET

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

■ SELECTION STANDARD

●TURNING

Material		Cutting Mode	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P	Steel	Continuous Cutting	**NX2525**	230 (175 — 300)	P	NX2525, NX3035
		Interrupted Cutting	**NX3035**	220 (170 — 285)		
M	Stainless Steel	Continuous Cutting	**NX2525**	100 (65 — 135)	M	NX2525
K	Cast Iron Ductile Cast Iron	Finishing	**NX2525**	170 (130 — 210)	K	NX2525



■ GRADE CHARACTERISTICS

Grade	Hardness (HRA)
NX2525	92.2
NX3035	91.5

Note 1) Hardness shows representative value of the substrate.

COATED CERMET

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

■ SELECTION STANDARD

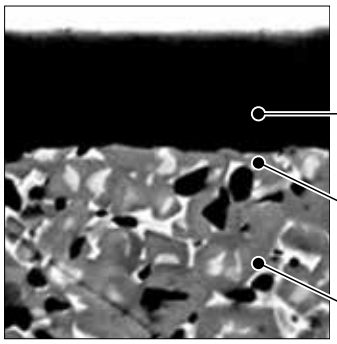
●TURNING

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

Effective for production of small parts.

MP3025

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



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

Substrate surface provides excellent adhesion strength for coating layer.

Substrate with superior fracture resistance and thermal shock resistance.

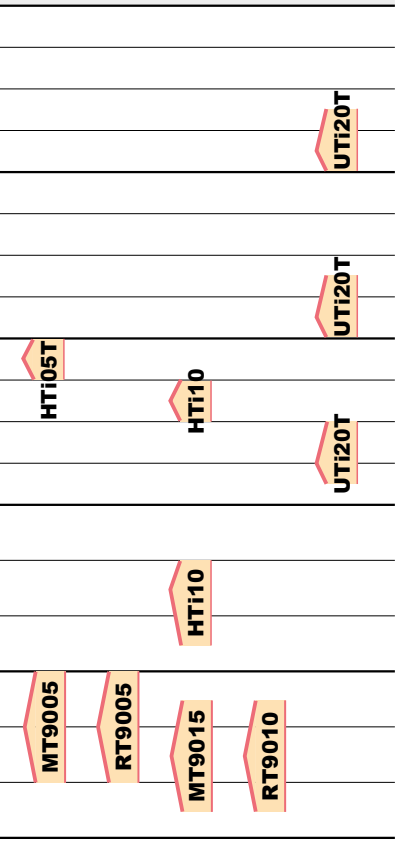
CEMENTED CARBIDE

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

■ SELECTION STANDARD

●TURNING

	Material	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P	Steel	**UTi20T**	110 (90 — 130)	P	UTi20T
M	Stainless Steel	**UTi20T**	100 (80 — 115)	M	UTi20T
K	Cast Iron	**HTi05T**	120 (80 — 165)	K	HTi05T
		HTi10	100 (75 — 135)		HTi10
		UTi20T	80 (60 — 110)		UTi20T
N	Non-Ferrous Metal	**HTi10**	500 (300 — 700)	N	HTi10
S	Heat-resistant Alloy Ti Alloy	**MT9005 RT9005**	50 (35 — 80)	S	MT9005 RT9005
		MT9015 RT9015	60 (35 — 85)		MT9015 RT9010



■ MAIN COMPONENT AND APPLICATION

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

■ GRADE CHARACTERISTICS

ISO	Grade	Hardness (HRA)
P M	**UTi20T**	90.5
K N	**HTi05T**	92.5
	HTi10	92.0
S	**MT9005/RT9005**	92.2
	MT9015/MT9010	91.8

Note 1) Hardness shows representative value of the substrate.

MICRO-GRAIN CEMENTED CARBIDE (SOLID TOOLS)

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

■ SELECTION STANDARD

Cutting Tool	Recommended Grade	Material
Solid Carbide Drill Turning Inserts Milling Inserts	**TF15**	Steel • Cast Iron
Solid End Mill	**HTi10** **TF15** **MF10**	Steel • Cast Iron
Gear Hob Reamer Tap etc.	**TF15** **MF20** **MF30**	Steel • Cast Iron, etc.

■ GRADE CHARACTERISTICS

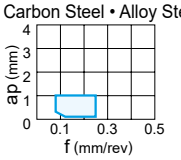
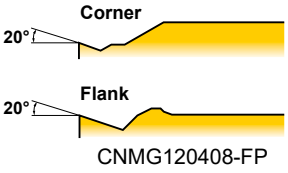
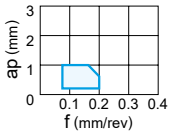
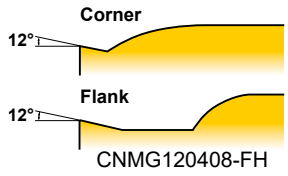
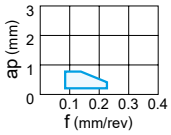
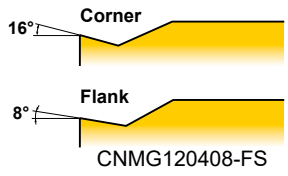
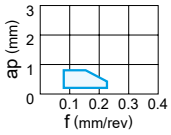
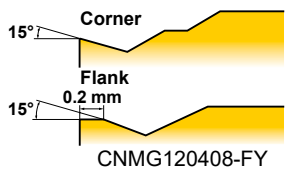
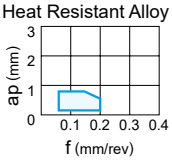
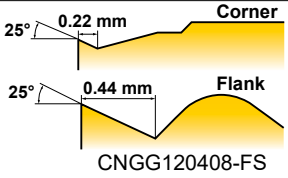
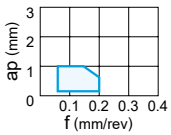
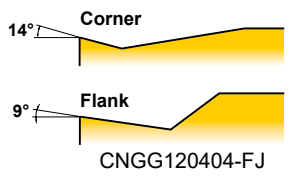
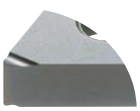
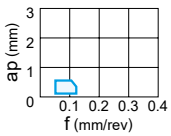
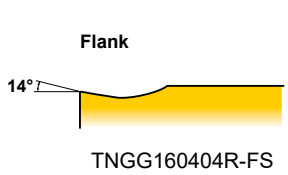
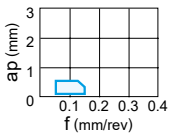
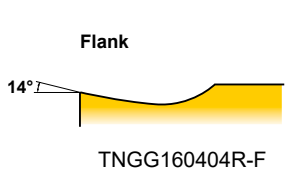
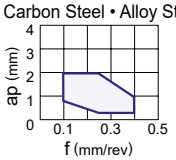
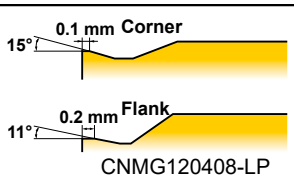
Grade	Grade Characteristics *		ISO	Wear Resistance	Fracture Resistance	Corrosion Resistance
	Hardness (HRA)	T.R.S (GPa)				
HTi10	92.0	3.2	K10	◎	○	○
TF15	91.0	4.0	K20	◎	○	◎
MF10	93.0	4.0	K01	◎	○	◎
MF20	92.0	4.4	K10	○	◎	◎
MF30	90.7	4.3	K20	○	◎	◎

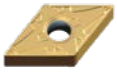
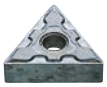
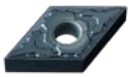
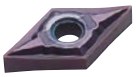
* After HIP

Note 1) Hardness shows representative value of the substrate.

CLASSIFICATION

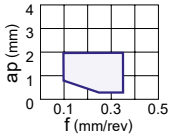
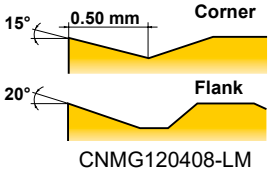
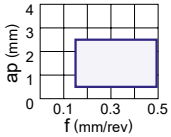
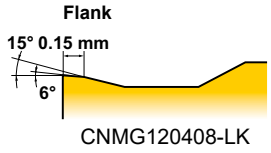
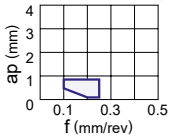
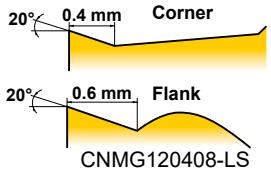
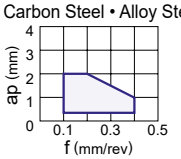
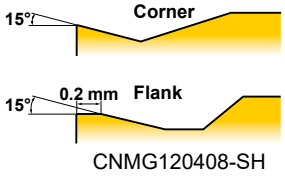
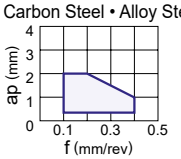
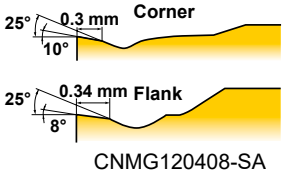
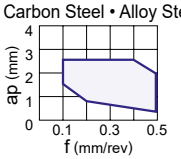
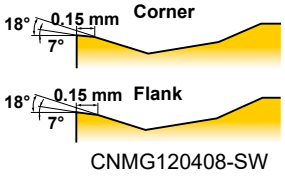
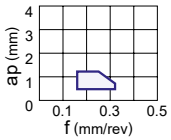
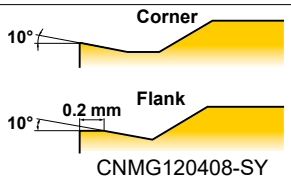
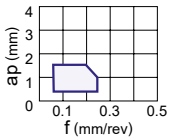
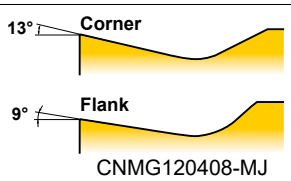
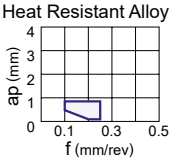
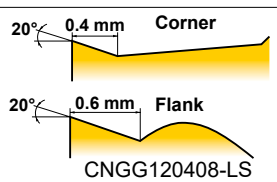
NEGATIVE INSERTS WITH HOLE

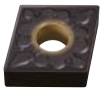
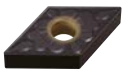
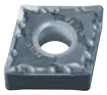
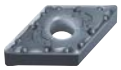
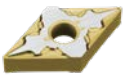
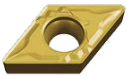
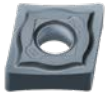
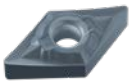
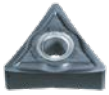
Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M	**FP**	**First recommendation for finish cutting of carbon steel and alloy steels** Controls chip clogging during high-feed cutting and prevents chips of soft material from running onto their surfaces. Large rake angle controls vibrations and work deformation when machining low-rigidity workpiece.	Carbon Steel • Alloy Steel   CNMG120408-FP
		FH	**First recommendation for finish cutting of carbon steel and alloy steels** Double sided chipbreaker. Stable chip control even at small depths of cut.	Carbon Steel • Alloy Steel   CNMG120408-FH
		FS	**Alternative chipbreaker for finish cutting of mild steel** Stable chip control even at small depth of cut. Sharp edge gives best performance.	Mild Steel   CNMG120408-FS
		FY	**First recommendation for finish cutting of mild steel** Effectively controls adhesive chips. Suitable for mild steel finishing.	Mild Steel   CNMG120408-FY
	G	NEW **FS**	**Excellent chip breaking even at very small depths of cut** The large rake angle and precision grade enables excellent sharpness.	Heat Resistant Alloy   CNGG120408-FS
		FJ	**Alternative chipbreaker for finish cutting of difficult-to-cut materials** Ideal for heat-resistant alloy and titanium alloy. The sharp edge produces good cutting surface. The curved edge allows smooth chip discharge.	Difficult-to-Cut Materials   CNGG120404-FJ
		R/L-FS 	**Precise finishing** A narrow lead chipbreaker for good chip control. The sharp edge produces a good surface finish.	Carbon Steel • Alloy Steel   TNGG160404R-FS
		R/L-F	**Finishing** Lead chipbreaker controls chip flow. The sharp edge produces a good surface finish.	Carbon Steel • Alloy Steel   TNGG160404R-F
Light Cutting	M	**LP**	**First recommendation for light cutting of carbon and alloy steels** Stable chip control in the light cutting range. The curved edge allows smooth chip discharge.	Carbon Steel • Alloy Steel   CNMG120408-LP

Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
CNMG_FP A098	DNMG_FP  A106	SNMG_FP A114	TNMG_FP A120	VNMG_FP A127	WNMG_FP A131		FP
CNMG_FH A098	DNMG_FH A106	SNMG_FH A114	TNMG_FH A120	VNMG_FH A127	WNMG_FH A131		FH
CNMG_FS A098	DNMG_FS A106	SNMG_FS A114	TNMG_FS  A120	VNMG_FS A127	WNMG_FS A131		FS
CNMG_FY A098	DNMG_FY A106		TNMG_FY A120		WNMG_FY A131		FY
CNGG_FS NEW A098	DNGG_FS NEW  A106		TNGG_FS NEW A120	VNGG_FS NEW A127			NEW FS
CNGG_FJ A098	DNGG_FJ  A106			VNGG_FJ A127			FJ
			TNGG_R/L-FS A120				R/L-FS
			TNGG_R/L-F A121	VNGG_R/L-F A127			R/L-F
CNMG_LP A098	DNMG_LP A107	SNMG_LP A114	TNMG_LP A121	VNMG_LP A127	WNMG_LP A131		LP

CLASSIFICATION

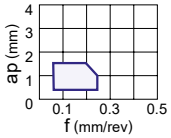
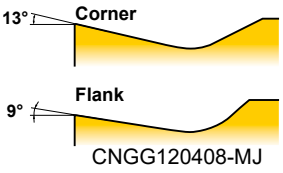
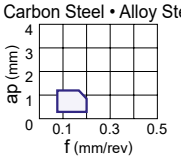
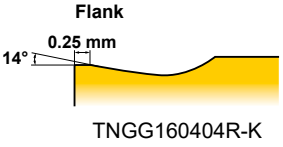
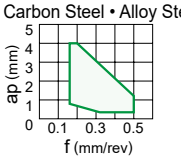
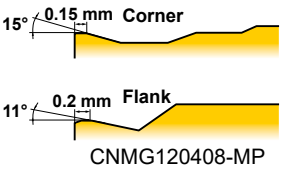
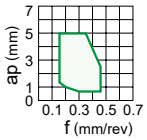
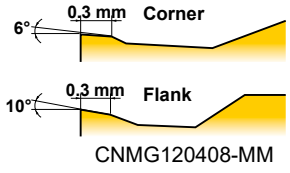
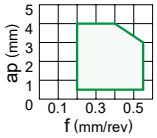
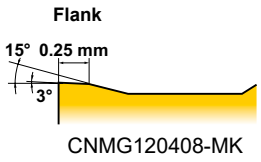
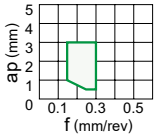
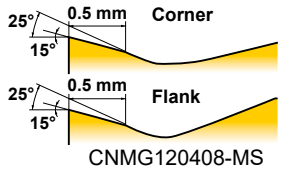
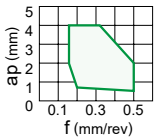
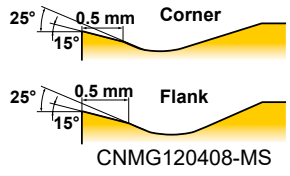
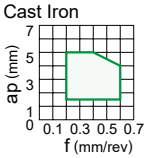
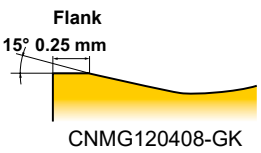
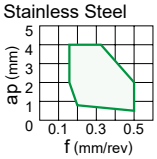
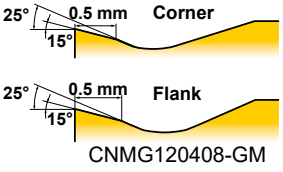
NEGATIVE INSERTS WITH HOLE

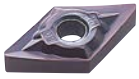
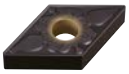
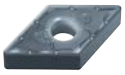
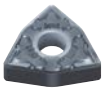
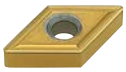
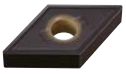
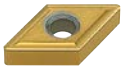
Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Light Cutting	M	**LM**	**First recommendation for light cutting of stainless steel** Stable chip control at light cutting range. Chipbreaker with high rake angle provides excellent burr control.	Stainless Steel   CNMG120408-LM
		LK	**First recommendation for light cutting of cast iron** Positive land allows sharp cutting edge and low cutting resistance.	Cast Iron   CNMG120408-LK
		LS	**First recommendation for light cutting of difficult-to-cut materials.** **Alternative chipbreaker for light cutting of stainless steel** Enhanced chip disposal for depths of cut smaller than the corner R.	Heat Resistant Alloy   CNMG120408-LS
		SH	**Alternative chipbreaker for light cutting of carbon and alloy steels** Can be used at low depth of cuts and high feed rates. The curved edge allows smooth chip discharge. Recommended for workpiece in the 160—250HB range.	Carbon Steel • Alloy Steel   CNMG120408-SH
		SA	**Alternative chipbreaker for light cutting of carbon and alloy steels** Superior chip control at small depth of cuts. Covers copying and back turning with wavy edge. Recommended for workpiece in the 200—300HB range.	Carbon Steel • Alloy Steel   CNMG120408-SA
		SW	**Wiper insert for light cutting of carbon, alloy and stainless steels, and cast iron** In comparison to conventional chipbreakers, the surface finish is maintained even if the feed per revolution is doubled. Wiper design for increased productivity and improved surface finish.	Carbon Steel • Alloy Steel   CNMG120408-SW
		SY	**First recommendation for light cutting of mild steel** Effectively controls adhesive chips. Suitable for mild steel light cutting.	Mild Steel   CNMG120408-SY
		MJ	**Alternative chipbreaker for light cutting of difficult-to-cut materials** Ideal for heat-resistant alloy and titanium alloy. The sharp edge produces a good surface finish. The curved edge allows smooth chip discharge. Excellent notch wear resistance for light to medium cutting.	Difficult-to-Cut Materials   CNMG120408-MJ
	G	NEW **LS**	**First recommendation for light cutting of difficult-to-cut materials.** **Alternative chipbreaker for light cutting of stainless steel** Enhanced chip disposal for depths of cut smaller than the corner R.	Heat Resistant Alloy   CNGG120408-LS

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
	CNMG_LM A099	DNMG_LM A107	SNMG_LM A114	TNMG_LM A121	VNMG_LM A128	WNMG_LM A131		LM
	CNMG_LK  A099	DNMG_LK  A107	SNMG_LK A114	TNMG_LK A121	VNMG_LK A128	WNMG_LK A132		LK
	CNMG_LS  A099	DNMG_LS  A107		TNMG_LS A121	VNMG_LS A128	WNMG_LS A132		LS
	CNMG_SH A099	DNMG_SH  A107	SNMG_SH A114	TNMG_SH A121	VNMG_SH A128	WNMG_SH A132		SH
	CNMG_SA A099	DNMG_SA A108	SNMG_SA A115	TNMG_SA A121	VNMG_SA A128	WNMG_SA A132		SA
	CNMG_SW A099	DNMX_SW  A108		TNMX_SW A121		WNMG_SW A132		SW
	CNMG_SY A099	DNMG_SY A108	SNMG_SY A115	TNMG_SY A122		WNMG_SY A132		SY
	CNMG_MJ  A099	DNMG_MJ  A108		TNMG_MJ  A122	VNMG_MJ A128	WNMG_MJ A133		MJ(M)
	CNGG_LS NEW A099	DNGG_LS NEW A107		TNGG_LS NEW A121	VNGG_LS NEW A128			NEW LS

CLASSIFICATION

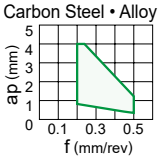
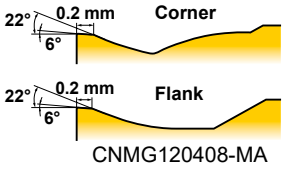
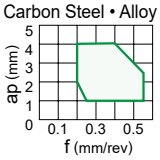
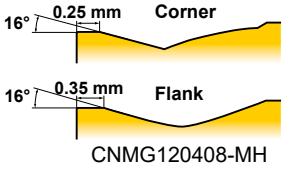
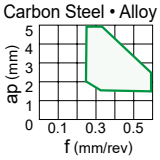
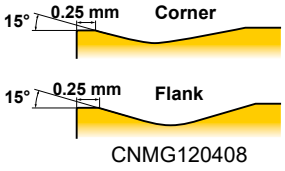
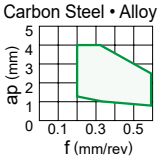
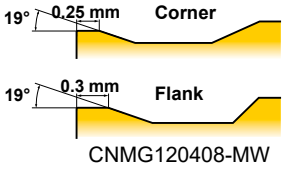
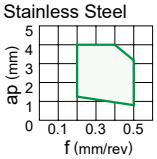
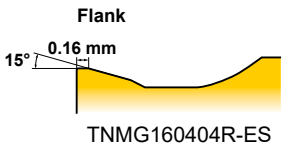
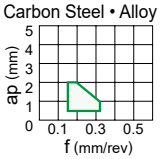
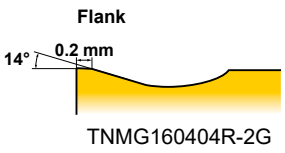
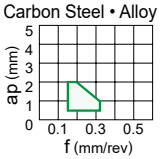
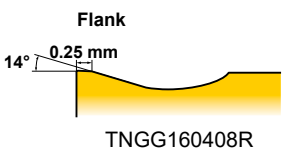
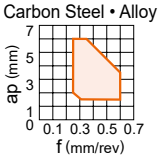
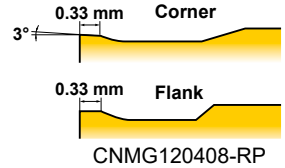
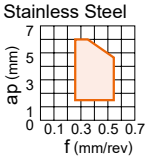
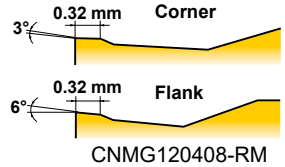
NEGATIVE INSERTS WITH HOLE

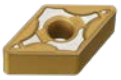
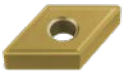
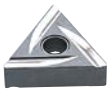
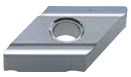
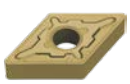
Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Light Cutting	G	**MJ**	**Alternative chipbreaker for light cutting of difficult-to-cut materials** Double sided chipbreaker, single sided chipbreaker (D type, V type). The sharp edge produces a good surface finish. Ideal for heat-resistant materials and titanium alloy. The curved edge allows smooth chip discharge.	Difficult-to-Cut Materials   CNGG120408-MJ
		R/L-K	**Light cutting** Parallel chipbreaker. Excellent chip control at low to medium feed rates.	Carbon Steel • Alloy Steel   TNGG160404R-K
Medium Cutting	M	**MP**	**First recommendation for medium cutting of carbon and alloy steels** Suitable for medium to light cutting. Chipbreaker geometry appropriate for copying and back turning. Cutting edge geometry for an optimum balance of sharpness and fracture resistance.	Carbon Steel • Alloy Steel   CNMG120408-MP
		MM	**First recommendation for medium cutting of stainless steel** Optimized land geometry by simulation analysis technology controls the plastic deformation of the corner and achieves the long tool life.	Stainless Steel   CNMG120408-MM
		MK	**First recommendation for medium cutting of cast iron** Optimum balance between sharpness and high edge strength for general use.	Cast Iron   CNMG120408-MK
		MS	**First recommendation for medium cutting of stainless steel, and mild steels, and difficult-to-cut materials** The large 2-step rake angle generates chips smoothly and without tangling during low feed cutting.	Difficult-to-Cut Materials   CNMG120408-MS
		MS	**Alternative chipbreaker for medium cutting of stainless and mild steels, and difficult-to-cut materials** The sharp edge gives best performance. Flat top chipbreaker shape offers high edge strength. Applicable to grades other than MV9005, MP9005, MP9015, MP9025, MT9015.	Stainless Steel   CNMG120408-MS
		GK	**Alternative chipbreaker for medium cutting of cast iron** Versatile standard chipbreaker. Flat land maintains a stable cutting edge.	Cast Iron   CNMG120408-GK
		GM	**Alternative chipbreaker for light to medium cutting of stainless steel** Alternative chipbreaker of main chipbreaker LM and MM. Excellent notch wear resistance for light to medium cutting.	Stainless Steel   CNMG120408-GM

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
	CNGG_MJ A100	DNGM_MJ  A108			VNGM_MJ A129			MJ(G)
				TNGG_R/L-K A122				R/L-K
	CNMG_MP A100	DNMG_MP A109	SNMG_MP A115	TNMG_MP A122	VNMG_MP A129	WNMG_MP A133		MP
	CNMG_MM A100	DNMG_MM A109	SNMG_MM A115	TNMG_MM A122	VNMG_MM A129	WNMG_MM A133		MM
	CNMG_MK A100	DNMG_MK  A109	SNMG_MK A115	TNMG_MK A122	VNMG_MK A129	WNMG_MK A133		MK
	CNMG_MS A101	DNMG_MS  A109	SNMG_MS A115	TNMG_MS A123	VNMG_MS A129	WNMG_MS  A133		MS
	CNMG_MS A101	DNMG_MS  A109	SNMG_MS A116	TNMG_MS A123	VNMG_MS A129	WNMG_MS A133		MS
	CNMG_GK A101	DNMG_GK  A109	SNMG_GK A116	TNMG_GK A123	VNMG_GK A129	WNMG_GK A133		GK
	CNMG_GM A101	DNMG_GM  A110	SNMG_GM A116	TNMG_GM A123	VNMG_GM A129	WNMG_GM A134		GM

CLASSIFICATION

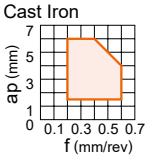
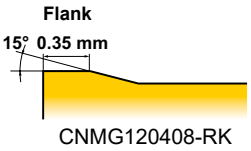
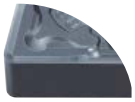
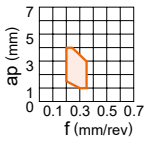
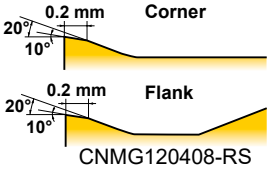
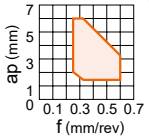
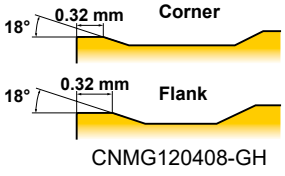
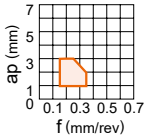
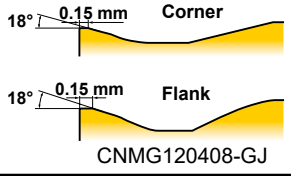
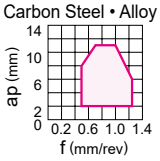
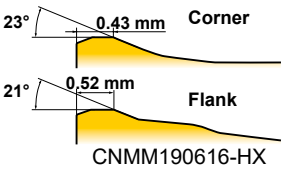
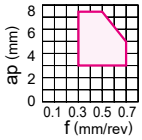
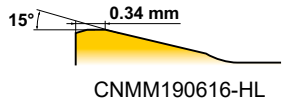
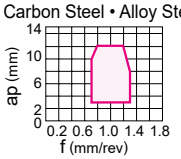
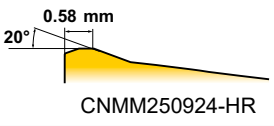
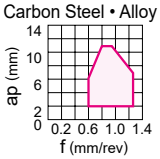
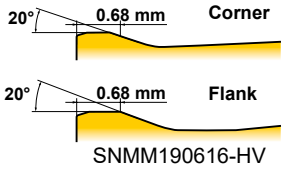
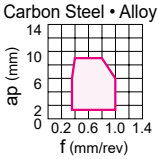
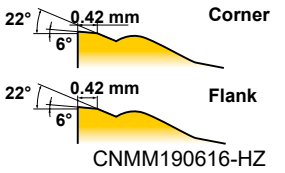
NEGATIVE INSERTS WITH HOLE

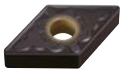
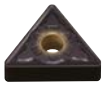
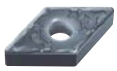
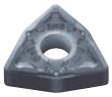
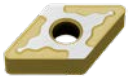
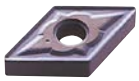
Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M	**MA**	**Multi-assist chipbreaker** Ideal for general cutting applications. Positive land provides sharp cutting action.	Carbon Steel • Alloy Steel   CNMG120408-MA
		MH	**Alternative chipbreaker for medium cutting of carbon and alloy steels** **First recommendation for rough cutting of mild steel** Good chip control with suitable chip pocket.	Carbon Steel • Alloy Steel   CNMG120408-MH
		Standard	**Alternative chipbreaker for medium cutting of carbon and alloy steels** **First recommendation for medium cutting of cast iron** Flat land offers high edge strength. Flat top chipbreaker shape offers high edge strength.	Carbon Steel • Alloy Steel   CNMG120408
		MW	**Wiper insert for medium cutting carbon, alloy and, stainless steels, and cast iron** The wiper allows up to two times higher feed. A wide chip pocket prevents chip jamming.	Carbon Steel • Alloy Steel   CNMG120408-MW
		R/L-ES	**Alternative chipbreaker for medium cutting of stainless steel** Good balance of edge strength and sharpness. Right- or left-hand chipbreaker for unidirectional chip control.	Stainless Steel   TNMG160404R-ES
		R/L-2G	**Alternative chipbreaker for medium cutting of carbon and alloy steel** Parallel chipbreaker controls chip flow. Suitable for light to medium cutting.	Carbon Steel • Alloy Steel   TNMG160404R-2G
	G	**R/L**	**Medium cutting** Parallel chipbreaker. Good chip control for medium feed rates.	Carbon Steel • Alloy Steel   TNGG160408R
Rough Cutting	M	**RP**	**First recommendation for rough cutting of carbon and alloy steels** For interrupted cuts and removing scale. Good balance of cutting edge strength and low cutting resistance because of suitable rake angle.	Carbon Steel • Alloy Steel   CNMG120408-RP
		RM	**First recommendation for rough cutting of stainless steel** Excellent fracture resistance at interrupted cutting due to the optimum land angle and honing geometry.	Stainless Steel   CNMG120408-RM

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
	CNMG_MA A101	DNMG_MA A110	SNMG_MA A116	TNMG_MA A123	VNMG_MA A129	WNMG_MA A134		MA
	CNMG_MH A102	DNMG_MH  A110	SNMG_MH A117	TNMG_MH A123	VNMG_MH A130	WNMG_MH A134		MH
	CNMG A102	DNMG  A110	SNMG A117	TNMG A124	VNMG A130	WNMG A134	RNMG A113	Standard
	CNMG_MW A102	DNMX_MW A111		TNMX_MW A124		WNMG_MW A134		MW
				TNMG_R/L-ES A124				R/L-ES
				TNMG_R/L-2G  A124				R/L-2G
		DNGG_R/L  A111	SNGG_R/L A117	TNGG_R/L A125	VNGG_R/L A130			R/L
	CNMG_RP A102	DNMG_RP  A111	SNMG_RP A117	TNMG_RP A125		WNMG_RP A135		RP
	CNMG_RM A103	DNMG_RM A111	SNMG_RM A117	TNMG_RM A125		WNMG_RM A135		RM

CLASSIFICATION

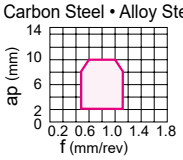
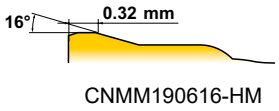
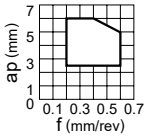
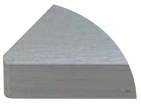
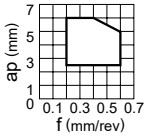
NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Rough Cutting	M	**RK**	**First recommendation for rough cutting of cast iron** Extra wide land provides a stable cutting edge for interrupted machining and removal of scale.	Cast Iron  
		RS 	**First recommendation for rough cutting of difficult-to-cut materials** **Alternative chipbreaker for rough cutting of stainless steel** During low speed cutting the positive land controls chip welding and abrasion at the depth of cut line.	Difficult-to-Cut Materials  
		GH	**Alternative chipbreaker for rough cutting of carbon and alloy steels, and cast iron** For interrupted cuts and removing scale. A combination of wide land and a large chip pocket allows high feed rates.	Carbon Steel • Alloy Steel  
		GJ	**Alternative chipbreaker for rough cutting of difficult-to-cut materials** Excellent balance of edge sharpness and strength. Edge geometry with high face wear resistance.	Difficult-to-Cut Materials  
Heavy Cutting	M	**HX**	**First recommendation for heavy cutting of carbon and alloy steels** Covers the medium range of the heavy cutting region. Owing to the straight edge and chamfer, it gives a balance of sharpness and strength. Variable land and a wavy chipbreaker for good chip control.	Carbon Steel • Alloy Steel  
		HL	**First recommendation for heavy cutting of stainless steel** **Alternative chipbreaker for heavy cutting of carbon and alloy steels** Covers the lower end of the heavy cutting region. The curved edge and narrow chamfer allow good chip control and sharp cutting action. Dots on the nose radius ensure chip control at low depths of cut.	Stainless Steel  
		HR	**Alternative chipbreaker for heavy cutting of carbon and alloy steels** Covers the heavy cutting region by using a straight cutting edge with high edge strength. It exhibits smooth chip control during large depths of cut and high feed rate machining.	Carbon Steel • Alloy Steel  
		HV	**Alternative chipbreaker for heavy cutting of carbon and alloy steels** Covers the upper end of the heavy cutting region. Wide land and large chamfer offer high edge strength. A wide chipbreaker prevents chip jamming.	Carbon Steel • Alloy Steel  
		HZ	**Alternative chipbreaker for heavy cutting of carbon and alloy steels** Covers the lower end of the heavy cutting region. Low cutting resistance due to positive land and curved edge. Teardrop dots improve chip control without increasing cutting resistance.	Carbon Steel • Alloy Steel  

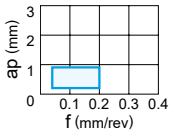
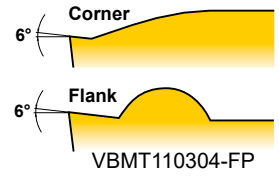
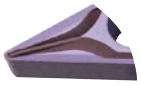
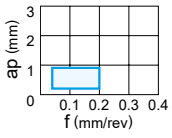
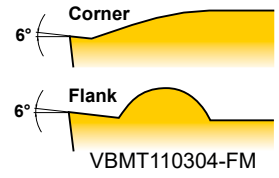
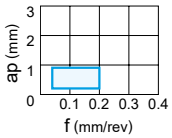
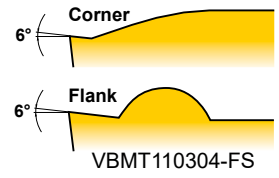
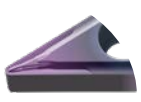
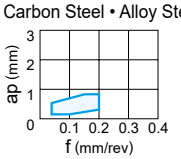
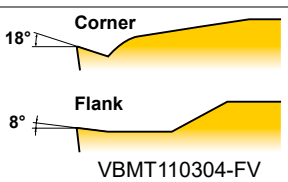
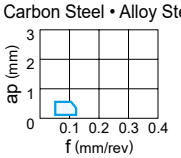
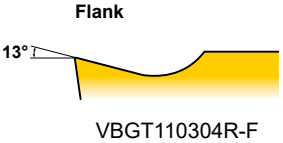
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
	CNMG_RK A103	DNMG_RK  A111	SNMG_RK A117	TNMG_RK  A125		WNMG_RK A135		RK
	CNMG_RS A103	DNMG_RS  A111	SNMG_RS A118	TNMG_RS A125		WNMG_RS  A135		RS
	CNMG_GH A103	DNMG_GH  A111	SNMG_GH A118	TNMG_GH A126		WNMG_GH A135		GH
	CNMG_GJ A103	DNMG_GJ  A112				WNMG_GJ A135		GJ
	CNMM_HX A103		SNMM_HX A118					HX
	CNMM_HL A104	DNMM_HL A112	SNMM_HL A118	TNMM_HL A126				HL
	CNMM_HR A104		SNMM_HR A118					HR
	CNMM_HV A104		SNMM_HV A119					HV
	CNMM_HZ A104	DNMM_HZ A112	SNMM_HZ A119	TNMM_HZ A126				HZ

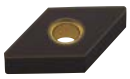
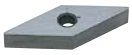
CLASSIFICATION

NEGATIVE INSERTS WITH HOLE

Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Heavy Cutting	M	**HM**	**Alternative chipbreaker for heavy cutting of carbon, alloy and stainless steels** Covers the lower end through to the medium range of the heavy cutting region. The curved edge and narrow chamfer allow good chip control and sharp cutting action. Teardrop dots provided along the cutting edge ensures chip control even with variable depths of cut.	Carbon Steel • Alloy Steel   CNMM190616-HM
For Cast Iron	M	**Flat Top**	**First recommendation for heavy cutting of cast iron** Most effective for unstable machining due to its high edge strength.	Cast Iron  CNMA120408
	G	**Flat Top** 	**For heavy cutting of cast iron** Most effective for unstable machining due to its high edge strength. Can be used on workpiece requiring close tolerances due to G class insert tolerance.	Cast Iron  DNGA150408

5° POSITIVE INSERTS WITH HOLE

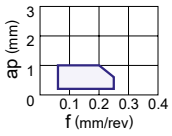
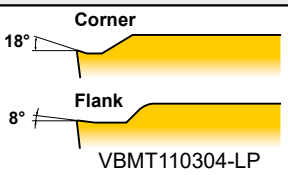
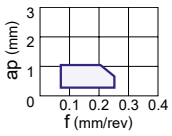
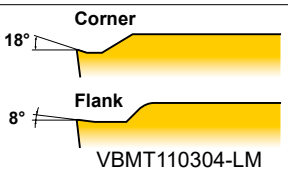
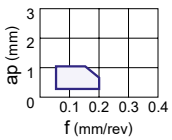
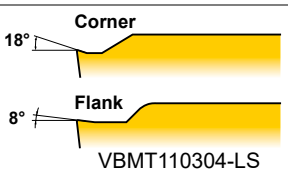
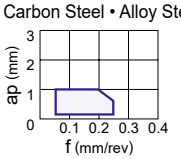
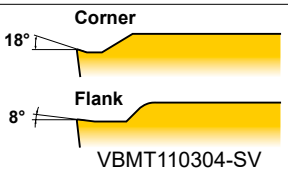
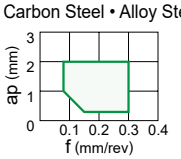
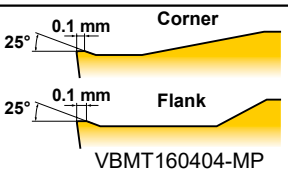
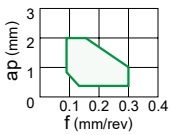
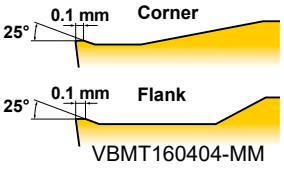
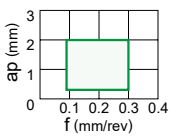
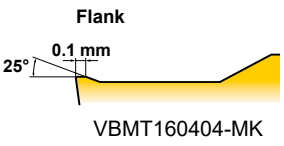
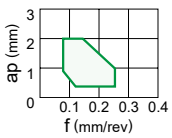
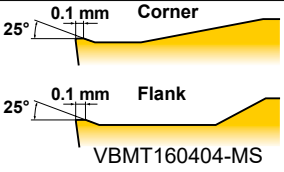
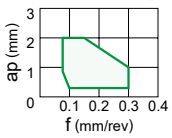
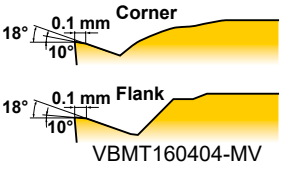
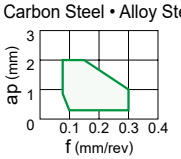
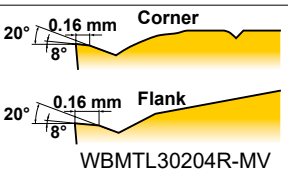
Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M	**FP**	**First recommendation for finish cutting of carbon, alloy and mild steels** Chipbreaker protrusion at the corner tip controls chips even at small depth of cut. Maintains the edge strength at the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

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
	CNMM_HM A104		SNMM_HM A119					HM
	CNMA A105	DNMA  A112	SNMA A119	TNMA A126	VNMA A130	WNMA A135		Flat Top(M)
		DNGA A112	SNGA A119	TNGA A126	VNGA  A130			Flat Top(G)

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
					VBMT_FP A174			FP
					VBMT_FM A174			FM
					VBMT_FS NEW A174			NEW FS
				TBMT_FV NEW A164	VBMT_FV A174			FV
					VBGT_R/L-F NEW A174	WBGT_R/L-F A183		R/L-F

CLASSIFICATION

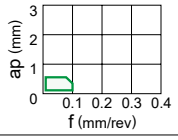
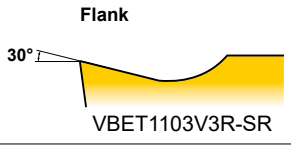
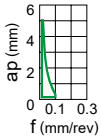
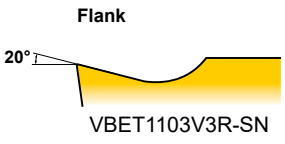
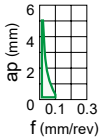
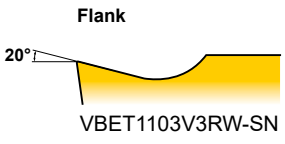
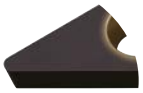
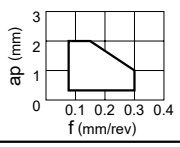
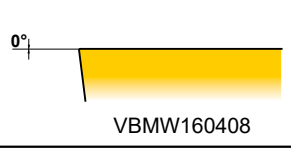
5° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Light Cutting	M	**LP**	**First recommendation for light cutting of carbon steel and alloy steel** Sharp cutting edge due to a large rake angle. Prevents welding of the insert and controls white turbidity of the surface finish. Chipbreaker protrusion suitable for depth of cut area achieves a wide range of chip control.	Carbon Steel • Alloy Steel  
		LM	**First recommendation for light cutting of stainless steel** Sharp cutting edge due to a large rake angle. Prevents welding of the insert and controls white turbidity of the surface finish. Chipbreaker protrusion suitable for depth of cut area achieves a wide range of chip control.	Stainless Steel  
		LS	**First recommendation for light cutting of difficult-to-cut materials** Prevents welding of the insert and controls helps to prevent cloudy surface finishes.	Difficult-to-Cut Materials  
		SV	**Alternative chipbreaker for carbon steel, alloy steel and stainless steel** Large rake angle provides sharp cutting action. A peninsular dot ensures chip control at depths of cut under 1mm.	Carbon Steel • Alloy Steel  
Medium Cutting	M	**MP**	**First recommendation for medium cutting of carbon steel, alloy steel and mild steel** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Carbon Steel • Alloy Steel  
		MM	**First recommendation for medium cutting of stainless steel** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Stainless Steel  
		MK	**First recommendation for medium cutting of cast iron** Optimum balance between sharpness and high edge strength for general use.	Cast Iron  
		MS	**First 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 depths of cut.	Difficult-to-Cut Materials  
		MV	**Alternative chipbreaker for medium cutting of carbon, alloy, mild and stainless steels** A positive insert with a large rake angle achieves sharp cutting edge performance. The double chipbreaker and round-shaped dots in the rake face achieve a wide range of chip discharge.	Carbon Steel • Alloy Steel  
		R/L-MV	**Alternative chipbreaker for medium cutting of carbon, alloy, mild and stainless steels** A positive insert with a large rake angle achieves sharp cutting edge performance. The double chipbreaker and round-shaped dots in the rake face achieve a wide range of chip discharge.	Carbon Steel • Alloy Steel  

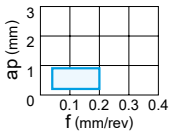
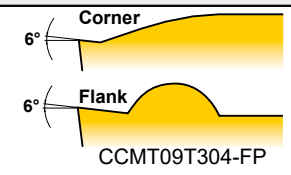
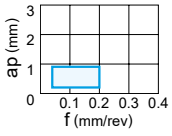
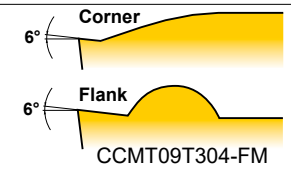
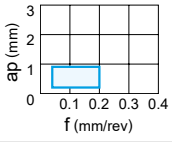
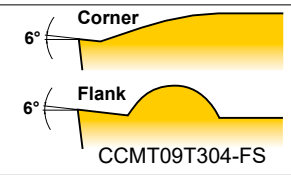
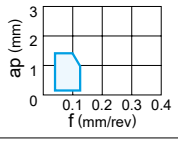
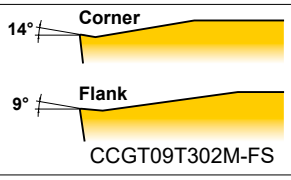
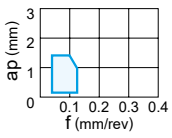
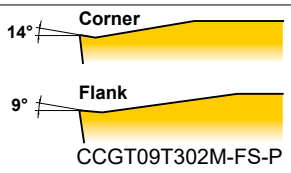
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
					VBMT_LP A175			LP
					VBMT_LM A175			LM
					VBMT_LS A175			LS
					VBMT_SV A175			SV
					VBMT_MP A175			MP
					VBMT_MM A175			MM
					VBMT_MK A175			MK
					VBMT_MS A175			MS
					VBMT_MV A175			MV
						WBMT_R/L-MV A183		R/L-MV

CLASSIFICATION

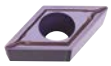
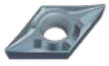
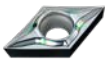
5° POSITIVE INSERTS WITH HOLE

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

7° POSITIVE INSERTS WITH HOLE

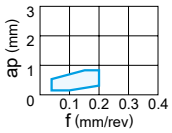
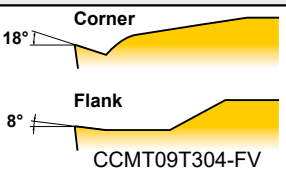
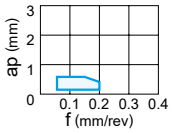
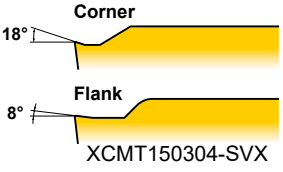
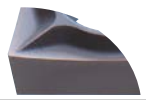
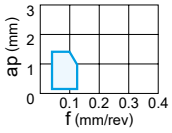
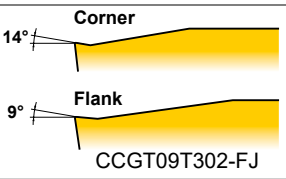
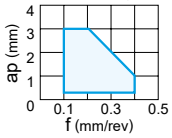
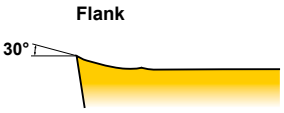
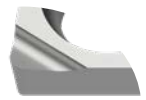
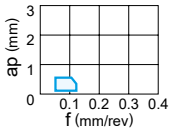
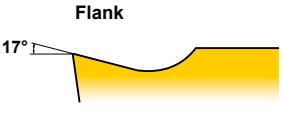
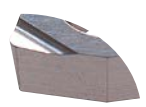
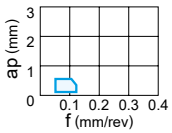
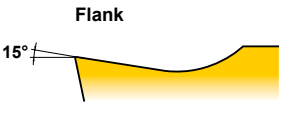
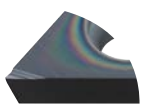
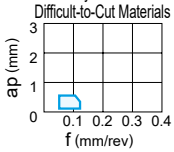
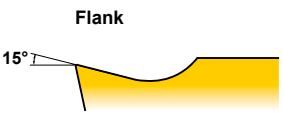
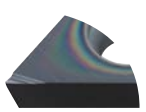
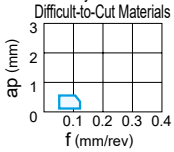
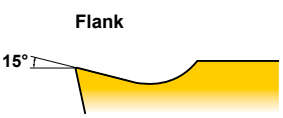
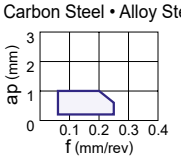
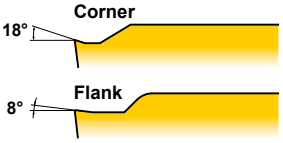
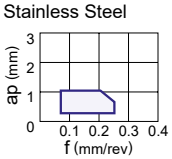
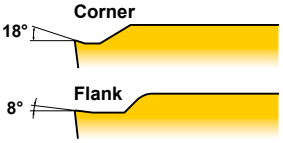
Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M	**FP**	**First recommendation for finish cutting of carbon steel, alloy and mild steels** Chipbreaker protrusion at the corner tip controls chips even at small depth of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Carbon Steel • Alloy Steel  
		FM	**First recommendation for finish cutting of stainless steel** Chipbreaker protrusion at the corner tip controls chips even at small depth of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Stainless Steel  
		NEW **FS**	**First recommendation for finish cutting of difficult-to-cut materials** Chipbreaker protrusion at the corner tip controls chips even at small depth of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Difficult-to-Cut Materials  
	G	**FS**	**First recommendation for finish cutting of difficult-to-cut materials** Ideal for heat-resistant alloys, titanium alloys, and cobalt chrome alloys. Sharp cutting edges provide excellent surface precision. Highly efficient chip discharge is possible due to curved cutting edges.	Difficult-to-Cut Materials  
		FS-P	**First recommendation for finish cutting of titanium alloys** Ideal for titanium alloys and copper alloys. Sharp cutting edges provide excellent surface precision. 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  

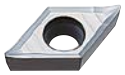
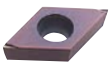
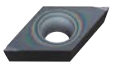
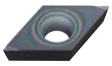
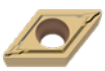
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
					VBET_R/L-SR A176			R/L-SR
					VBET_R/L-SN A176			R/L-SN
					VBET_R/LW-SN A176			R/LW-SN
					VBMW A176			Flat Top

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
	CCMT_FP A140	DCMT_FP A152	SCMT_FP A161	TCMT_FP A165	VCMT_FP A177			FP
	CCMT_FM A140	DCMT_FM  A152	SCMT_FM A161	TCMT_FM A165	VCMT_FM A177			FM
	CCMT_FS NEW A140	DCMT_FS NEW A152						NEW FS
	CCGT_FS A140	DCGT_FS  A152			VCMT_FS NEW A177			FS
	CCGT_FS-P A140	DCGT_FS-P  A152			VCGT_FS-P NEW A177			FS-P

CLASSIFICATION

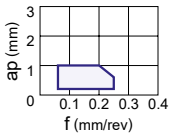
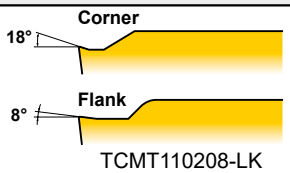
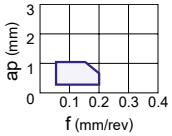
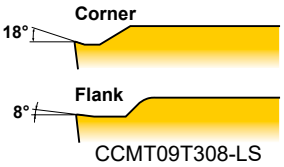
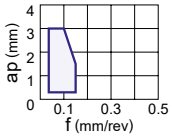
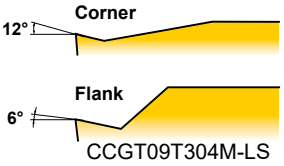
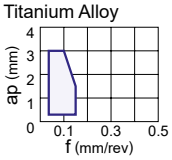
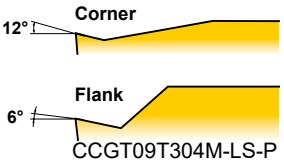
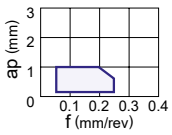
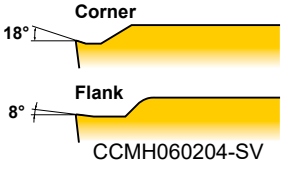
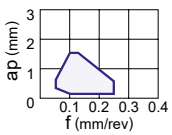
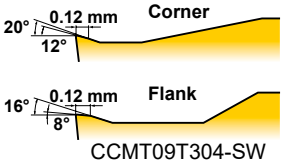
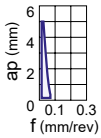
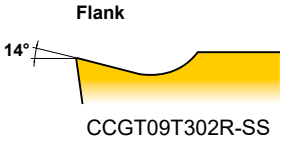
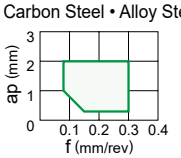
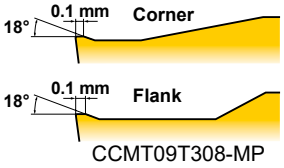
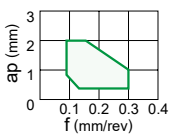
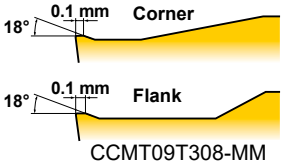
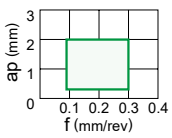
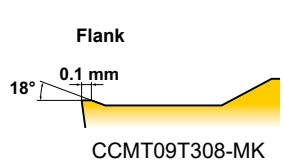
7° POSITIVE INSERTS WITH HOLE

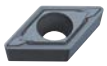
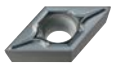
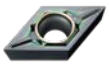
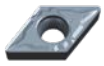
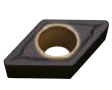
Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M	**FV**	**Alternative chipbreaker for finish cutting of carbon, alloy, mild and stainless steels** Suitable for low depths of cut and low feed rates. Sharp cutting edge and low resistance design achieves excellent cutting performance.	Carbon Steel • Alloy Steel   CCMT09T304-FV
		SVX	**Alternative chipbreaker for light cutting of carbon and alloy steels** Chip control is improved by having a chipbreaker geometry suitable for copying.	Carbon Steel • Alloy Steel   XCMT150304-SVX
	G	**FJ** 	**Alternative chipbreaker for light cutting of carbon and alloy steels** Ideal for heat-resistant alloy and titanium alloy. The sharp edge produces a good surface finish. The curved edge allows smooth chip discharge.	Difficult-to-Cut Materials   CCGT09T302-FJ
		AZ	**For aluminium alloy** The high rake angle and 3D curved cutting edge provides sharpness at the cutting point. Additionally the 3D shape of the rake face enables excellent chip control. Lapping of the top surface gives a mirror finish for improved welding resistance.	Aluminium Alloy   DCGT11T304-AZ
		R/L-F 	**Finishing** Lead chipbreaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel • Alloy Steel   CCGT03S102L-F
		R/L 	**Finishing** Lead chipbreaker. Excellent chip control at low feed rates.	Carbon Steel • Alloy Steel   WCGT020104R
		R/L-SRF 	**Finishing** Lead chipbreaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel • Alloy Steel • Stainless Steel • Difficult-to-Cut Materials   DCGT11T301MR-SRF
	E	NEW **R/L-SRF** 	**Finishing** Lead chipbreaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel • Alloy Steel • Stainless Steel • Difficult-to-Cut Materials   DCET11T301ML-SRF
Light Cutting	M	**LP**	**First recommendation for light cutting of carbon, alloy and mild steels** Sharp cutting edge due to a large rake angle. Prevents welding of the insert and controls white turbidity of the surface finish. Chipbreaker protrusion suitable for depth of cut area achieves a wide range of chip control.	Carbon Steel • Alloy Steel   CCMT09T308-LP
		LM	**First recommendation for light cutting of stainless steel** Sharp cutting edge due to a large rake angle. Prevents welding of the insert and controls white turbidity of the surface finish. Chipbreaker protrusion suitable for this depth of cut area achieves a wide range of chip control.	Stainless Steel   CCMT09T308-LM

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Rhombic 25°	Round	Chipbreaker Name and Cross Section
	CCMT_FV A140	DCMT_FV A152	SCMT_FV A161	TCMT_FV A165	VCMT_FV A177	WCMT_FV NEW A184			FV
							XCMT_SVX A186		SVX
	CCGT_FJ A141								FJ
	CCGT_AZ A141	DCGT_AZ  A153		TCGT_AZ A165	VCGT_AZ A177			RCGT_AZ A160	AZ
	CCGT_R/L-F CCGH_R/L-F A141	DCGT_R/L-F  A153		TCGT_R/L-F A165	VCGT_R/L-F A178				R/L-F
						WCGT_R/L A184			R/L
	CCET_R/L-SRF NEW A142	DCGT_R-SRF  A153			VCET_R/L-SRF NEW A178				R/L-SRF
		DCET_R/L-SRF NEW  A153							NEW R/L-SRF
	CCMT_LP A142	DCMT_LP A153	SCMT_LP A161	TCMT_LP A166	VCMT_LP A178				LP
	CCMT_LM A142	DCMT_LM  A153	SCMT_LM A161	TCMT_LM A166	VCMT_LM A178				LM

CLASSIFICATION

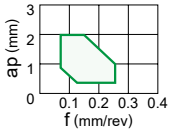
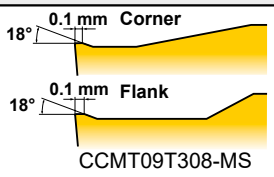
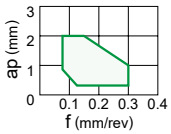
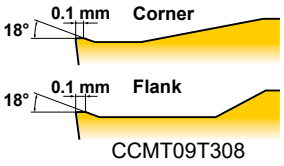
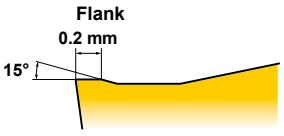
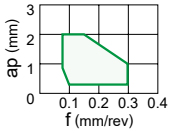
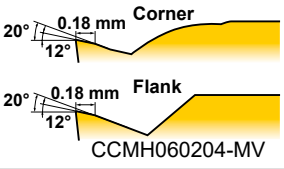
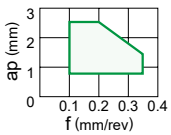
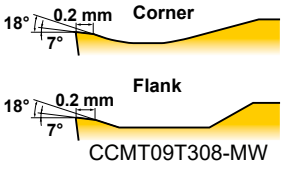
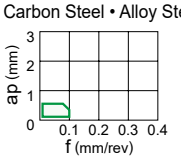
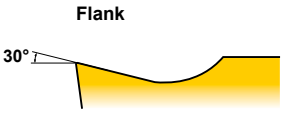
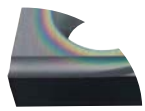
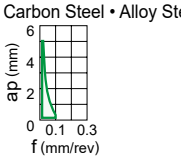
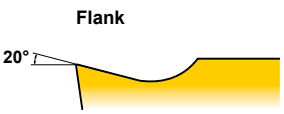
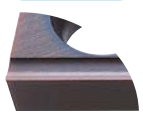
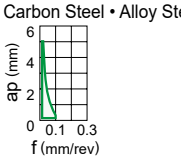
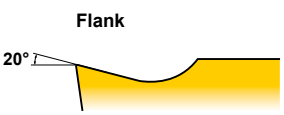
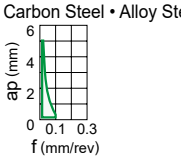
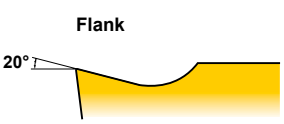
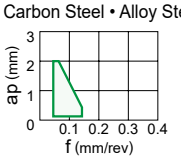
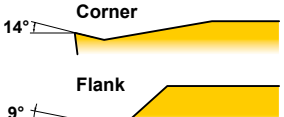
7° POSITIVE INSERTS WITH HOLE

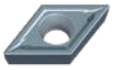
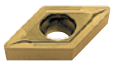
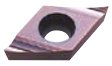
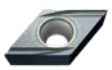
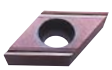
Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Light Cutting	M	NEW **LK**	**First recommendation for light cutting of cast iron** Sharp cutting edge due to a large rake angle. Prevents welding of the insert and helps to prevent cloudy surface finishes. Chipbreaker protrusion suitable for depth of cut area achieves a wide range of chip control.	Cast Iron   TCMT110208-LK
		LS	**First recommendation for light cutting of difficult-to-cut materials** Prevents welding of the insert and helps to prevent cloudy surface finishes.	Difficult-to-Cut Materials   CCMT09T308-LS
	G	**LS**	**First recommendation for light cutting of difficult-to-cut materials** Ideal for heat resistant alloys, titanium alloys, and cobalt chromium alloys. Designed with parallel cutting edges. Achieves stable chip control over a wide range from low to medium depths of cut.	Difficult-to-Cut Materials   CCGT09T304M-LS
		LS-P	**First recommendation for light cutting of titanium alloys** Ideal for titanium alloys and copper alloys. Designed with parallel cutting edges. Achieves stable chip control over a wide range from low to medium depths of cut. Polished (mirror-surface) finish of insert surfaces drastically improves welding resistance extending tool life.	Titanium Alloy   CCGT09T304M-LS-P
	M	**SV**	**Alternative chipbreaker for light cutting of carbon steel, alloy, mild and stainless steels** Large rake angle provides sharp cutting action. A peninsular dot ensures chip control at depths of cut under 1mm.	Carbon Steel • Alloy Steel   CCMH060204-SV
		SW	**Wiper insert for light cutting of carbon, alloy, mild and stainless steels** The wiper allows up to double the feed rate. Positive land improves sharpness.	Carbon Steel • Alloy Steel   CCMT09T304-SW
	G	**R/L-SS**	**Chipbreaker for light cutting on automatic lathes** A parallel chipbreaker. Excellent chip control at low feed rates.	Carbon Steel • Alloy Steel   CCGT09T302R-SS
Medium Cutting	M	**MP**	**First recommendation for medium cutting of carbon, alloy and mild steels** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Carbon Steel • Alloy Steel   CCMT09T308-MP
		MM	**First recommendation for medium cutting of stainless steel** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Stainless Steel   CCMT09T308-MM
		MK	**First recommendation for medium cutting of cast iron** Optimum balance between sharpness and high edge strength for general use.	Cast Iron   CCMT09T308-MK

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
				TCMT_LK NEW A166				NEW LK
	CCMT_LS A142	DCMT_LS  A153		TCMT_LS A166	VCMT_LS A178			LS(M)
	CCGT_LS A142	DCGT_LS  A154			VCGT_LS A179			LS(G)
	CCGT_LS-P A143	DCGT_LS-P  A154			VCGT_LS-P A179			LS-P
	CCMH_SV A143	DCMT_SV A154			VCMT_SV A179			SV
	CCMT_SW A143	DCMX_SW NEW  A154		TCMX_SW NEW A166				SW
	CCGT_R/L-SS A143	DCGT_R/L-SS A155						R/L-SS
	CCMT_MP A144	DCMT_MP A155	SCMT_MP A161	TCMT_MP A167	VCMT_MP A179	WCMT_MP NEW A184		MP
	CCMT_MM A144	DCMT_MM A155	SCMT_MM A161	TCMT_MM A167	VCMT_MM A179			MM
	CCMT_MK A144	DCMT_MK  A155	SCMT_MK A162	TCMT_MK A167	VCMT_MK A179			MK

CLASSIFICATION

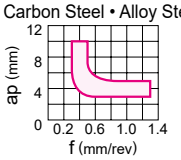
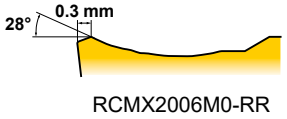
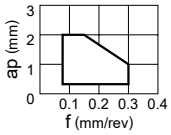
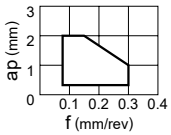
7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	M	**MS**	**First 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 depths of cut.	Difficult-to-Cut Materials   CCMT09T308-MS
		Standard	**Alternative chipbreaker for medium cutting of carbon, alloy, mild and stainless steels, and cast iron** Balance of edge strength and sharpness due to a combination of a flat land and large rake angle.	Carbon Steel • Alloy Steel   CCMT09T308  RCMX1204M0
		MV	**Alternative chipbreaker for medium cutting of carbon, alloy, mild and stainless steels** A positive insert and the large rake angle achieve sharp cutting edge performance. The double chipbreaker and round shape in the rake face achieve a wide range of chip discharge.	Carbon Steel • Alloy Steel   CCMH060204-MV
		MW	**Wiper insert for medium cutting of carbon, alloy, mild and stainless steels** The wiper allows up to double the feed rate. A wide chip pocket prevents chip jamming.	Carbon Steel • Alloy Steel   CCMT09T308-MW
	E	**R/L-SR**	**Medium cutting on automatic lathes** A wide lead chipbreaker. Insert designed for low resistance chip control.	Carbon Steel • Alloy Steel   CCET09T3V3R-SR
	G	**R/L-SN** 	**Medium cutting on automatic lathes** A parallel chipbreaker. Excellent chip control at low to medium feed rates.	Carbon Steel • Alloy Steel   CCGT09T3V3R-SN
	E	**R/L-SN** 	**Medium cutting on automatic lathes** A parallel chipbreaker. Excellent chip control at low to medium feed rates. Suitable for precise machining with E class tolerance.	Carbon Steel • Alloy Steel   CCET09T3V3R-SN
		R/LW-SN	**Medium cutting on automatic lathes** A parallel chipbreaker. Excellent chip control at low to medium feed rates. The wiper produces a good surface finish.	Carbon Steel • Alloy Steel   CCET09T3V3RW-SN
	G	**SMG**	**Medium cutting on automatic lathes** 3D moulded chipbreaker provides good chip control. G class insert gives sharp cutting action, allowing high precision machining. Chipbreaker geometry appropriate for copying and back turning.	Carbon Steel • Alloy Steel   CCGT09T304M-SMG

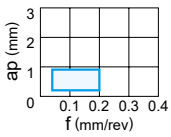
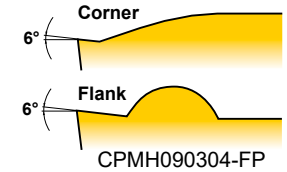
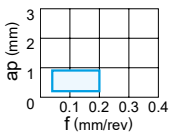
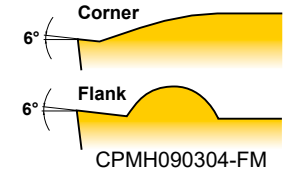
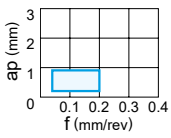
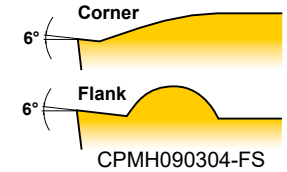
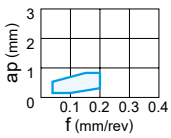
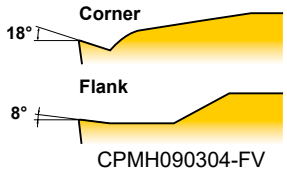
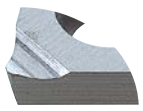
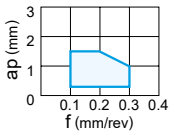
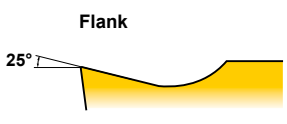
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
	CCMT_MS A145	DCMT_MS  A156	SCMT_MS A162	TCMT_MS A167	VCMT_MS A179			MS
	CCMT A145	DCMT  A156	SCMT A162	TCMT A167	VCMT A179	WCMT A184	RCMT A160	Standard
							RCMX A160	
	CCMH_MV A145	DCMT_MV A156			VCMT_MV A180			MV
	CCMT_MW A145							MW
	CCET_R/L-SR A146	DCET_R/L-SR  A156						R/L-SR
	CCGT_R/L-SN A146	DCGT_R/L-SN  A157						R/L-SN(G)
	CCET_R/L-SN A147	DCET_R/L-SN  A157						R/L-SN(E)
	CCET_R/LW-SN A147	DCET_R/LW-SN A158						R/LW-SN
	CCGT_SMG A147	DCGT_SMG A158						SMG

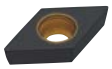
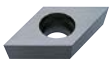
CLASSIFICATION

7° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Heavy Cutting	M	RR	**Heavy cutting of carbon and alloy steels** A wide groove chipbreaker prevents chips from jamming at large depths of cut. Small dimples improve chip control at small depths of cut.	Carbon Steel • Alloy Steel   RCMX2006M0-RR
For Cast Iron	M	Flat Top	**Rough cutting of cast iron** Flat top. Most effective for unstable machining due to its high edge strength.	Cast Iron  CCMW09T308
	G	Flat Top	**Chipbreaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to its high edge strength. Can be used on workpiece requiring close tolerances due to G class insert tolerance.	Cast Iron  CCGW09T300

11° POSITIVE INSERTS WITH HOLE

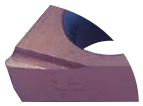
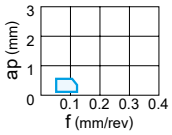
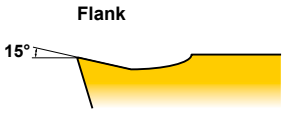
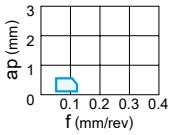
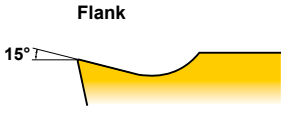
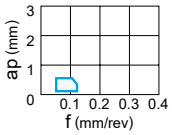
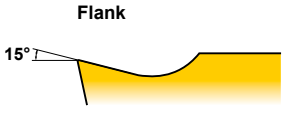
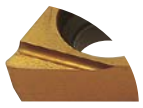
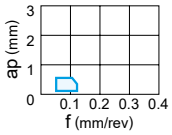
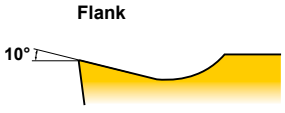
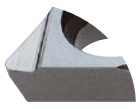
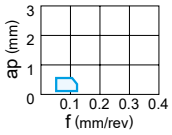
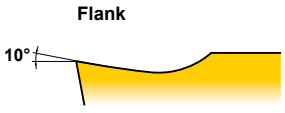
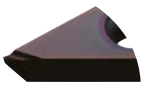
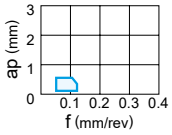
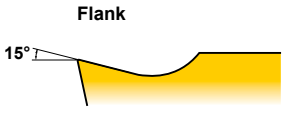
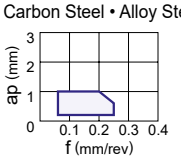
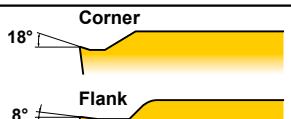
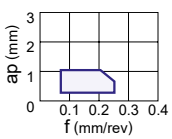
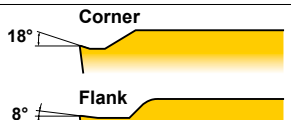
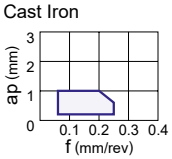
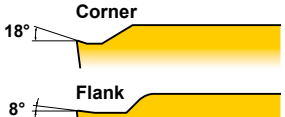
Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M	NEW FP	**First recommendation for finish cutting of carbon steel, alloy and mild steels** Chipbreaker protrusion at the corner tip controls chips even at small depths of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Carbon Steel • Alloy Steel   CPMH090304-FP
		NEW FM	**First recommendation for finish cutting of stainless steel** Chipbreaker protrusion at the corner tip controls chips even at small depths of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Stainless Steel   CPMH090304-FM
		NEW FS	**First recommendation for finish cutting of difficult-to-cut materials** Chipbreaker protrusion at the corner tip controls chips even at small depths of cut. Maintains the edge strength at the corner and prevents sudden fractures.	Difficult-to-Cut Materials   CPMH090304-FS
		FV	**Alternative chipbreaker for finish cutting of carbon, alloy, mild and stainless steels** Suitable for low depths of cut and low feed rates. Sharp cutting edge and low resistance design achieves excellent cutting performance.	Carbon Steel • Alloy Steel   CPMH090304-FV
	G	Standard 	**Finishing** Lead chipbreaker controls chip flow. Good chip control for low to medium feed rates.	Aluminium Alloy   CPGT090304

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
							RCMX_RR A160	RR
	CCMW A147	DCMW  A158	SCMW A162	TCMW A167	VCMW A180			Flat Top(M)
	CCGW A148	DCGW  A158		TCGW NEW A168				Flat Top(G)

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
	CPMH_FP NEW A149			TPMH_FP NEW A170				NEW FP
	CPMH_FM NEW A149			TPMH_FM NEW A170				NEW FM
	CPMH_FS NEW A149			TPMH_FS NEW A170				NEW FS
	CPMH_FV A149			TPMH_FV A170				FV
	CPGT A149							Standard

CLASSIFICATION

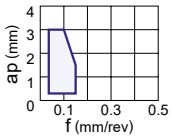
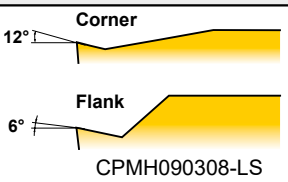
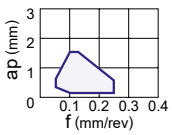
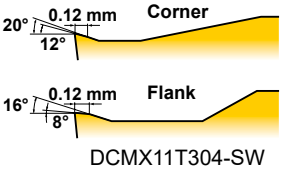
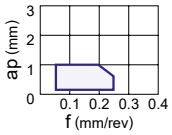
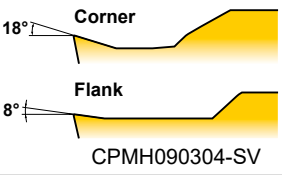
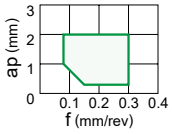
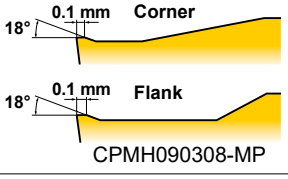
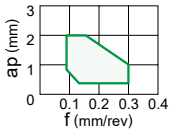
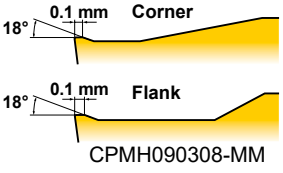
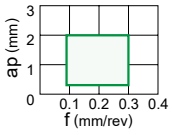
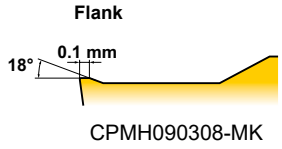
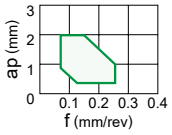
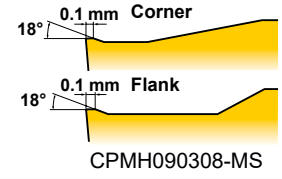
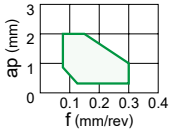
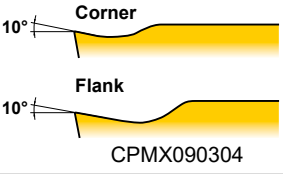
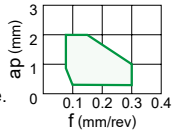
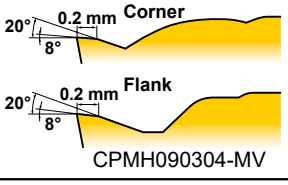
11° POSITIVE INSERTS WITH HOLE

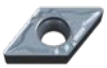
Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	G	R/L-FS 	**Chipbreaker for finish cutting of carbon, alloy and stainless steels, cast iron and aluminium alloy** Small wide lead chipbreaker. Sharp cutting edge gives a good surface finish.	Carbon Steel • Alloy Steel   TPGH090204R-FS
	M	R/L-F	**Finishing** Lead chipbreaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel • Alloy Steel   CPMH090304R-F
	G	R/L-F	**Finishing** Lead chipbreaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel • Alloy Steel   CPGT090304R-F
		R/L 	**Finishing** Lead chipbreaker controls chip flow. Good chip control for low to medium feed rates.	Carbon Steel • Alloy Steel   TPGX090204R
	M	L 	**Finishing** Lead chipbreaker controls chip flow. Good chip control for low to medium feed rates.	Carbon Steel • Alloy Steel   TPMX090204L
	E	SRF 	**Finishing** Lead chipbreaker controls chip flow. Sharp cutting edge gives a good surface finish.	Carbon Steel • Alloy Steel   VPET080201R-SRF
Light Cutting	M	NEW LP	**First recommendation for light cutting of carbon, alloy and mild steels** Sharp cutting edge due to a large rake angle. Prevents welding of the insert and helps to prevent cloudy surface finishes. Chipbreaker protrusion suitable for this depth of cut area achieves a wide range of chip control.	Carbon Steel • Alloy Steel   CPMH090308-LP
		NEW LM	**First recommendation for light cutting of stainless steel** Sharp cutting edge due to a large rake angle. Prevents welding of the insert and helps to prevent cloudy surface finishes. Chipbreaker protrusion suitable for this depth of cut area achieves a wide range of chip control.	Stainless Steel   CPMH090308-LM
		NEW LK	**First recommendation for light cutting of cast iron** Sharp cutting edge due to a large rake angle. Prevents welding of the insert and helps to prevent cloudy surface finishes. Chipbreaker protrusion suitable for this depth of cut area achieves a wide range of chip control.	Cast Iron   TPMH110308-LK

Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
			TPGH_R/L-FS A171		WPGT_R/L-FS A185		R/L-FS
CPMH_R/L-F A149							R/L-F(M)
CPGT_R/L-F A150							R/L-F(G)
			TPGX_R/L A171				R/L
			TPMX_L A171				L
				VPET_R/L-SRF A182			SRF
CPMH_LP NEW A150			TPMH_LP NEW A171				NEW LP
CPMH_LM NEW A150			TPMH_LM NEW A172				NEW LM
			TPMH_LK NEW A172				NEW LK

CLASSIFICATION

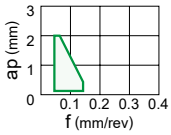
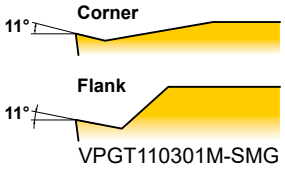
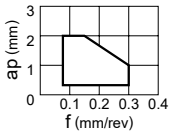
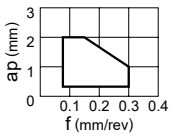
11° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Light Cutting	M	NEW **LS**	**First recommendation for light cutting of difficult-to-cut materials** Ideal for heat resistant alloys, titanium alloys, and cobalt chromium alloys. Designed with parallel cutting edges. Achieves stable chip control over a wide range from low to medium depths of cut.	Difficult-to-Cut Materials   CPMH090308-LS
		NEW **SW**	**Wiper insert for light cutting of carbon, alloy, mild and stainless steels** The wiper allows up to double the feed rate. Positive land improves sharpness.	Carbon Steel • Alloy Steel   DCMX11T304-SW
		SV	**Alternative chipbreaker for light cutting of carbon, alloy, mild and stainless steels, and cast iron** Large rake angle provides sharp cutting action. A peninsular dot ensures chip control at depths of cut under 1mm.	Carbon Steel • Alloy Steel   CPMH090304-SV
Medium Cutting	M	NEW **MP**	**First recommendation for medium cutting of carbon, alloy and mild steels** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Carbon Steel • Alloy Steel   CPMH090308-MP
		NEW **MM**	**First recommendation for medium cutting of stainless steel** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Stainless Steel   CPMH090308-MM
		NEW **MK**	**First recommendation for medium cutting of cast iron** Optimum balance between sharpness and high edge strength for general use.	Cast Iron   CPMH090308-MK
		NEW **MS**	**First 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 depths of cut.	Difficult-to-Cut Materials   CPMH090308-MS
		Standard	**Alternative chipbreaker for medium cutting of carbon, alloy and stainless steels** Standard, general purpose chipbreaker.	Carbon Steel • Alloy Steel   CPMX090304
		MV	**Alternative chipbreaker for medium cutting of carbon, alloy, mild and stainless steels, and cast iron** A positive insert and large rake angle achieves sharp cutting edge performance. Double chipbreakers in the rake face achieve a wide range of chip discharge.	Carbon Steel • Alloy Steel   CPMH090304-MV

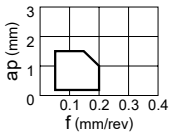
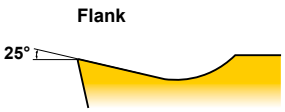
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
	CPMH_LS NEW A150			TPMH_LS NEW A172				NEW LS
		DCMX_SW NEW  A154		TPMX_SW NEW A173				NEW SW
	CPMH_SV A150			TPMH_SV A172				SV
	CPMH_MP NEW A150							NEW MP
	CPMH_MM NEW A151							NEW MM
	CPMH_MK NEW A151							NEW MK
	CPMH_MS NEW A151							NEW MS
	CPMX, CPMH A151		SPMT A163	TPMX A173				Standard
	CPMH_MV A151			TPMH_MV A173		WPMT_MV A185		MV

CLASSIFICATION

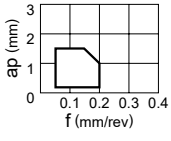
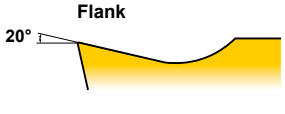
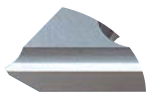
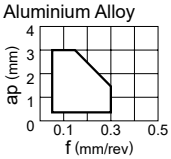
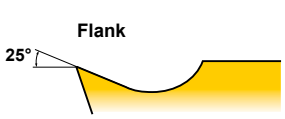
11° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Medium Cutting	G	**SMG**	**Medium cutting on automatic lathes** 3D moulded chipbreaker provides good chip control. G class insert gives sharp cutting action, allowing high precision machining. Chipbreaker geometry appropriate for copying and back turning.	Carbon Steel • Alloy Steel   VPGT110301M-SMG
For Cast Iron	M	**Flat Top**	**Rough cutting of cast iron** Most effective for unstable machining due to its high edge strength.	Cast Iron  SPMW120308
	G	**Flat Top**	**Chipbreaker for heavy cutting of cast iron** Most effective for unstable machining due to its high edge strength. Can be used on workpiece requiring close tolerances due to G class insert tolerance.	Cast Iron  SPGX120308

15° POSITIVE INSERTS WITH HOLE

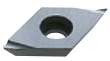
Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
For Aluminium Alloy	G	**R/L**	**For aluminium alloy cutting** Lead chipbreaker. Sharp cutting edge gives a good surface finish.	Aluminium Alloy   VDGX160302R

20° POSITIVE INSERTS WITH HOLE

Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
For Aluminium Alloy	G	**R/L-F**	**For aluminium alloy cutting** Lead chipbreaker. Sharp cutting edge gives a good surface finish.	Aluminium Alloy   DEGX150402L-F
		R/L 	**For aluminium alloy cutting** A parallel chipbreaker. Sharp cutting edge gives a good surface finish. Good chip control for medium feed rates.	Aluminium Alloy   DEGX150402R

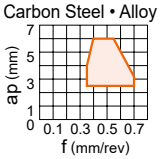
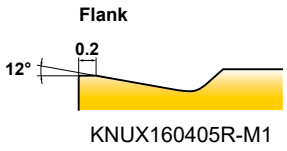
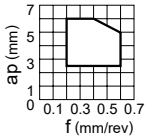
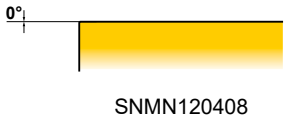
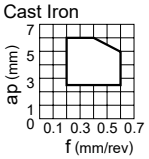
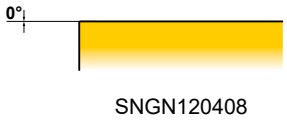
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
					VPGT_SMG A182			SMG
	CPMB NEW A151		SPMW A163					Flat Top(M)
			SPGX A163	TPGX A173				Flat Top(G)

	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
					VDGX_R/L A181			R/L

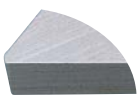
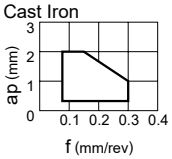
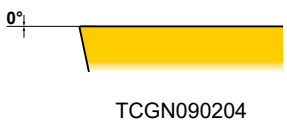
	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°	Round	Chipbreaker Name and Cross Section
		DEGX_R/L-F  A159						R/L-F
		DEGX_R/L A159		TEGX_R/L A169				R/L

CLASSIFICATION

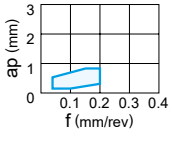
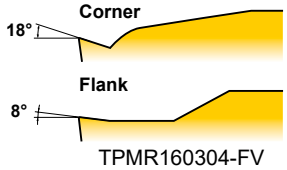
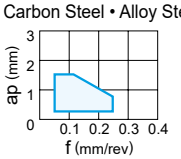
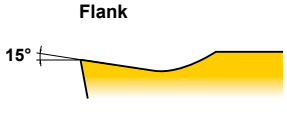
NEGATIVE INSERTS WITHOUT HOLE

Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Rough Cutting	M	R/L-M1	**Rough cutting of carbon and alloy steels** Single sided chipbreaker. Can be used for copying. An angled chipbreaker for controlling chip flow.	Carbon Steel • Alloy Steel   KNUX160405R-M1
For Cast Iron	M	Flat Top	**Rough cutting of cast iron** Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping.	Cast Iron   SNMN120408
	G	Flat Top	**Chipbreaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping. Can be used on workpiece requiring close tolerances due to G class insert tolerance.	Cast Iron   SNGN120408

7° POSITIVE INSERTS WITHOUT HOLE

Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
For Cast Iron	G	Flat Top 	**Chipbreaker for heavy cutting of cast iron** Flat top. Most effective for unstable machining due to high edge strength and stable insert clamping. Use on workpiece requiring close tolerance inserts.	Cast Iron   TCGN090204

11° POSITIVE INSERTS WITHOUT HOLE

Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Finish Cutting	M	NEW FV	**Alternative chipbreaker for finish cutting of carbon, alloy, mild and stainless steels** Suitable for low depths of cut and low feed rates. Sharp cutting edge and low resistance design achieves excellent cutting performance.	Carbon Steel • Alloy Steel   TPMR160304-FV
	G	R/L	**Finishing** A parallel chipbreaker. Good chip control for low to medium feed rates.	Carbon Steel • Alloy Steel   SPGR090304R

	Rhombic 80°	Square 90°	Triangular 60°	Parallelogram 55°	Chipbreaker Name and Cross Section
				KNUX_R/L-M1 A136	R/L-M1
	CNMN A137	SNMN A138	TNMN A139		Flat Top(M)
		SNGN A138	TNGN A139		Flat Top(G)

	Triangular 60°	Chipbreaker Name and Cross Section
	TCGN A189	Flat Top

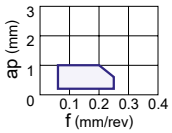
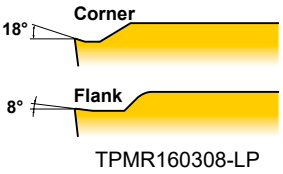
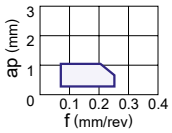
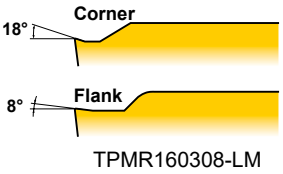
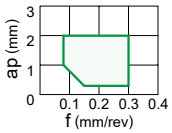
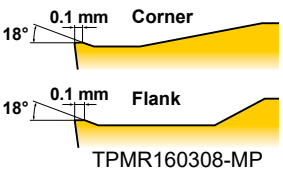
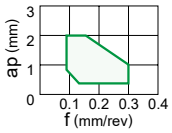
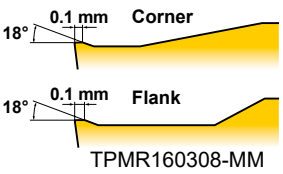
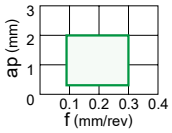
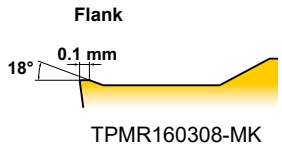
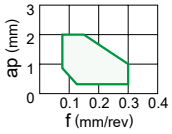
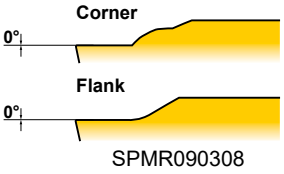
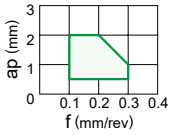
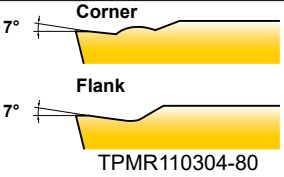
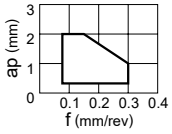
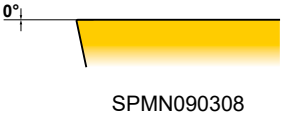
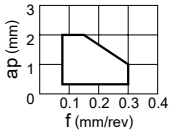
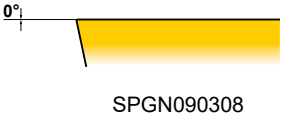
SPECIAL PURPOSE INSERTS

	Square 90°	Triangular 60°	Round	Chipbreaker Name and Cross Section
		TPMR_FV NEW A190		NEW FV
	SPGR_R A188	TPGR_R/L A190		R/L

Application	Tolerance	Tool Holder Type	Inserts
Special	G	TL Type	RTG A187

CLASSIFICATION

11° POSITIVE INSERTS WITHOUT HOLE

Application	Tolerance	Chipbreaker Name and Picture	Features	Cross Section Geometry
Light to Medium Cutting	M	NEW **LP**	**First recommendation for light cutting of carbon, alloy and mild steels** Sharp cutting edge due to a large rake angle. Prevents welding of the insert and helps to prevent cloudy surface finishes. Chipbreaker protrusion suitable for this depth of cut area achieves a wide range of chip control.	Carbon Steel • Alloy Steel   TPMR160308-LP
		NEW **LM**	**First recommendation for light cutting of stainless steel** Sharp cutting edge due to a large rake angle. Prevents welding of the insert and helps to prevent cloudy surface finishes. Chipbreaker protrusion suitable for this depth of cut area achieves a wide range of chip control.	Stainless Steel   TPMR160308-LM
		NEW **MP**	**First recommendation for medium cutting of carbon, alloy and mild steels** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Carbon Steel • Alloy Steel   TPMR160308-MP
		NEW **MM**	**First recommendation for medium cutting of stainless steel** Good balance of wear resistance and fracture resistance because of the flat land cutting edge. A wide chip pocket controls increasing of the cutting resistance and reduces vibration and chip jamming even at large depths of cut.	Stainless Steel   TPMR160308-MM
		NEW **MK**	**First recommendation for medium cutting of cast iron** Optimum balance between sharpness and high edge strength for general use.	Cast Iron   TPMR160308-MK
		Standard	**Light to medium cutting of carbon, alloy and stainless steels** Standard, general purpose chipbreaker.	Carbon Steel • Alloy Steel   SPMR090308
		80	**Light to medium cutting of carbon steel, alloy steel and stainless steel** Large chip pocket for excellent chip evacuation. Double chipbreakers in the rake face achieves a wide range of chip breaking.	Carbon Steel • Alloy Steel   TPMR110304-80
For Cast Iron	M	**Flat Top**	**Rough cutting of cast iron** Most effective for unstable machining due to high edge strength and stable insert clamping.	Cast Iron   SPMN090308
	G	**Flat Top**	**Chipbreaker for heavy cutting of cast iron** Most effective for unstable machining due to high edge strength and stable insert clamping. Can be used on workpiece requiring close tolerances due to G class insert tolerance.	Cast Iron   SPGN090308

	Square 90°	Triangular 60°	Round	Chipbreaker Name and Cross Section
		TPMR_LP NEW A190		NEW LP
		TPMR_LM NEW A190		NEW LM
		TPMR_MP NEW A190		NEW MP
		TPMR_MM NEW A191		NEW MM
		TPMR_MK NEW A191		NEW MK
	SPMR A188	TPMR A191		Standard
		TPMR-80 A190		80
	SPMN A188	TPMN A191		Flat Top(M)
	SPGN A188	TPGN A191		Flat Top(G)

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

Chipbreaker : **Std** : Standard **Flat** : Flat Top

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Mild Steel (St37-2, Ck10)	≤180HB	●	F	1	FY	VP25N	285—450	0.09—0.23	0.20—0.80
			●	F	2	FY	NX2525	270—385	0.09—0.23	0.20—0.80
			●	F	3	FS	NX2525	270—385	0.09—0.23	0.20—0.70
			●	L	1	SY	VP25N	260—410	0.16—0.33	0.50—1.20
			●	L	2	SY	NX2525	245—350	0.16—0.33	0.50—1.20
			◐	F	1	FY	MP3025	275—425	0.09—0.23	0.20—0.80
			◐	F	2	FY	NX3035	260—370	0.09—0.23	0.20—0.80
			◐	F	3	FS	NX2525	270—385	0.09—0.23	0.20—0.70
			◐	L	1	SY	MP3025	255—385	0.16—0.33	0.50—1.20
			◐	L	2	SY	NX3035	240—340	0.16—0.33	0.50—1.20
			✣	F	1	FY	MC6125	385—605	0.09—0.23	0.20—0.80
			✣	F	2	FY	MC6135	315—480	0.09—0.23	0.20—0.80
			✣	F	3	FS	MC6125	385—605	0.09—0.23	0.20—0.70
			✣	L	1	SY	MC6125	350—550	0.16—0.33	0.50—1.20
			✣	L	2	SY	MC6135	290—435	0.16—0.33	0.50—1.20
	Carbon Steel • Alloy Steel (Ck45, 42CrMo4)	180 — 280HB	●	F	1	FP	NX2525	210—300	0.08—0.25	0.10—1.00
			●	F	2	FH	AP25N	220—345	0.08—0.20	0.20—1.00
			●	F	3	FH	NX2525	210—300	0.08—0.20	0.20—1.00
			●	F	4	R/L-F	MP3025	215—330	0.05—0.15	0.10—0.50
			●	L	1	LP	MC6115	250—480	0.10—0.40	0.30—2.00
			●	L	2	LP	MC6125	275—425	0.10—0.40	0.30—2.00
			●	M	1	MP	MC6115	230—440	0.16—0.50	0.30—4.00
			●	M	2	MP	MC6125	250—390	0.16—0.50	0.30—4.00
			●	R	1	RP	MC6115	215—415	0.25—0.60	1.50—6.00
			●	R	2	RP	MC6125	235—370	0.25—0.60	1.50—6.00
			●	H	1	HX	MC6125	210—330	0.50—1.26	3.00—11.00
			●	H	2	HX	MC6135	170—260	0.50—1.26	3.00—11.00
			◐	F	1	FP	MP3025	215—330	0.08—0.25	0.10—1.00
			◐	F	2	FH	MP3025	215—330	0.08—0.20	0.20—1.00
			◐	F	3	FH	NX3035	200—285	0.08—0.20	0.20—1.00
			◐	L	1	LP	MC6115	250—480	0.10—0.40	0.30—2.00
			◐	L	2	LP	MC6125	275—425	0.10—0.40	0.30—2.00
			◐	L	3	SH	MC6115	250—480	0.10—0.40	0.30—2.00
			◐	M	1	MP	MC6125	250—390	0.16—0.50	0.30—4.00
			◐	M	2	MP	MC6115	230—440	0.16—0.50	0.30—4.00
			◐	M	3	MA	MC6125	250—390	0.20—0.50	0.30—4.00
			◐	R	1	RP	MC6125	235—370	0.25—0.60	1.50—6.00
			◐	R	2	RP	MC6135	190—290	0.25—0.60	1.50—6.00
			◐	H	1	HX	MC6135	170—260	0.50—1.26	3.00—11.00
			◐	H	2	HX	MC6125	210—330	0.50—1.26	3.00—11.00
			✣	F	1	FP	MC6135	245—370	0.08—0.25	0.10—1.00
			✣	F	2	FP	MC6125	300—465	0.08—0.25	0.10—1.00
			✣	F	3	FP	MC6115	275—525	0.08—0.25	0.10—1.00
			✣	L	1	LP	MC6135	225—340	0.10—0.40	0.30—2.00
			✣	L	2	LP	MC6125	275—425	0.10—0.40	0.30—2.00
			✣	L	3	LP	MC6135	225—340	0.10—0.40	0.30—2.00
			✣	M	1	MP	MC6135	205—310	0.16—0.50	0.30—4.00
			✣	M	2	MP	MC6125	250—390	0.16—0.50	0.30—4.00

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

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Carbon Steel • Alloy Steel (Ck45, 42CrMo4)	180 – 280HB		M	3	MP	MC6135	205—310	0.16—0.50	0.30—4.00
				R	1	RP	MC6135	190—290	0.25—0.60	1.50—6.00
				R	2	RP	MC6125	235—370	0.25—0.60	1.50—6.00
				R	3	RP	MC6035	160—225	0.25—0.60	1.50—6.00
				H	1	HX	MC6135	170—260	0.50—1.26	3.00—11.00
				H	2	HX	MC6125	210—330	0.50—1.26	3.00—11.00
				H	3	HX	MC6035	140—200	0.50—1.26	3.00—11.00
				H	4	HX	UH6400	140—195	0.50—1.26	3.00—11.00
M	Austenitic Stainless Steel (X5CrNi189, X5CrNiMo1810)	≤200HB		L	1	LM	MC7015	180—285	0.10—0.35	0.30—2.00
				L	2	SH	US735	95—185	0.10—0.40	0.30—2.00
				L	3	SH	NX2525	65—135	0.10—0.40	0.30—2.00
				L	4	SW	US7020	110—275	0.10—0.50	0.30—2.50
				M	1	MM	MC7015	165—260	0.15—0.45	0.70—5.00
				M	2	GM	MC7015	165—260	0.16—0.50	0.50—4.00
				M	3	MS	US7020	100—250	0.16—0.50	0.50—4.00
				M	4	MA	US7020	100—250	0.20—0.50	0.30—4.00
				R	1	RM	MC7015	155—245	0.25—0.55	1.50—6.00
				R	2	GH	US7020	95—235	0.25—0.60	1.50—6.00
				H	1	HL	US735	75—140	0.30—0.70	3.00—7.50
				H	2	HL	US735	75—140	0.30—0.70	3.00—7.50
				H	3	GH	US7020	95—235	0.25—0.60	1.50—6.00
				L	1	LM	MC7025	165—220	0.10—0.35	0.30—2.00
				L	2	SH	US735	95—185	0.10—0.40	0.30—2.00
				M	1	MM	MC7025	150—200	0.15—0.45	0.70—5.00
				M	2	GM	MC7025	150—200	0.16—0.50	0.50—4.00
				M	3	MA	MC7025	150—200	0.20—0.50	0.30—4.00
				M	4	MS	US735	90—170	0.16—0.50	0.50—4.00
				R	1	RM	MC7025	140—190	0.25—0.55	1.50—6.00
				R	2	GH	US735	85—160	0.25—0.60	1.50—6.00
				H	1	HL	US735	75—140	0.30—0.70	3.00—7.50
				H	2	HM	US735	75—140	0.50—1.10	2.00—10.00
				L	1	LM	MP7035	95—155	0.10—0.35	0.30—2.00
				L	2	SH	US735	95—185	0.10—0.40	0.30—2.00
				M	1	MM	MP7035	90—145	0.15—0.45	0.70—5.00
				M	2	GM	MP7035	90—145	0.16—0.50	0.50—4.00
				M	3	MA	MP7035	90—145	0.20—0.50	0.30—4.00
				M	4	MS	US735	90—170	0.16—0.50	0.50—4.00
				R	1	RM	MP7035	85—135	0.25—0.55	1.50—6.00
				R	2	GH	US735	85—160	0.25—0.60	1.50—6.00
				H	1	HL	US735	75—140	0.30—0.70	3.00—7.50
				H	2	HM	US735	75—140	0.50—1.10	2.00—10.00
	Austenitic Stainless Steel (X2CrNiN1810, X2CrNiMoN1813)	>200HB		L	1	LM	MC7015	150—240	0.10—0.35	0.30—2.00
				L	2	SH	US735	80—155	0.10—0.40	0.30—2.00
				L	3	SH	NX2525	55—115	0.10—0.40	0.30—2.00
				L	4	SW	US7020	90—230	0.10—0.50	0.30—2.50
				M	1	MM	MC7015	135—215	0.15—0.45	0.70—5.00
				M	2	GM	MC7015	135—215	0.16—0.50	0.50—4.00
				M	3	MS	US7020	80—210	0.16—0.50	0.50—4.00

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

Chipbreaker : **Std** : Standard **Flat** : Flat Top

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M	Austenitic Stainless Steel (X2CrNiN1810, X2CrNiMoN1813)	>200HB	●	M	4	MA	US7020	80—210	0.20—0.50	0.30—4.00
			●	R	1	RM	MC7015	130—205	0.25—0.55	1.50—6.00
			●	R	2	GH	US7020	75—195	0.25—0.60	1.50—6.00
			●	H	1	HL	US735	60—120	0.30—0.70	3.00—7.50
			●	H	2	HM	US735	60—120	0.50—1.10	2.00—10.00
			◐	L	1	LM	MC7025	135—180	0.10—0.35	0.30—2.00
			◐	L	2	SH	US735	80—155	0.10—0.40	0.30—2.00
			◐	M	1	MM	MC7025	125—165	0.15—0.45	0.70—5.00
			◐	M	2	GM	MC7025	125—165	0.16—0.50	0.50—4.00
			◐	M	3	MA	MC7025	125—165	0.20—0.50	0.30—4.00
			◐	M	4	MS	US735	75—140	0.16—0.50	0.50—4.00
			◐	R	1	RM	MC7025	115—155	0.25—0.55	1.50—6.00
			◐	R	2	GH	US735	70—135	0.25—0.60	1.50—6.00
			◐	H	1	HL	US735	60—120	0.30—0.70	3.00—7.50
			◐	H	2	HM	US735	60—120	0.50—1.10	2.00—10.00
			✣	L	1	LM	MP7035	80—130	0.10—0.35	0.30—2.00
			✣	L	2	SH	US735	80—155	0.10—0.40	0.30—2.00
			✣	M	1	MM	MP7035	75—120	0.15—0.45	0.70—5.00
			✣	M	2	GM	MP7035	75—120	0.16—0.50	0.50—4.00
			✣	M	3	MA	MP7035	75—120	0.20—0.50	0.30—4.00
			✣	M	4	MS	US735	75—140	0.16—0.50	0.50—4.00
			✣	R	1	RM	MP7035	70—115	0.25—0.55	1.50—6.00
			✣	R	2	GH	US735	70—135	0.25—0.60	1.50—6.00
			✣	H	1	HL	US735	60—120	0.30—0.70	3.00—7.50
			✣	H	2	HM	US735	60—120	0.50—1.10	2.00—10.00
	Two-phase Stainless Steel (X3CrNiCu1894)	≤280HB	●	L	1	LM	MC7015	120—190	0.10—0.35	0.30—2.00
			●	L	2	SH	US735	65—125	0.10—0.40	0.30—2.00
			●	L	3	SH	NX2525	40—90	0.10—0.40	0.30—2.00
			●	L	4	SW	US7020	70—185	0.10—0.50	0.30—2.50
			●	M	1	MM	MC7015	110—175	0.15—0.45	0.70—5.00
			●	M	2	GM	MC7015	110—175	0.16—0.50	0.50—4.00
			●	M	3	MS	US7020	65—170	0.16—0.50	0.50—4.00
			●	M	4	MA	US7020	65—170	0.20—0.50	0.30—4.00
			●	R	1	RM	MC7015	105—165	0.25—0.55	1.50—6.00
			●	R	2	GH	US7020	60—160	0.25—0.60	1.50—6.00
			●	H	1	HL	US735	50—95	0.30—0.70	3.00—7.50
			●	H	2	HM	US735	50—95	0.50—1.10	2.00—10.00
			◐	L	1	LM	MC7025	110—145	0.10—0.35	0.30—2.00
			◐	L	2	SH	US735	65—125	0.10—0.40	0.30—2.00
			◐	M	1	MM	MC7025	100—135	0.15—0.45	0.70—5.00
			◐	M	2	GM	MC7025	100—135	0.16—0.50	0.50—4.00
			◐	M	3	MA	MC7025	100—135	0.20—0.50	0.30—4.00
			◐	M	4	MS	US735	60—115	0.16—0.50	0.50—4.00
			◐	R	1	RM	MC7025	95—125	0.25—0.55	1.50—6.00
			◐	R	2	GH	US735	55—105	0.25—0.60	1.50—6.00
			◐	H	1	HL	US735	50—95	0.30—0.70	3.00—7.50
			◐	H	2	HM	US735	50—95	0.50—1.10	2.00—10.00
			✣	L	1	LM	MP7035	65—105	0.10—0.35	0.30—2.00

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

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M	Two-phase Stainless Steel (X3CrNiCu1894)	≤280HB	✣	L	2	SH	US735	65—125	0.10—0.40	0.30—2.00
			✣	M	1	MM	MP7035	60—95	0.15—0.45	0.70—5.00
			✣	M	2	GM	MP7035	60—95	0.16—0.50	0.50—4.00
			✣	M	3	MA	MP7035	60—95	0.20—0.50	0.30—4.00
			✣	M	4	MS	US735	60—115	0.16—0.50	0.50—4.00
			✣	R	1	RM	MP7035	55—90	0.25—0.55	1.50—6.00
			✣	R	2	GH	US735	55—105	0.25—0.60	1.50—6.00
			✣	H	1	HL	US735	50—95	0.30—0.70	3.00—7.50
			✣	H	2	HM	US735	50—95	0.50—1.10	2.00—10.00
	Ferritic and Martensitic Stainless Steel (X10Cr13, X8Cr17)	≤200HB	●	L	1	LM	MC7015	180—285	0.10—0.35	0.30—2.00
			●	L	2	SH	US735	95—185	0.10—0.40	0.30—2.00
			●	L	3	SH	NX2525	65—135	0.10—0.40	0.30—2.00
			●	L	4	SW	US7020	110—275	0.10—0.50	0.30—2.50
			●	M	1	MM	MC7015	165—260	0.15—0.45	0.70—5.00
			●	M	2	GM	MC7015	165—260	0.16—0.50	0.50—4.00
			●	M	3	MS	US7020	100—250	0.16—0.50	0.50—4.00
			●	M	4	MA	US7020	100—250	0.20—0.50	0.30—4.00
			●	R	1	RM	MC7015	155—245	0.25—0.55	1.50—6.00
			●	R	2	GH	US7020	95—235	0.25—0.60	1.50—6.00
			●	H	1	HL	US735	75—140	0.30—0.70	3.00—7.50
			●	H	2	HM	US735	75—140	0.50—1.10	2.00—10.00
			◐	L	1	LM	MC7025	165—220	0.10—0.35	0.30—2.00
			◐	L	2	SH	US735	95—185	0.10—0.40	0.30—2.00
			◐	M	1	MM	MC7025	150—200	0.15—0.45	0.70—5.00
			◐	M	2	GM	MC7025	150—200	0.16—0.50	0.50—4.00
			◐	M	3	MA	MC7025	150—200	0.20—0.50	0.30—4.00
			◐	M	4	MA	US735	90—170	0.20—0.50	0.30—4.00
			◐	R	1	RM	MC7025	140—190	0.25—0.55	1.50—6.00
			◐	R	2	GH	US735	85—160	0.25—0.60	1.50—6.00
			◐	H	1	HL	US735	75—140	0.30—0.70	3.00—7.50
			◐	H	2	HM	US735	75—140	0.50—1.10	2.00—10.00
			✣	L	1	LM	MP7035	95—155	0.10—0.35	0.30—2.00
			✣	L	2	SH	US735	95—185	0.10—0.40	0.30—2.00
			✣	M	1	MM	MP7035	90—145	0.15—0.45	0.70—5.00
			✣	M	2	GM	MP7035	90—145	0.16—0.50	0.50—4.00
			✣	M	3	MA	MP7035	90—145	0.20—0.50	0.30—4.00
			✣	M	4	MS	US735	90—170	0.16—0.50	0.50—4.00
			✣	R	1	RM	MP7035	85—135	0.25—0.55	1.50—6.00
			✣	R	2	GH	US735	85—160	0.25—0.60	1.50—6.00
			✣	H	1	HL	US735	75—140	0.30—0.70	3.00—7.50
			✣	H	2	HM	US735	75—140	0.50—1.10	2.00—10.00
	Ferritic and Martensitic Stainless Steel (X17CrNi162, X30Cr13)	>200HB	●	L	1	LM	MC7015	150—240	0.10—0.35	0.30—2.00
			●	L	2	SH	US735	80—155	0.10—0.40	0.30—2.00
			●	L	3	SH	NX2525	55—115	0.10—0.40	0.30—2.00
			●	L	4	SW	US7020	90—230	0.10—0.50	0.30—2.50
			●	M	1	MM	MC7015	135—215	0.15—0.45	0.70—5.00
			●	M	2	GM	MC7015	135—215	0.16—0.50	0.50—4.00
			●	M	3	MS	US7020	80—210	0.16—0.50	0.50—4.00

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

Chipbreaker : **Std** : Standard **Flat** : Flat Top

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M	Ferritic and Martensitic Stainless Steel (X17CrNi162, X30Cr13)	>200HB	●	M	4	MA	US7020	80—210	0.20—0.50	0.30—4.00
			●	R	1	RM	MC7015	130—205	0.25—0.55	1.50—6.00
			●	R	2	GH	US7020	75—195	0.25—0.60	1.50—6.00
			●	H	1	HL	US735	60—120	0.30—0.70	3.00—7.50
			●	H	2	HM	US735	60—120	0.50—1.10	2.00—10.00
			◐	L	1	LM	MC7025	135—180	0.10—0.35	0.30—2.00
			◐	L	2	SH	US735	80—155	0.10—0.40	0.30—2.00
			◐	M	1	MM	MC7025	125—165	0.15—0.45	0.70—5.00
			◐	M	2	MA	MC7025	125—165	0.20—0.50	0.30—4.00
			◐	M	3	MA	US735	75—140	0.20—0.50	0.30—4.00
			◐	M	4	MS	US735	75—140	0.16—0.50	0.50—4.00
			◐	R	1	RM	MC7025	115—155	0.25—0.55	1.50—6.00
			◐	R	2	GH	US735	70—135	0.25—0.60	1.50—6.00
			◐	H	1	HL	US735	60—120	0.30—0.70	3.00—7.50
			◐	H	2	HM	US735	60—120	0.50—1.10	2.00—10.00
			✣	L	1	LM	MP7035	80—130	0.10—0.35	0.30—2.00
			✣	L	2	SH	US735	80—155	0.10—0.40	0.30—2.00
			✣	M	1	MM	MP7035	75—120	0.15—0.45	0.70—5.00
			✣	M	2	GM	MP7035	75—120	0.16—0.50	0.50—4.00
			✣	M	3	MA	MP7035	75—120	0.20—0.50	0.30—4.00
			✣	M	4	MS	US735	75—140	0.16—0.50	0.50—4.00
			✣	R	1	RM	MP7035	70—115	0.25—0.55	1.50—6.00
			✣	R	2	GH	US735	70—135	0.25—0.60	1.50—6.00
			✣	H	1	HL	US735	60—120	0.30—0.70	3.00—7.50
			✣	H	2	HM	US735	60—120	0.50—1.10	2.00—10.00
	Hardened Stainless Steel (X5CrNiCuNb16-4, X7CrNiAl17-7)	<450HB	●	L	1	LM	MC7015	95—130	0.10—0.35	0.30—2.00
			●	L	2	LS(M)	MP9005	125—175	0.10—0.25	0.20—0.80
			●	L	3	SH	US735	55—100	0.10—0.40	0.30—2.00
			●	L	4	SH	NX2525	35—75	0.10—0.40	0.30—2.00
			●	M	1	MM	MC7015	90—120	0.15—0.45	0.70—5.00
			●	M	2	GM	MC7015	90—120	0.16—0.50	0.50—4.00
			●	M	3	MS	US7020	55—140	0.16—0.50	0.50—4.00
			●	M	4	MA	US7020	55—140	0.10—0.30	0.50—3.00
			●	R	1	RM	MC7015	85—110	0.25—0.55	1.50—6.00
			●	R	2	GH	US7020	50—130	0.25—0.60	1.50—6.00
			●	H	1	HL	US735	40—80	0.40—1.00	1.50—8.00
			●	H	2	HM	US735	40—80	0.50—1.10	2.00—10.00
			◐	L	1	LM	MC7025	85—110	0.10—0.35	0.30—2.00
			◐	L	2	SH	US735	55—100	0.10—0.40	0.30—2.00
			◐	L	3	LS(M)	MP9015	120—165	0.10—0.25	0.20—0.80
			◐	M	1	MM	MC7025	80—100	0.15—0.45	0.70—5.00
			◐	M	2	GM	MC7025	80—100	0.16—0.50	0.50—4.00
			◐	M	3	MA	MC7025	80—100	0.10—0.30	0.50—3.00
			◐	M	4	MS	US735	50—95	0.16—0.50	0.50—4.00
			◐	R	1	RM	MC7025	75—95	0.25—0.55	1.50—6.00
			◐	R	2	GH	US735	45—90	0.25—0.60	1.50—6.00
			◐	R	3	RS	MP9015	100—140	0.20—0.35	1.00—4.00
			◐	H	1	HL	US735	40—80	0.40—1.00	1.50—8.00

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

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M	Hardened Stainless Steel (X5CrNiCuNb16-4, X7CrNiAl17-7)	<450HB		H	2	HM	US735	40—80	0.50—1.10	2.00—10.00
				L	1	LM	MP7035	55—85	0.10—0.35	0.30—2.00
				L	2	SH	US735	55—100	0.10—0.40	0.30—2.00
				L	3	LS(M)	MP9025	80—95	0.10—0.25	0.20—0.80
				M	1	MM	MP7035	50—80	0.15—0.45	0.70—5.00
				M	2	GM	MP7035	50—80	0.16—0.50	0.50—4.00
				M	3	MA	MP7035	50—80	0.10—0.30	0.50—3.00
				M	4	MS	US735	50—95	0.16—0.50	0.50—4.00
				R	1	RM	MP7035	45—75	0.25—0.55	1.50—6.00
				R	2	GH	US735	45—90	0.25—0.60	1.50—6.00
				R	3	RS	MP9025	70—85	0.20—0.35	1.00—4.00
				H	1	HL	US735	40—80	0.40—1.00	1.50—8.00
				H	2	HM	US735	40—80	0.50—1.10	2.00—10.00
K	Gray Cast Iron (GG30)	≤350MPa		L	1	LK	MC5105	230—700	0.10—0.50	0.50—2.50
				L	2	LK	MC5115	205—385	0.10—0.50	0.50—2.50
				L	3	MA	MC5105	210—640	0.20—0.50	0.30—4.00
				M	1	MK	MC5105	210—640	0.20—0.55	0.50—4.00
				M	2	MK	MC5115	190—350	0.20—0.55	0.50—4.00
				M	3	GK	MC5105	210—640	0.20—0.60	1.50—5.00
				R	1	RK	MC5105	195—605	0.20—0.60	1.50—6.00
				R	2	RK	MC5115	180—330	0.20—0.60	1.50—6.00
				R	3	Flat	MC5105	195—605	0.20—0.60	2.50—6.00
				H	1	Flat	MC5105	195—605	0.20—0.60	2.50—6.00
				H	2	Flat	MC5115	180—330	0.20—0.60	2.50—6.00
				L	1	LK	MC5105	230—700	0.10—0.50	0.50—2.50
				L	2	LK	MC5115	205—385	0.10—0.50	0.50—2.50
				L	3	MA	MC5105	210—640	0.20—0.50	0.30—4.00
				M	1	MK	MC5105	210—640	0.20—0.55	0.50—4.00
				M	2	MK	MC5115	190—350	0.20—0.55	0.50—4.00
				M	3	GK	MC5105	210—640	0.20—0.60	1.50—5.00
				R	1	RK	MC5105	195—605	0.20—0.60	1.50—6.00
				R	2	RK	MC5115	180—330	0.20—0.60	1.50—6.00
				R	3	Flat	MC5105	195—605	0.20—0.60	2.50—6.00
				H	1	Flat	MC5105	195—605	0.20—0.60	2.50—6.00
				H	2	Flat	MC5115	180—330	0.20—0.60	2.50—6.00
				L	1	LK	MC5115	205—385	0.10—0.50	0.50—2.50
				L	2	LK	MC5125	110—220	0.10—0.50	0.50—2.50
				L	3	MA	MC5115	190—350	0.20—0.50	0.30—4.00
				M	1	MK	MC5115	190—350	0.20—0.55	0.50—4.00
				M	2	MK	MC5125	100—200	0.20—0.55	0.50—4.00
				M	3	GK	MC5115	190—350	0.20—0.60	1.50—5.00
				R	1	RK	MC5115	180—330	0.20—0.60	1.50—6.00
				R	2	RK	MC5125	95—190	0.20—0.60	1.50—6.00
				R	3	Flat	MC5115	180—330	0.20—0.60	2.50—6.00
				H	1	Flat	MC5115	180—330	0.20—0.60	2.50—6.00
				H	2	Flat	MC5125	95—190	0.20—0.60	2.50—6.00

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

Chipbreaker : **Std** : Standard **Flat** : Flat Top

	Material	Tensile Strength	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
K	Ductile Cast Iron (GGG40)	≤450MPa	●	L	1	LK	MC5115	195—365	0.10—0.50	0.50—2.50
			●	L	2	LK	MC5105	215—665	0.10—0.50	0.50—2.50
			●	L	3	MA	MC5115	180—330	0.20—0.50	0.30—4.00
			●	M	1	MK	MC5115	180—330	0.20—0.55	0.50—4.00
			●	M	2	MK	MC5105	195—605	0.20—0.55	0.50—4.00
			●	M	3	GK	MC5115	180—330	0.20—0.60	1.50—5.00
			●	M	4	GK	MC5105	195—605	0.20—0.60	1.50—5.00
			●	R	1	RK	MC5115	170—315	0.20—0.60	1.50—6.00
			●	R	2	RK	MC5105	185—575	0.20—0.60	1.50—6.00
			●	R	3	Flat	MC5115	170—315	0.20—0.60	2.50—6.00
			●	H	1	Flat	MC5115	170—315	0.20—0.60	2.50—6.00
			●	H	2	Flat	MC5105	185—575	0.20—0.60	2.50—6.00
			●	H	3	Flat	MC5125	90—180	0.20—0.60	2.50—6.00
			◐	L	1	LK	MC5115	195—365	0.10—0.50	0.50—2.50
			◐	L	3	MA	MC5115	180—330	0.20—0.50	0.30—4.00
			◐	M	1	MK	MC5115	180—330	0.20—0.55	0.50—4.00
			◐	M	2	GK	MC5115	180—330	0.20—0.60	1.50—5.00
			◐	R	1	RK	MC5115	170—315	0.20—0.60	1.50—6.00
			◐	R	2	Flat	MC5115	170—315	0.20—0.60	2.50—6.00
			◐	H	1	Flat	MC5115	170—315	0.20—0.60	2.50—6.00
			✣	L	1	LK	MC5125	100—205	0.10—0.50	0.50—2.50
			✣	L	2	LK	MC5115	195—365	0.10—0.50	0.50—2.50
			✣	L	3	MA	MC5125	95—190	0.20—0.50	0.30—4.00
			✣	M	1	MK	MC5125	95—190	0.20—0.55	0.50—4.00
			✣	M	2	MK	MC5115	180—330	0.20—0.55	0.50—4.00
			✣	M	3	GK	MC5125	95—190	0.20—0.60	1.50—5.00
			✣	R	1	RK	MC5125	90—180	0.20—0.60	1.50—6.00
			✣	R	2	RK	MC5115	170—315	0.20—0.60	1.50—6.00
			✣	R	3	Flat	MC5125	90—180	0.20—0.60	2.50—6.00
			✣	H	1	Flat	MC5125	90—180	0.20—0.60	2.50—6.00
			✣	H	2	Flat	MC5115	170—315	0.20—0.60	2.50—6.00
	Ductile Cast Iron (GGG70)	≤800MPa	●	L	1	LK	MC5115	175—325	0.10—0.50	0.50—2.50
			●	L	2	LK	MC5105	195—595	0.10—0.50	0.50—2.50
			●	L	3	MA	MC5115	160—295	0.20—0.50	0.30—4.00
			●	M	1	MK	MC5115	160—295	0.20—0.55	0.50—4.00
			●	M	2	MK	MC5105	175—540	0.20—0.55	0.50—4.00
			●	M	3	GK	MC5115	160—295	0.20—0.60	1.50—5.00
			●	R	1	RK	MC5115	150—280	0.20—0.60	1.50—6.00
			●	R	2	RK	MC5105	165—515	0.20—0.60	1.50—6.00
			●	R	3	Flat	MC5115	150—280	0.20—0.60	2.50—6.00
			●	H	1	Flat	MC5115	150—280	0.20—0.60	2.50—6.00
			●	H	2	Flat	MC5105	165—515	0.20—0.60	2.50—6.00
			◐	L	1	LK	MC5115	175—325	0.10—0.50	0.50—2.50
			◐	L	2	LK	MC5105	195—595	0.10—0.50	0.50—2.50
			◐	L	3	MA	MC5115	160—295	0.20—0.50	0.30—4.00
			◐	M	1	MK	MC5115	160—295	0.20—0.55	0.50—4.00
			◐	M	2	MK	MC5105	175—540	0.20—0.55	0.50—4.00
			◐	M	3	GK	MC5115	160—295	0.20—0.60	1.50—5.00

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

	Material	Tensile Strength	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
K	Ductile Cast Iron (GGG70)	≤800MPa		R	1	RK	MC5115	150—280	0.20—0.60	1.50—6.00
				R	2	RK	MC5105	165—515	0.20—0.60	1.50—6.00
				R	3	Flat	MC5115	150—280	0.20—0.60	2.50—6.00
				H	1	Flat	MC5115	150—280	0.20—0.60	2.50—6.00
				H	2	Flat	MC5105	165—515	0.20—0.60	2.50—6.00
				L	1	LK	MC5125	90—185	0.10—0.50	0.50—2.50
				L	2	LK	MC5115	175—325	0.10—0.50	0.50—2.50
				L	3	MA	MC5125	85—170	0.20—0.50	0.30—4.00
				M	1	MK	MC5125	85—170	0.20—0.55	0.50—4.00
				M	2	MK	MC5115	160—295	0.20—0.55	0.50—4.00
				M	3	GK	MC5125	85—170	0.20—0.60	1.50—5.00
				R	1	RK	MC5125	80—160	0.20—0.60	1.50—6.00
				R	2	RK	MC5115	150—280	0.20—0.60	1.50—6.00
				R	3	Flat	MC5125	80—160	0.20—0.60	2.50—6.00
				H	1	Flat	MC5125	80—160	0.20—0.60	2.50—6.00
				H	2	Flat	MC5115	150—280	0.20—0.60	2.50—6.00
S	Titanium Alloy (Ti-6Al-4V)	—		F	1	LS(M)	MT9015	40—85	0.10—0.25	0.20—0.80
				F	2	FJ	RT9010	45—95	0.07—0.20	0.10—1.00
				L	1	LS(M)	MT9015	40—85	0.10—0.25	0.20—0.80
				L	2	MJ(M)	RT9010	40—85	0.07—0.25	0.40—1.50
				M	1	MS	MT9015	40—80	0.15—0.30	0.50—3.00
				M	2	MS	RT9010	40—80	0.16—0.50	0.50—4.00
				R	1	RS	MT9015	35—75	0.20—0.35	1.00—4.00
				R	2	GJ	RT9010	35—75	0.16—0.35	1.00—3.00
				F	1	LS(M)	MT9015	40—85	0.10—0.25	0.20—0.80
				F	2	FJ	RT9010	45—95	0.07—0.20	0.10—1.00
				L	1	LS(M)	MT9015	40—85	0.10—0.25	0.20—0.80
				L	2	MJ(M)	RT9010	40—85	0.07—0.25	0.40—1.50
				L	3	MJ(G)	RT9010	40—85	0.07—0.25	0.40—1.50
				M	1	MS	MT9015	40—80	0.15—0.30	0.50—3.00
				M	2	MS	RT9010	40—80	0.16—0.50	0.50—4.00
				R	1	RS	MT9015	35—75	0.20—0.35	1.00—4.00
				R	2	GJ	RT9010	35—75	0.16—0.35	1.00—3.00
				F	1	LS(M)	MT9015	40—85	0.10—0.25	0.20—0.80
				F	2	FJ	RT9010	45—95	0.07—0.20	0.10—1.00
				L	1	LS(M)	MT9015	40—85	0.10—0.25	0.20—0.80
				L	2	MJ(M)	RT9010	40—85	0.07—0.25	0.40—1.50
				L	3	MJ(G)	RT9010	40—85	0.07—0.25	0.40—1.50
				M	1	MS	MT9015	40—80	0.15—0.30	0.50—3.00
				R	1	RS	MT9015	35—75	0.20—0.35	1.00—4.00
				R	2	GJ	RT9010	35—75	0.16—0.35	1.00—3.00

RECOMMENDED CUTTING CONDITIONS

NEGATIVE INSERTS

Chipbreaker : **Std** : Standard **Flat** : Flat Top

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
S	Heat Resistant Alloy (Inconel®718)	—	●	F	1	LS(M)	MV9005	75—140	0.10—0.25	0.20—0.80
			●	F	2	LS(M)	MP9005	55—110	0.10—0.25	0.20—0.80
			●	F	3	FJ	VP10RT	30—60	0.07—0.20	0.10—1.00
			●	L	1	LS(M)	MV9005	75—140	0.10—0.25	0.20—0.80
			●	L	2	LS(M)	MP9005	55—110	0.10—0.25	0.20—0.80
			●	L	3	MJ(M)	MP9005	55—110	0.07—0.25	0.40—1.50
			●	L	4	MJ(M)	VP05RT	30—65	0.07—0.25	0.40—1.50
			●	M	1	MS	MV9005	70—130	0.15—0.30	0.50—3.00
			●	M	2	MS	MP9005	50—100	0.15—0.30	0.50—3.00
			●	M	3	MS	VP05RT	30—60	0.16—0.50	0.50—4.00
			●	M	4	MS	US905	50—90	0.16—0.50	0.50—4.00
			●	R	1	RS	MP9015	35—75	0.20—0.35	1.00—4.00
			●	R	2	GJ	VP10RT	20—45	0.16—0.35	1.00—3.00
			●	R	3	GJ	US905	45—85	0.16—0.35	1.00—3.00
			◐	F	1	LS(M)	MP9015	40—85	0.10—0.25	0.20—0.80
			◐	F	2	FJ	VP10RT	30—60	0.07—0.20	0.10—1.00
			◐	L	1	LS(M)	MP9015	40—85	0.10—0.25	0.20—0.80
			◐	L	2	MJ(M)	MP9015	40—80	0.07—0.25	0.40—1.50
			◐	L	3	MJ(M)	VP10RT	25—55	0.07—0.25	0.40—1.50
			◐	M	1	MS	MP9015	40—80	0.15—0.30	0.50—3.00
			◐	M	2	MA	MP9015	40—80	0.10—0.30	0.50—3.00
			◐	M	3	MS	VP10RT	25—50	0.16—0.50	0.50—4.00
			◐	R	1	RS	MP9015	35—75	0.20—0.35	1.00—4.00
			◐	R	2	GJ	VP10RT	20—45	0.16—0.35	1.00—3.00
			✣	F	1	LS(M)	MP9025	30—45	0.10—0.25	0.20—0.80
			✣	F	2	FJ	VP15TF	20—40	0.07—0.20	0.10—1.00
			✣	L	1	LS(M)	MP9025	30—45	0.10—0.25	0.20—0.80
			✣	L	2	MJ(G)	VP15TF	20—35	0.07—0.25	0.40—1.50
			✣	M	1	MS	MP9025	30—45	0.15—0.30	0.50—3.00
			✣	M	2	MA	MP9025	30—45	0.10—0.30	0.50—3.00
			✣	M	3	MS	VP15TF	20—35	0.16—0.50	0.50—4.00
			✣	R	1	RS	MP9025	25—40	0.20—0.35	1.00—4.00
			✣	R	2	GJ	VP15TF	15—30	0.16—0.35	1.00—3.00

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

■ 7° POSITIVE INSERT TYPE

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Mild Steel (St37-2, Ck10)	≤180HB	●	F	1	FP	NX2525	225—320	0.04—0.20	0.20—0.90
			●	F	2	FV	NX2525	225—320	0.04—0.20	0.20—0.90
			●	F	3	R/L-F	MP3025	230—355	0.05—0.12	0.10—0.50
			●	L	1	LP	NX2525	225—320	0.06—0.25	0.20—1.00
			●	L	2	LP	MC6115	295—570	0.06—0.25	0.20—1.00
			●	L	3	MV	MP3025	190—295	0.08—0.30	0.30—2.00
			●	M	1	MP	NX2525	185—270	0.08—0.30	0.30—2.00
			◐	F	1	FP	MC6115	295—570	0.04—0.20	0.20—0.90
			◐	F	2	FP	MP3025	230—355	0.04—0.20	0.20—0.90
			◐	L	1	LP	MC6115	295—570	0.06—0.25	0.20—1.00
			◐	L	2	LP	MP3025	230—355	0.06—0.25	0.20—1.00
			◐	M	1	MP	MC6115	245—475	0.08—0.30	0.30—2.00
			◐	M	2	MP	MP3025	190—295	0.08—0.30	0.30—2.00
			✣	F	1	FP	MC6125	320—505	0.04—0.20	0.20—0.90
			✣	F	2	FP	MC6135	265—400	0.04—0.20	0.20—0.90
			✣	F	3	FM	VP30RT	155—190	0.04—0.20	0.20—0.90
			✣	L	1	LP	MC6125	320—505	0.06—0.25	0.20—1.00
			✣	L	2	LP	MC6135	265—400	0.06—0.25	0.20—1.00
			✣	L	3	LM	VP30RT	155—190	0.06—0.25	0.20—1.00
			✣	M	1	MP	MC6125	270—420	0.08—0.30	0.30—2.00
			✣	M	2	MP	MC6135	220—330	0.08—0.30	0.30—2.00
			✣	M	3	MM	VP30RT	125—160	0.08—0.30	0.30—2.00
	Carbon Steel • Alloy Steel (Ck45, 42CrMo4)	180 – 280HB	●	F	1	FP	NX2525	165—240	0.04—0.20	0.20—0.90
			●	F	2	FV	NX2525	165—240	0.04—0.20	0.20—0.90
			●	F	3	R/L-F	MP3025	170—260	0.05—0.12	0.10—0.50
			●	L	1	LP	NX2525	165—240	0.06—0.25	0.20—1.00
			●	L	2	LP	MC6115	220—420	0.06—0.25	0.20—1.00
			●	L	3	MV	MP3025	140—220	0.08—0.30	0.30—2.00
			●	M	1	MP	NX2525	140—200	0.08—0.30	0.30—2.00
			●	M	2	MW	MP3025	140—220	0.10—0.35	0.80—2.50
			◐	F	1	FP	MC6115	220—420	0.04—0.20	0.20—0.90
			◐	F	2	FP	MC6125	240—370	0.04—0.20	0.20—0.90
			◐	L	1	LP	MC6115	220—420	0.06—0.25	0.20—1.00
			◐	L	2	LP	MC6125	240—370	0.06—0.25	0.20—1.00
			◐	M	1	MP	MC6125	200—310	0.08—0.30	0.30—2.00
			◐	M	2	MP	MC6115	180—350	0.08—0.30	0.30—2.00
			✣	F	1	FP	MC6125	240—370	0.04—0.20	0.20—0.90
			✣	F	2	FP	MC6135	195—295	0.04—0.20	0.20—0.90
			✣	F	3	FM	VP30RT	115—140	0.04—0.20	0.20—0.90
			✣	L	1	LP	MC6125	240—370	0.06—0.25	0.20—1.00
			✣	L	2	LP	MC6135	195—295	0.06—0.25	0.20—1.00
			✣	L	3	LM	VP30RT	115—140	0.06—0.25	0.20—1.00
			✣	M	1	MP	MC6125	200—310	0.08—0.30	0.30—2.00
			✣	M	2	MP	MC6135	160—245	0.08—0.30	0.30—2.00
			✣	M	3	MM	VP30RT	95—120	0.08—0.30	0.30—2.00
	Carbon Steel • Alloy Steel (40CrNiMoA)	280 – 350HB	●	F	1	FP	NX2525	115—170	0.04—0.20	0.20—0.90
			●	L	1	LP	NX2525	115—170	0.06—0.25	0.20—1.00
			●	M	1	MP	NX2525	95—140	0.08—0.30	0.30—2.00

RECOMMENDED CUTTING CONDITIONS

7° POSITIVE INSERT TYPE

Chipbreaker : **Std** : Standard **Flat** : Flat Top

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Carbon Steel • Alloy Steel (40CrNiMoA)	280 – 350HB	◐	F	1	FP	MC6115	155—295	0.04—0.20	0.20—0.90
			◐	F	2	FV	MC6115	155—295	0.04—0.20	0.20—0.90
			◐	L	1	LP	MC6115	155—295	0.06—0.25	0.20—1.00
			◐	M	1	MP	MC6115	130—245	0.08—0.30	0.30—2.00
			◐	M	2	MP	MP3025	100—155	0.08—0.30	0.30—2.00
			✣	F	1	FP	MC6125	170—265	0.04—0.20	0.20—0.90
			✣	F	2	FP	MC6135	135—210	0.04—0.20	0.20—0.90
			✣	F	3	FM	VP30RT	80—100	0.04—0.20	0.20—0.90
			✣	F	4	FV	MC6125	170—265	0.04—0.20	0.20—0.90
			✣	L	1	LP	MC6125	170—265	0.06—0.25	0.20—1.00
			✣	L	2	LP	MC6135	135—210	0.06—0.25	0.20—1.00
			✣	L	3	LM	VP30RT	80—100	0.06—0.25	0.20—1.00
			✣	L	4	LS(G)	VP30RT	80—100	0.04—0.15	0.3—3.0
			✣	M	1	MP	MC6125	140—220	0.08—0.30	0.30—2.00
			✣	M	2	MP	MC6135	115—175	0.08—0.30	0.30—2.00
			✣	M	3	MM	VP30RT	65—85	0.08—0.30	0.30—2.00
M	Austenitic Stainless Steel (X5CrNi189, X5CrNiMo1810)	≤200HB	●	F	1	FM	VP15TF	75—125	0.04—0.20	0.20—0.90
			●	F	2	Std	US735	70—135	0.08—0.30	0.30—2.00
			●	L	1	LM	MC7025	140—190	0.06—0.25	0.20—1.00
			●	L	2	LM	MC7015	155—245	0.06—0.25	0.20—1.00
			●	L	3	Std	US735	70—135	0.08—0.30	0.30—2.00
			●	M	1	MM	MC7025	120—160	0.08—0.30	0.30—2.00
			●	M	2	MM	MC7015	130—205	0.08—0.30	0.30—2.00
			◐	F	1	FM	VP15TF	75—125	0.04—0.20	0.20—0.90
			◐	F	2	Std	US735	70—135	0.08—0.30	0.30—2.00
			◐	L	1	LM	MC7025	140—190	0.06—0.25	0.20—1.00
			◐	L	2	Std	US735	70—135	0.08—0.30	0.30—2.00
			◐	M	1	MM	MC7025	120—160	0.08—0.30	0.30—2.00
			✣	F	1	FM	VP30RT	50—90	0.04—0.20	0.20—0.90
			✣	F	2	FM	VP15TF	75—125	0.04—0.20	0.20—0.90
			✣	F	3	FS-P	VP30RT	50—90	0.04—0.12	0.20—1.40
			✣	F	4	FS(G)	VP30RT	50—90	0.04—0.12	0.20—1.40
			✣	L	1	LM	MP7035	85—135	0.06—0.25	0.20—1.00
			✣	L	2	LM	VP30RT	50—90	0.06—0.25	0.20—1.00
			✣	L	3	LM	VP15TF	75—125	0.06—0.25	0.20—1.00
			✣	L	4	LS(G)	VP30RT	50—90	0.04—0.15	0.3—3.0
			✣	M	1	MM	MP7035	70—115	0.08—0.30	0.30—2.00
			✣	M	2	MM	VP30RT	40—75	0.08—0.30	0.30—2.00
			✣	M	3	MM	VP15TF	60—105	0.08—0.30	0.30—2.00
	Austenitic Stainless Steel (X2CrNiN1810, X2CrNiMoN1813)	>200HB	●	F	1	FM	VP15TF	60—105	0.04—0.20	0.20—0.90
			●	F	2	Std	US735	60—110	0.08—0.30	0.30—2.00
			●	L	1	LM	MC7025	120—160	0.06—0.25	0.20—1.00
			●	L	2	LM	MC7015	130—205	0.06—0.25	0.20—1.00
			●	L	3	Std	US735	60—110	0.08—0.30	0.30—2.00
			●	M	1	MM	MC7025	100—130	0.08—0.30	0.30—2.00
			●	M	2	MM	MC7015	110—170	0.08—0.30	0.30—2.00
			◐	F	1	FM	VP15TF	60—105	0.04—0.20	0.20—0.90
			◐	F	2	Std	US735	60—110	0.08—0.30	0.30—2.00

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

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M	Austenitic Stainless Steel (X2CrNiN1810, X2CrNiMoN1813)	>200HB		L	1	LM	MC7025	120—160	0.06—0.25	0.20—1.00
				L	2	Std	US735	60—110	0.08—0.30	0.30—2.00
				M	1	MM	MC7025	100—130	0.08—0.30	0.30—2.00
				F	1	FM	VP30RT	40—75	0.04—0.20	0.20—0.90
				F	2	FM	VP15TF	60—105	0.04—0.20	0.20—0.90
				F	3	FS-P	VP30RT	40—75	0.04—0.12	0.20—1.40
				F	4	FS(G)	VP30RT	40—75	0.04—0.12	0.20—1.40
				L	1	LM	MP7035	70—115	0.06—0.25	0.20—1.00
				L	2	LM	VP30RT	40—75	0.06—0.25	0.20—1.00
				L	3	LM	VP15TF	60—105	0.06—0.25	0.20—1.00
				L	4	LS(G)	VP30RT	40—75	0.04—0.15	0.3—3.0
				M	1	MM	MP7035	60—95	0.08—0.30	0.30—2.00
				M	2	MM	VP30RT	35—60	0.08—0.30	0.30—2.00
				M	3	MM	VP15TF	50—90	0.08—0.30	0.30—2.00
	Two-phase Stainless Steel (X3CrNiCu1894)	≤280HB		F	1	FM	VP15TF	50—85	0.04—0.20	0.20—0.90
				F	2	Std	US735	45—90	0.08—0.30	0.30—2.00
				L	1	LM	MC7025	95—130	0.06—0.25	0.20—1.00
				L	2	LM	MC7015	105—165	0.06—0.25	0.20—1.00
				L	3	Std	US735	45—90	0.08—0.30	0.30—2.00
				M	1	MM	MC7025	80—105	0.08—0.30	0.30—2.00
				M	2	MM	MC7015	85—140	0.08—0.30	0.30—2.00
				F	1	FM	VP15TF	50—85	0.04—0.20	0.20—0.90
				F	2	Std	US735	45—90	0.08—0.30	0.30—2.00
				L	1	LM	MC7025	95—130	0.06—0.25	0.20—1.00
				L	2	Std	US735	45—90	0.08—0.30	0.30—2.00
				M	1	MM	MC7025	80—105	0.08—0.30	0.30—2.00
				F	1	FM	VP30RT	35—60	0.04—0.20	0.20—0.90
				F	2	FM	VP15TF	50—85	0.04—0.20	0.20—0.90
				F	3	FS-P	VP30RT	35—60	0.04—0.12	0.20—1.40
				F	4	FS(G)	VP30RT	35—60	0.04—0.12	0.20—1.40
				L	1	LM	MP7035	55—90	0.06—0.25	0.20—1.00
				L	2	LM	VP30RT	35—60	0.06—0.25	0.20—1.00
				L	3	LM	VP15TF	50—85	0.06—0.25	0.20—1.00
				L	4	LS(G)	VP30RT	35—60	0.04—0.15	0.3—3.0
				M	1	MM	MP7035	45—75	0.08—0.30	0.30—2.00
				M	2	MM	VP30RT	25—50	0.08—0.30	0.30—2.00
				M	3	MM	VP15TF	40—70	0.08—0.30	0.30—2.00
	Ferritic and Martensitic Stainless Steel (X10Cr13, X8Cr17)	≤200HB		F	1	FM	VP15TF	75—125	0.04—0.20	0.20—0.90
				F	2	Std	US735	70—135	0.08—0.30	0.30—2.00
				L	1	LM	MC7025	140—190	0.06—0.25	0.20—1.00
				L	2	LM	MC7015	155—245	0.06—0.25	0.20—1.00
				L	3	Std	US735	70—135	0.08—0.30	0.30—2.00
				M	1	MM	MC7025	120—160	0.08—0.30	0.30—2.00
				M	2	MM	MC7015	130—205	0.08—0.30	0.30—2.00
				F	1	FM	VP15TF	75—125	0.04—0.20	0.20—0.90
				F	2	Std	US735	70—135	0.08—0.30	0.30—2.00
				L	1	LM	MC7025	140—190	0.06—0.25	0.20—1.00
				L	2	Std	US735	70—135	0.08—0.30	0.30—2.00

RECOMMENDED CUTTING CONDITIONS

7° POSITIVE INSERT TYPE

Chipbreaker : **Std** : Standard **Flat** : Flat Top

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M	Ferritic and Martensitic Stainless Steel (X10Cr13, X8Cr17)	≤200HB	◐	M	1	MM	MC7025	120—160	0.08—0.30	0.30—2.00
			✣	F	1	FM	VP30RT	50—90	0.04—0.20	0.20—0.90
			✣	F	2	FM	VP15TF	75—125	0.04—0.20	0.20—0.90
			✣	F	3	FS-P	VP30RT	50—90	0.04—0.12	0.20—1.40
			✣	F	4	FS(G)	VP30RT	50—90	0.04—0.12	0.20—1.40
			✣	L	1	LM	MP7035	85—135	0.06—0.25	0.20—1.00
			✣	L	2	LM	VP30RT	50—90	0.06—0.25	0.20—1.00
			✣	L	3	LM	VP15TF	75—125	0.06—0.25	0.20—1.00
			✣	L	4	LS(G)	VP30RT	50—90	0.04—0.15	0.3—3.0
			✣	M	1	MM	MP7035	70—115	0.08—0.30	0.30—2.00
			✣	M	2	MM	VP30RT	40—75	0.08—0.30	0.30—2.00
			✣	M	3	MM	VP15TF	60—105	0.08—0.30	0.30—2.00
	Ferritic and Martensitic Stainless Steel (X17CrNi162, X30Cr13)	>200HB	●	F	1	FM	VP15TF	60—105	0.04—0.20	0.20—0.90
			●	F	2	Std	US735	60—110	0.08—0.30	0.30—2.00
			●	L	1	LM	MC7025	120—160	0.06—0.25	0.20—1.00
			●	L	2	LM	MC7015	130—205	0.06—0.25	0.20—1.00
			●	L	3	Std	US735	60—110	0.08—0.30	0.30—2.00
			●	M	1	MM	MC7025	100—130	0.08—0.30	0.30—2.00
			●	M	2	MM	MC7015	110—170	0.08—0.30	0.30—2.00
			◐	F	1	FM	VP15TF	60—105	0.04—0.20	0.20—0.90
			◐	F	2	Std	US735	60—110	0.08—0.30	0.30—2.00
			◐	L	1	LM	MC7025	120—160	0.06—0.25	0.20—1.00
			◐	L	2	Std	US735	60—110	0.08—0.30	0.30—2.00
			◐	M	1	MM	MC7025	100—130	0.08—0.30	0.30—2.00
			✣	F	1	FM	VP30RT	40—75	0.04—0.20	0.20—0.90
			✣	F	2	FM	VP15TF	60—105	0.04—0.20	0.20—0.90
			✣	F	3	FS-P	VP30RT	40—75	0.04—0.12	0.20—1.40
			✣	F	4	FS(G)	VP30RT	40—75	0.04—0.12	0.20—1.40
			✣	L	1	LM	MP7035	70—115	0.06—0.25	0.20—1.00
			✣	L	2	LM	VP30RT	40—75	0.06—0.25	0.20—1.00
			✣	L	3	LM	VP15TF	60—105	0.06—0.25	0.20—1.00
			✣	L	4	LS(G)	VP30RT	40—75	0.04—0.15	0.3—3.0
			✣	M	1	MM	MP7035	60—95	0.08—0.30	0.30—2.00
			✣	M	2	MM	VP30RT	35—60	0.08—0.30	0.30—2.00
			✣	M	3	MM	VP15TF	50—90	0.08—0.30	0.30—2.00
	Hardened Stainless Steel (X5CrNiCuNb16-4, X7CrNiAl17-7)	<450HB	●	F	1	FM	VP15TF	40—70	0.04—0.20	0.20—0.90
			●	F	2	FS(G)	MP9005	110—150	0.04—0.12	0.20—1.40
			●	F	3	Std	US735	40—75	0.08—0.25	0.30—2.00
			●	L	1	LM	MC7025	75—95	0.06—0.20	0.20—1.00
			●	L	2	LM	MC7015	85—115	0.06—0.20	0.20—1.00
			●	L	3	LS(G)	MP9015	105—140	0.04—0.15	0.3—3.0
			●	L	4	LS(M)	MP9015	105—140	0.06—0.20	0.20—1.00
			●	M	1	MM	MC7025	60—80	0.08—0.25	0.30—2.00
			●	M	2	MM	MC7015	70—95	0.08—0.25	0.30—2.00
			●	M	3	MS	MP9015	85—120	0.08—0.25	0.30—2.00
			●	M	4	RCMT	MP9015	85—120	0.25—0.45	1.5—3.0
			◐	F	1	FM	VP15TF	40—70	0.04—0.20	0.20—0.90
			◐	F	2	FS(G)	MP9015	105—140	0.04—0.12	0.20—1.40

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

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M	Hardened Stainless Steel (X5CrNiCuNb16-4, X7CrNiAl17-7)	<450HB		F	3	Std	US735	40—75	0.08—0.25	0.30—2.00
				L	1	LM	MC7025	75—95	0.06—0.20	0.20—1.00
				L	2	LS(G)	MP9015	105—140	0.04—0.15	0.3—3.0
				L	3	LS(M)	MP9015	105—140	0.06—0.20	0.20—1.00
				L	4	Std	US735	40—75	0.08—0.25	0.30—2.00
				M	1	MM	MC7025	60—80	0.08—0.25	0.30—2.00
				M	2	MS	MP9015	85—120	0.08—0.25	0.30—2.00
				M	3	RCMT	MP9015	85—120	0.25—0.45	1.5—3.0
				F	1	FM	VP15TF	40—70	0.04—0.20	0.20—0.90
				F	2	FS(M)	MP9025	70—85	0.04—0.20	0.20—0.90
				F	3	FS(G)	MP9025	70—85	0.04—0.12	0.20—1.40
				F	4	FV	MP9025	70—85	0.04—0.20	0.20—0.90
				L	1	LM	MP7035	45—75	0.06—0.20	0.20—1.00
				L	2	LS(M)	MP9025	70—85	0.06—0.20	0.20—1.00
				L	3	LM	VP15TF	40—70	0.06—0.20	0.20—1.00
				L	4	LS(G)	MP9025	70—85	0.04—0.15	0.3—3.0
				M	1	MM	MP7035	40—60	0.08—0.25	0.30—2.00
				M	2	MS	MP9025	60—70	0.08—0.25	0.30—2.00
				M	3	MM	VP15TF	35—60	0.08—0.25	0.30—2.00
				M	4	RCMT	MP9025	60—70	0.25—0.45	1.5—3.0
K	Gray Cast Iron (GG30)	≤350MPa		F	1	LK	MC5105	200—610	0.06—0.25	0.20—1.00
				F	2	LK	MC5115	180—335	0.06—0.25	0.20—1.00
				F	3	MK	MC5105	165—510	0.08—0.30	0.30—2.00
				L	1	LK	MC5105	200—610	0.06—0.25	0.20—1.00
				L	2	LK	MC5115	180—335	0.06—0.25	0.20—1.00
				L	3	MK	MC5105	165—510	0.08—0.30	0.30—2.00
				M	1	MK	MC5105	165—510	0.08—0.30	0.30—2.00
				M	2	MK	MC5115	150—280	0.08—0.30	0.30—2.00
				F	1	LK	MC5105	200—610	0.06—0.25	0.20—1.00
				F	2	LK	MC5115	180—335	0.06—0.25	0.20—1.00
				F	3	MK	MC5105	165—510	0.08—0.30	0.30—2.00
				L	1	LK	MC5105	200—610	0.06—0.25	0.20—1.00
				L	2	LK	MC5115	180—335	0.06—0.25	0.20—1.00
				L	3	MK	MC5105	165—510	0.08—0.30	0.30—2.00
				M	1	MK	MC5105	165—510	0.08—0.30	0.30—2.00
				M	2	MK	MC5115	150—280	0.08—0.30	0.30—2.00
				M	3	Flat	MC5105	165—510	0.08—0.30	0.30—2.00
				F	1	LK	MC5115	180—335	0.06—0.25	0.20—1.00
				F	2	LK	MC5105	200—610	0.06—0.25	0.20—1.00
				L	1	LK	MC5115	180—335	0.06—0.25	0.20—1.00
				L	2	LK	MC5105	200—610	0.06—0.25	0.20—1.00
				M	1	MK	MC5115	150—280	0.08—0.30	0.30—2.00
				M	2	MK	MC5105	165—510	0.08—0.30	0.30—2.00
				M	3	Flat	MC5115	150—280	0.08—0.30	0.30—2.00
				M	4	Flat	MC5105	165—510	0.08—0.30	0.30—2.00

RECOMMENDED CUTTING CONDITIONS

7° POSITIVE INSERT TYPE

Chipbreaker : **Std** : Standard **Flat** : Flat Top

	Material	Tensile Strength	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
K	Ductile Cast Iron (GGG40)	≤450MPa	●	F	1	LK	MC5115	170—315	0.06—0.25	0.20—1.00
			●	F	2	LK	MC5105	190—580	0.06—0.25	0.20—1.00
			●	F	3	MK	MC5115	140—265	0.08—0.30	0.30—2.00
			●	L	1	LK	MC5115	170—315	0.06—0.25	0.20—1.00
			●	L	2	LK	MC5105	190—580	0.06—0.25	0.20—1.00
			●	L	3	MK	MC5115	140—265	0.08—0.30	0.30—2.00
			●	M	1	MK	MC5115	140—265	0.08—0.30	0.30—2.00
			●	M	2	MK	MC5105	155—485	0.08—0.30	0.30—2.00
			●	M	3	Flat	MC5115	140—265	0.08—0.30	0.30—2.00
			◐	F	1	LK	MC5115	170—315	0.06—0.25	0.20—1.00
			◐	F	2	LK	MC5125	90—180	0.06—0.25	0.20—1.00
			◐	F	3	LK	MC5105	190—580	0.06—0.25	0.20—1.00
			◐	F	4	MK	MC5115	140—265	0.08—0.30	0.30—2.00
			◐	L	1	LK	MC5115	170—315	0.06—0.25	0.20—1.00
			◐	L	2	LK	MC5125	90—180	0.06—0.25	0.20—1.00
			◐	L	3	LK	MC5105	190—580	0.06—0.25	0.20—1.00
			◐	L	4	MK	MC5115	140—265	0.08—0.30	0.30—2.00
			◐	M	1	MK	MC5115	140—265	0.08—0.30	0.30—2.00
			◐	M	2	MK	MC5125	75—150	0.08—0.30	0.30—2.00
			◐	M	3	Flat	MC5115	140—265	0.08—0.30	0.30—2.00
			◐	M	4	Flat	MC5125	75—150	0.08—0.30	0.30—2.00
			✣	F	1	LK	MC5125	90—180	0.06—0.25	0.20—1.00
			✣	F	2	LK	MC5115	170—315	0.06—0.25	0.20—1.00
			✣	L	1	LK	MC5125	90—180	0.06—0.25	0.20—1.00
			✣	L	2	LK	MC5115	170—315	0.06—0.25	0.20—1.00
			✣	M	1	MK	MC5125	75—150	0.08—0.30	0.30—2.00
			✣	M	2	MK	MC5115	140—265	0.08—0.30	0.30—2.00
			✣	M	3	Flat	MC5125	75—150	0.08—0.30	0.30—2.00
	Ductile Cast Iron (GGG70)	≤800MPa	●	F	1	LK	MC5115	155—285	0.06—0.25	0.20—1.00
			●	F	2	LK	MC5105	170—520	0.06—0.25	0.20—1.00
			●	F	3	MK	MC5115	125—235	0.08—0.30	0.30—2.00
			●	L	1	LK	MC5115	155—285	0.06—0.25	0.20—1.00
			●	L	2	LK	MC5105	170—520	0.06—0.25	0.20—1.00
			●	L	3	MK	MC5115	125—235	0.08—0.30	0.30—2.00
			●	M	1	MK	MC5115	125—235	0.08—0.30	0.30—2.00
			●	M	2	MK	MC5105	140—435	0.08—0.30	0.30—2.00
			●	M	3	Flat	MC5115	125—235	0.08—0.30	0.30—2.00
			◐	F	1	LK	MC5115	155—285	0.06—0.25	0.20—1.00
			◐	F	2	LK	MC5125	80—160	0.06—0.25	0.20—1.00
			◐	F	3	LK	MC5105	170—520	0.06—0.25	0.20—1.00
			◐	F	4	MK	MC5115	125—235	0.08—0.30	0.30—2.00
			◐	L	1	LK	MC5115	155—285	0.06—0.25	0.20—1.00
			◐	L	2	LK	MC5125	80—160	0.06—0.25	0.20—1.00
			◐	L	3	LK	MC5105	170—520	0.06—0.25	0.20—1.00
			◐	L	4	MK	MC5115	125—235	0.08—0.30	0.30—2.00
			◐	M	1	MK	MC5115	125—235	0.08—0.30	0.30—2.00
			◐	M	2	MK	MC5125	65—135	0.08—0.30	0.30—2.00
			◐	M	3	MK	MC5105	140—435	0.08—0.30	0.30—2.00

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

	Material	Tensile Strength	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
K	Ductile Cast Iron (GGG70)	≤800MPa		M	4	Flat	MC5115	125—235	0.08—0.30	0.30—2.00
				F	1	LK	MC5125	80—160	0.06—0.25	0.20—1.00
				F	2	LK	MC5115	155—285	0.06—0.25	0.20—1.00
				F	3	MK	MC5125	65—135	0.08—0.30	0.30—2.00
				L	1	LK	MC5125	80—160	0.06—0.25	0.20—1.00
				L	2	LK	MC5115	155—285	0.06—0.25	0.20—1.00
				L	3	MK	MC5125	65—135	0.08—0.30	0.30—2.00
				M	1	MK	MC5125	65—135	0.08—0.30	0.30—2.00
				M	2	MK	MC5115	125—235	0.08—0.30	0.30—2.00
				M	3	Flat	MC5125	65—135	0.08—0.30	0.30—2.00
N	Aluminium Alloy (A6061, A7075)	Si<5%		F	1	AZ	HTi10	300—700	0.10—0.40	0.20—3.00
				F	1	AZ	HTi10	300—700	0.10—0.40	0.20—3.00
				F	1	AZ	HTi10	300—700	0.10—0.40	0.20—3.00
	Aluminium Alloy (AC4B)	5%≤Si≤10%		F	1	AZ	HTi10	300—700	0.10—0.40	0.20—3.00
				F	1	AZ	HTi10	300—700	0.10—0.40	0.20—3.00
				F	1	AZ	HTi10	300—700	0.10—0.40	0.20—3.00
	Aluminium Alloy (ADC12, A390)	Si>10%		F	1	AZ	HTi10	300—700	0.10—0.40	0.20—3.00
				F	1	AZ	HTi10	300—700	0.10—0.40	0.20—3.00
				F	1	AZ	HTi10	300—700	0.10—0.40	0.20—3.00
S	Titanium Alloy (Ti-6Al-4V)	—		F	1	FS-P	MT9005	40—80	0.04—0.12	0.20—1.40
				F	2	FJ	RT9010	35—75	0.04—0.12	0.20—1.40
				L	1	LS-P	MT9005	40—80	0.04—0.15	0.3—3.0
				L	2	LS(M)	MT9005	40—80	0.06—0.20	0.20—1.00
				M	1	MS	MT9005	35—65	0.08—0.25	0.30—2.00
				M	2	RCMT	MT9005	35—65	0.25—0.45	1.5—3.0
				F	1	FS-P	MT9005	40—80	0.04—0.12	0.20—1.40
				F	2	FJ	RT9010	35—75	0.04—0.12	0.20—1.40
				L	1	LS-P	MT9005	40—80	0.04—0.15	0.3—3.0
				L	2	LS(M)	MT9005	40—80	0.06—0.20	0.20—1.00
				M	1	MS	MT9005	35—65	0.08—0.25	0.30—2.00
				M	2	RCMT	MT9005	35—65	0.25—0.45	1.5—3.0
				F	1	FS-P	MT9005	40—80	0.04—0.12	0.20—1.40
				F	2	FJ	RT9010	35—75	0.04—0.12	0.20—1.40
				L	1	LS-P	MT9005	40—80	0.04—0.15	0.3—3.0
				L	2	LS(M)	MT9005	40—80	0.06—0.20	0.20—1.00
				M	1	MS	MT9005	35—65	0.08—0.25	0.30—2.00
				M	2	RCMT	MT9015	30—60	0.25—0.45	1.5—3.0

RECOMMENDED CUTTING CONDITIONS

7° POSITIVE INSERT TYPE

Chipbreaker : **Std** : Standard **Flat** : Flat Top

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
S	Heat Resistant Alloy (Inconel®718)	—	●	F	1	FS(G)	MP9005	45—95	0.04—0.12	0.20—1.40
			●	F	2	FJ	VP10RT	20—45	0.04—0.12	0.20—1.40
			●	L	1	LS(G)	MP9005	45—95	0.04—0.15	0.3—3.0
			●	L	2	LS(M)	MP9005	45—95	0.06—0.20	0.20—1.00
			●	M	1	MS	MP9005	40—80	0.08—0.25	0.30—2.00
			●	M	2	RCMT	MP9005	40—80	0.25—0.45	1.5—3.0
			◐	F	1	FS(G)	MP9015	35—75	0.04—0.12	0.20—1.40
			◐	F	2	FJ	VP10RT	20—45	0.04—0.12	0.20—1.40
			◐	L	1	LS(G)	MP9015	35—75	0.04—0.15	0.3—3.0
			◐	L	2	LS(M)	MP9015	35—75	0.06—0.20	0.20—1.00
			◐	M	1	MS	MP9015	30—60	0.08—0.25	0.30—2.00
			◐	M	2	RCMT	MP9015	30—60	0.25—0.45	1.5—3.0
			✣	F	1	FS(G)	MP9025	25—40	0.04—0.12	0.20—1.40
			✣	F	2	FJ	VP10RT	20—45	0.04—0.12	0.20—1.40
			✣	F	3	FS(M)	MP9025	25—40	0.04—0.20	0.20—0.90
			✣	F	4	FV	MP9025	25—40	0.04—0.20	0.20—0.90
			✣	L	1	LS(M)	MP9025	25—40	0.06—0.20	0.20—1.00
			✣	L	2	LS(G)	MP9025	25—40	0.04—0.15	0.3—3.0
			✣	L	3	SW	MP9025	25—40	0.06—0.24	0.20—1.50
			✣	M	1	MS	MP9025	20—35	0.08—0.25	0.30—2.00
			✣	M	2	RCMT	MP9025	20—35	0.25—0.45	1.5—3.0

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

■ 11° POSITIVE INSERT TYPE

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Mild Steel (St37-2, Ck10)	≤180HB	●	F	1	R-R/L	NX2525	225—320	0.06—0.25	0.30—1.50
			●	L	1	R-Std	NX2525	185—270	0.08—0.30	0.30—2.00
			●	M	1	R-Std	NX2525	185—270	0.08—0.30	0.30—2.00
			◐	F	1	FP	MC6125	320—505	0.04—0.20	0.20—0.90
			◐	F	2	FV	MC6125	320—505	0.04—0.20	0.20—0.90
			◐	F	3	R-R/L	NX2525	225—320	0.06—0.25	0.30—1.50
			◐	L	1	LP	MC6125	320—505	0.06—0.25	0.20—1.00
			◐	L	2	R-Std	MC6115	245—475	0.08—0.30	0.30—2.00
			◐	L	3	R-Std	MP3025	190—295	0.08—0.30	0.30—2.00
			◐	M	1	MP	MC6125	270—420	0.08—0.30	0.30—2.00
			◐	M	2	MP	MC6115	245—475	0.08—0.30	0.30—2.00
			◐	M	3	MV	MC6125	270—420	0.08—0.30	0.30—2.00
			◐	M	4	MV	MC6115	245—475	0.08—0.30	0.30—2.00
			✣	F	1	FM	VP30RT	155—190	0.04—0.20	0.20—0.90
			✣	F	2	FV	VP30RT	155—190	0.04—0.20	0.20—0.90
			✣	F	3	R-R/L	UTi20T	115—165	0.06—0.25	0.30—1.50
			✣	L	1	LP	MC6125	320—505	0.06—0.25	0.20—1.00
			✣	L	2	LP	MC6135	265—400	0.06—0.25	0.20—1.00
			✣	L	3	LM	VP30RT	155—190	0.06—0.25	0.20—1.00
			✣	L	4	R-Std	MC6125	270—420	0.08—0.30	0.30—2.00
			✣	M	1	MM	VP30RT	125—160	0.08—0.30	0.30—2.00
			✣	M	2	MP	MC6125	270—420	0.08—0.30	0.30—2.00
			✣	M	3	MP	MC6135	220—330	0.08—0.30	0.30—2.00
			✣	M	4	MV	MC6125	270—420	0.08—0.30	0.30—2.00
	Carbon Steel • Alloy Steel (Ck45, 42CrMo4)	180 – 280HB	●	F	1	R-R/L	NX2525	165—240	0.06—0.25	0.30—1.50
			●	L	1	R-Std	NX2525	140—200	0.08—0.30	0.30—2.00
			●	M	1	R-Std	NX2525	140—200	0.08—0.30	0.30—2.00
			◐	F	1	FP	MC6125	240—370	0.04—0.20	0.20—0.90
			◐	F	2	FV	MC6125	240—370	0.04—0.20	0.20—0.90
			◐	F	3	R-R/L	NX2525	165—240	0.06—0.25	0.30—1.50
			◐	L	1	LP	MC6125	240—370	0.06—0.25	0.20—1.00
			◐	L	2	LP	MC6115	220—420	0.06—0.25	0.20—1.00
			◐	L	3	R-Std	MC6115	180—350	0.08—0.30	0.30—2.00
			◐	L	4	R-Std	MC6125	200—310	0.08—0.30	0.30—2.00
			◐	M	1	MP	MC6125	200—310	0.08—0.30	0.30—2.00
			◐	M	2	MV	MC6125	200—310	0.08—0.30	0.30—2.00
			◐	M	3	R-Std	MC6115	180—350	0.08—0.30	0.30—2.00
			◐	M	4	R-Std	MC6125	200—310	0.08—0.30	0.30—2.00
			✣	F	1	FM	VP30RT	115—140	0.04—0.20	0.20—0.90
			✣	F	2	FV	VP30RT	115—140	0.04—0.20	0.20—0.90
			✣	F	3	R-R/L	UTi20T	85—120	0.06—0.25	0.30—1.50
			✣	L	1	LP	MC6125	240—370	0.06—0.25	0.20—1.00
			✣	L	2	LP	MC6135	195—295	0.06—0.25	0.20—1.00
			✣	L	3	LM	VP30RT	115—140	0.06—0.25	0.20—1.00
			✣	L	4	R-Std	MC6125	200—310	0.08—0.30	0.30—2.00
			✣	M	1	MM	VP30RT	95—120	0.08—0.30	0.30—2.00
			✣	M	2	MP	MC6125	200—310	0.08—0.30	0.30—2.00
			✣	M	3	MP	MC6135	160—245	0.08—0.30	0.30—2.00
			✣	M	4	MV	MC6125	200—310	0.08—0.30	0.30—2.00

RECOMMENDED CUTTING CONDITIONS

11° POSITIVE INSERT TYPE

Chipbreaker : **Std** : Standard **Flat** : Flat Top

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M	Austenitic Stainless Steel (X5CrNi189, X5CrNiMo1810)	≤200HB	●	L	1	LM	MC7025	140—190	0.06—0.25	0.20—1.00
			●	L	2	LM	MC7015	155—245	0.06—0.25	0.20—1.00
			●	M	1	MM	MC7025	120—160	0.08—0.30	0.30—2.00
			●	M	2	MM	MC7015	130—205	0.08—0.30	0.30—2.00
			◐	L	1	LM	MC7025	140—190	0.06—0.25	0.20—1.00
			◐	M	1	MM	MC7025	120—160	0.08—0.30	0.30—2.00
			✣	F	1	FM	VP30RT	50—90	0.04—0.20	0.20—0.90
			✣	F	2	FV	VP30RT	50—90	0.04—0.20	0.20—0.90
			✣	L	1	LM	VP30RT	50—90	0.06—0.25	0.20—1.00
			✣	M	1	MM	VP30RT	40—75	0.08—0.30	0.30—2.00
	Austenitic Stainless Steel (X2CrNiN1810, X2CrNiMoN1813)	>200HB	●	L	1	LM	MC7025	120—160	0.06—0.25	0.20—1.00
			●	L	2	LM	MC7015	130—205	0.06—0.25	0.20—1.00
			●	M	1	MM	MC7025	100—130	0.08—0.30	0.30—2.00
			●	M	2	MM	MC7015	110—170	0.08—0.30	0.30—2.00
			◐	L	1	LM	MC7025	120—160	0.06—0.25	0.20—1.00
			◐	M	1	MM	MC7025	100—130	0.08—0.30	0.30—2.00
			✣	F	1	FM	VP30RT	40—75	0.04—0.20	0.20—0.90
			✣	F	2	FV	VP30RT	40—75	0.04—0.20	0.20—0.90
			✣	L	1	LM	VP30RT	40—75	0.06—0.25	0.20—1.00
			✣	M	1	MM	VP30RT	35—60	0.08—0.30	0.30—2.00
	Two-phase Stainless Steel (X3CrNiCu1894)	≤280HB	●	L	1	LM	MC7025	95—130	0.06—0.25	0.20—1.00
			●	L	2	LM	MC7015	105—165	0.06—0.25	0.20—1.00
			●	M	1	MM	MC7025	80—105	0.08—0.30	0.30—2.00
			●	M	2	MM	MC7015	85—140	0.08—0.30	0.30—2.00
			◐	L	1	LM	MC7025	95—130	0.06—0.25	0.20—1.00
			◐	M	1	MM	MC7025	80—105	0.08—0.30	0.30—2.00
			✣	F	1	FM	VP30RT	35—60	0.04—0.20	0.20—0.90
			✣	F	2	FV	VP30RT	35—60	0.04—0.20	0.20—0.90
			✣	L	1	LM	VP30RT	35—60	0.06—0.25	0.20—1.00
			✣	M	1	MM	VP30RT	25—50	0.08—0.30	0.30—2.00
	Ferritic and Martensitic Stainless Steel (X10Cr13, X8Cr17)	≤200HB	●	L	1	LM	MC7025	140—190	0.06—0.25	0.20—1.00
			●	L	2	LM	MC7015	155—245	0.06—0.25	0.20—1.00
			●	M	1	MM	MC7025	120—160	0.08—0.30	0.30—2.00
			●	M	2	MM	MC7015	130—205	0.08—0.30	0.30—2.00
			◐	L	1	LM	MC7025	140—190	0.06—0.25	0.20—1.00
			◐	M	1	MM	MC7025	120—160	0.08—0.30	0.30—2.00
			✣	F	1	FM	VP30RT	50—90	0.04—0.20	0.20—0.90
			✣	F	2	FV	VP30RT	50—90	0.04—0.20	0.20—0.90
			✣	L	1	LM	VP30RT	50—90	0.06—0.25	0.20—1.00
			✣	M	1	MM	VP30RT	40—75	0.08—0.30	0.30—2.00
	Ferritic and Martensitic Stainless Steel (X17CrNi162, X30Cr13)	>200HB	●	L	1	LM	MC7025	120—160	0.06—0.25	0.20—1.00
			●	L	2	LM	MC7015	130—205	0.06—0.25	0.20—1.00
			●	M	1	MM	MC7025	100—130	0.08—0.30	0.30—2.00
			●	M	2	MM	MC7015	110—170	0.08—0.30	0.30—2.00
			◐	L	1	LM	MC7025	120—160	0.06—0.25	0.20—1.00
			◐	M	1	MM	MC7025	100—130	0.08—0.30	0.30—2.00
			✣	F	1	FM	VP30RT	40—75	0.04—0.20	0.20—0.90
			✣	F	2	FV	VP30RT	40—75	0.04—0.20	0.20—0.90

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

	Material	Hardness	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
M	Ferritic and Martensitic Stainless Steel (X17CrNi162, X30Cr13)	>200HB		L	1	LM	VP30RT	40—75	0.06—0.25	0.20—1.00
				M	1	MM	VP30RT	35—60	0.08—0.30	0.30—2.00
	Hardened Stainless Steel (X5CrNiCuNb16-4, X7CrNiAl17-7)	<450HB		L	1	LM	MC7025	75—95	0.06—0.20	0.20—1.00
				L	2	LM	MC7015	85—115	0.06—0.20	0.20—1.00
				M	1	MM	MC7025	60—80	0.08—0.25	0.30—2.00
				M	2	MM	MC7015	70—95	0.08—0.25	0.30—2.00
				L	1	LM	MC7025	75—95	0.06—0.20	0.20—1.00
				M	1	MM	MC7025	60—80	0.08—0.25	0.30—2.00
				F	1	FS(M)	MP9025	70—85	0.04—0.20	0.20—0.90
				F	2	FV	MP9025	70—85	0.04—0.20	0.20—0.90
				L	1	LS(M)	MP9025	70—85	0.06—0.20	0.20—1.00
				L	2	SW	MP9025	70—85	0.06—0.24	0.20—1.50
				M	1	MS	MP9025	60—70	0.08—0.25	0.30—2.00
K	Gray Cast Iron (GG30)	≤350MPa		F	1	R-R/L	NX2525	145—200	0.06—0.25	0.30—1.50
				L	1	N-Flat	MC5105	165—510	0.08—0.30	0.30—2.00
				L	2	N-Flat	MC5115	150—280	0.08—0.30	0.30—2.00
				M	1	N-Flat	MC5105	165—510	0.08—0.30	0.30—2.00
				M	2	N-Flat	MC5115	150—280	0.08—0.30	0.30—2.00
				F	1	R-R/L	NX2525	145—200	0.06—0.25	0.30—1.50
				F	2	R-R/L	HTi10	90—125	0.06—0.25	0.30—1.50
				L	1	N-Flat	MC5105	165—510	0.08—0.30	0.30—2.00
				L	2	N-Flat	MC5115	150—280	0.08—0.30	0.30—2.00
				M	1	N-Flat	MC5105	165—510	0.08—0.30	0.30—2.00
				M	2	N-Flat	MC5115	150—280	0.08—0.30	0.30—2.00
				F	1	R-R/L	UTi20T	70—105	0.06—0.25	0.30—1.50
				L	1	N-Flat	MC5115	150—280	0.08—0.30	0.30—2.00
				L	2	N-Flat	MC5105	165—510	0.08—0.30	0.30—2.00
				L	3	N-Flat	VP15TF	115—160	0.08—0.30	0.30—2.00
				M	1	N-Flat	MC5115	150—280	0.08—0.30	0.30—2.00
				M	2	N-Flat	MC5105	165—510	0.08—0.30	0.30—2.00
				M	3	N-Flat	VP15TF	115—160	0.08—0.30	0.30—2.00
				M	4	Flat	HTi10	75—105	0.08—0.30	0.30—2.00
	Ductile Cast Iron (GGG40)	≤450MPa		F	1	R-R/L	NX2525	140—190	0.06—0.25	0.30—1.50
				L	1	N-Flat	MC5115	140—265	0.08—0.30	0.30—2.00
				L	2	N-Flat	MC5105	155—485	0.08—0.30	0.30—2.00
				M	1	N-Flat	MC5115	140—265	0.08—0.30	0.30—2.00
				M	2	N-Flat	MC5105	155—485	0.08—0.30	0.30—2.00
				F	1	R-R/L	NX2525	140—190	0.06—0.25	0.30—1.50
				F	2	R-R/L	HTi10	85—120	0.06—0.25	0.30—1.50
				L	1	N-Flat	MC5115	140—265	0.08—0.30	0.30—2.00
				L	2	N-Flat	MC5125	75—150	0.08—0.30	0.30—2.00
				L	3	N-Flat	MC5105	155—485	0.08—0.30	0.30—2.00
				M	1	N-Flat	MC5115	140—265	0.08—0.30	0.30—2.00
				M	2	N-Flat	MC5125	75—150	0.08—0.30	0.30—2.00
				M	3	N-Flat	MC5105	155—485	0.08—0.30	0.30—2.00
				F	1	R-R/L	UTi20T	65—100	0.06—0.25	0.30—1.50
				L	1	N-Flat	MC5125	75—150	0.08—0.30	0.30—2.00
				L	2	N-Flat	MC5115	140—265	0.08—0.30	0.30—2.00

RECOMMENDED CUTTING CONDITIONS

11° POSITIVE INSERT TYPE

Chipbreaker : **Std** : Standard **Flat** : Flat Top

	Material	Tensile Strength	Cutting Mode		Priority	Chipbreaker	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
K	Ductile Cast Iron (GGG40)	≤450MPa	✣	L	3	N-Flat	VP15TF	110—150	0.08—0.30	0.30—2.00
			✣	M	1	N-Flat	MC5125	75—150	0.08—0.30	0.30—2.00
			✣	M	2	N-Flat	MC5115	140—265	0.08—0.30	0.30—2.00
			✣	M	3	N-Flat	VP15TF	110—150	0.08—0.30	0.30—2.00
			✣	M	4	Flat	HTi10	70—100	0.08—0.30	0.30—2.00
	Ductile Cast Iron (GGG70)	≤800MPa	●	F	1	R-R/L	NX2525	125—170	0.06—0.25	0.30—1.50
			●	L	1	N-Flat	MC5115	125—235	0.08—0.30	0.30—2.00
			●	L	2	N-Flat	MC5105	140—435	0.08—0.30	0.30—2.00
			●	M	1	N-Flat	MC5115	125—235	0.08—0.30	0.30—2.00
			●	M	2	N-Flat	MC5105	140—435	0.08—0.30	0.30—2.00
			◐	F	1	R-R/L	NX2525	125—170	0.06—0.25	0.30—1.50
			◐	F	2	R-R/L	HTi10	75—110	0.06—0.25	0.30—1.50
			◐	L	1	N-Flat	MC5115	125—235	0.08—0.30	0.30—2.00
			◐	L	2	N-Flat	MC5125	65—135	0.08—0.30	0.30—2.00
			◐	L	3	N-Flat	MC5105	140—435	0.08—0.30	0.30—2.00
			◐	M	1	N-Flat	MC5115	125—235	0.08—0.30	0.30—2.00
			◐	M	2	N-Flat	MC5125	65—135	0.08—0.30	0.30—2.00
			◐	M	3	N-Flat	MC5105	140—435	0.08—0.30	0.30—2.00
			✣	F	1	R-R/L	UTi20T	60—85	0.06—0.25	0.30—1.50
			✣	L	1	N-Flat	MC5125	65—135	0.08—0.30	0.30—2.00
			✣	L	2	N-Flat	MC5115	125—235	0.08—0.30	0.30—2.00
			✣	L	3	N-Flat	VP15TF	95—135	0.08—0.30	0.30—2.00
			✣	M	1	N-Flat	MC5125	65—135	0.08—0.30	0.30—2.00
			✣	M	2	N-Flat	MC5115	125—235	0.08—0.30	0.30—2.00
			✣	M	3	N-Flat	VP15TF	95—135	0.08—0.30	0.30—2.00
			✣	M	4	Flat	HTi10	60—90	0.08—0.30	0.30—2.00
S	Heat Resistant Alloy (Inconel®718)	—	✣	F	1	FS(M)	MP9025	25—40	0.04—0.20	0.20—0.90
			✣	F	2	FV	MP9025	25—40	0.04—0.20	0.20—0.90
			✣	L	1	LS(M)	MP9025	25—40	0.06—0.20	0.20—1.00
			✣	L	2	SW	MP9025	25—40	0.06—0.24	0.20—1.50
			✣	M	1	MS	MP9025	20—35	0.08—0.25	0.30—2.00

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

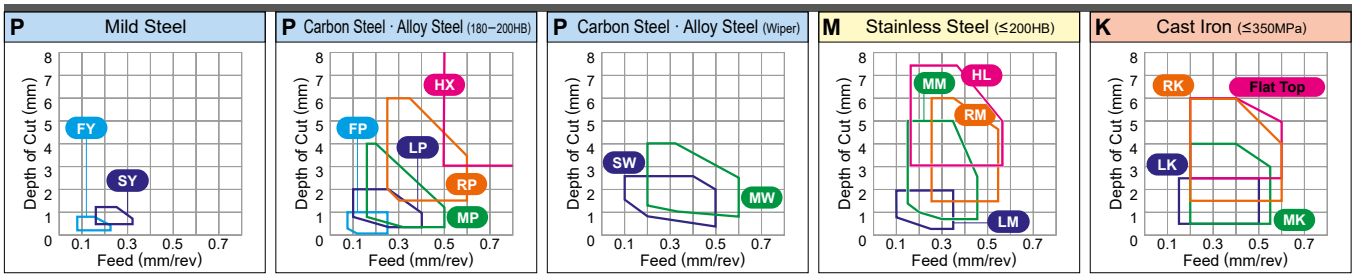
Memo

80° CN TYPE INSERTS WITH HOLE

CNMG 12 04 02- FP
Size / Thickness / Corner Radius / Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
FP	**CNMG120402-FP**	0.2	★	★	★																					●				●							C008
	CNMG120404-FP	0.4	●	★	★																					●				●							C009
	CNMG120408-FP	0.8	●	★	★																					●				●							E015
	CNMG120412-FP	1.2	★	★	★																					●				●							E039
Finish Cutting																																					H006
																																					—008
FH	**CNMG120402-FH**	0.2	★	★	★																					●				★	★						C008
	CNMG120404-FH	0.4	★	★	★																					●	★			●							C009
	CNMG120408-FH	0.8	★	★																						●	●			●							E015
	CNMG120412-FH	1.2																									★			●							E039
Finish Cutting																																					H006
																																					—008
FS	**CNMG120404-FS**	0.4		★	★																									●							C008
	CNMG120408-FS	0.8																												●							C009
Finish Cutting																																					E015
																																					E039
																																					H006
																																					—008
FS NEW	**CNGG1204V5-FS**	0.05															●	●																	★		C008
	CNGG120401-FS	0.1															●	●	●																★		C009
	CNGG120402-FS	0.2															●	●	●																★		E015
	CNGG120404-FS	0.4															●	●	●																★		E039
Finish Cutting	**CNGG120408-FS**	0.8															●	●	●																★		H006
																																					—008
FY	**CNMG120404-FY**	0.4	●	★	★																					★	●			●	★						C008
	CNMG120408-FY	0.8	●	●	★																					★	●			●							C009
Finish Cutting																																					E015
																																					E039
																																					H006
																																					—008
FJ	**CNGG1204V5-FJ**	0.05																					●										★				C008
	CNGG120401-FJ	0.1																					●										★				C009
	CNGG120402-FJ	0.2																					●										●				E015
	CNGG120404-FJ	0.4																					●	●									●				E039
Finish Cutting	**CNGG120408-FJ**	0.8																					●	●									●				H006
																																					—008
LP	**CNMG120404-LP**	0.4	●	●	★	●																					●											C008
	CNMG120408-LP	0.8	●	●	★	●																					●											C009
	CNMG120412-LP	1.2	●	●	★	●																																E015
Light Cutting																																					E039
																																					H006
																																					—008

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
LM	**CNMG120404-LM**	0.4						●	●	●																										C008
	CNMG120408-LM	0.8						●	●	●																										C009
	CNMG120412-LM	1.2						●	●	●																										E015 E039 H006 −008
Light Cutting																																				
LK	**CNMG120404-LK**	0.4											●	●	★																					C008
	CNMG120408-LK	0.8											●	●	★	★																				C009
	CNMG120412-LK	1.2											●	●	★	★																				E015 E039 H006 −008
Light Cutting																																				
LS	**CNMG090304-LS**	0.4																●	●	●																C008
	CNMG090308-LS	0.8																●	●	●																C009
	CNMG120402-LS	0.2															●	●	●	●															●	E015
	CNMG120404-LS	0.4															●	●	●	●															●	E039 H006
	CNMG120408-LS	0.8															●	●	●	●															●	−008
Light Cutting																																				
NEW **LS**	**CNGG120402-LS**	0.2																●	●	●															★	C008
	CNGG120404-LS	0.4																●	●	●															★	C009
	CNGG120408-LS	0.8																●	●	●															★	E015 E039 H006 −008
Light Cutting																																				
SH	**CNMG09T304-SH**	0.4	★	●							●																									C008
	CNMG09T308-SH	0.8	★	●																																C009
	CNMG120404-SH	0.4	★	★	★						●			●														★			●	★				E015 E039 H006 −008
	CNMG120408-SH	0.8	★	★	★						●			●														★			●	★				
Light Cutting	**CNMG120412-SH**	1.2	★	★	★																															
SA	**CNMG120404-SA**	0.4	★	★	★																										★	★				C008
	CNMG120408-SA	0.8	●	★	★																										★	★				C009
	CNMG120412-SA	1.2	★	★	★																											★				E015 E039 H006 −008
Light Cutting																																				
* **SW**	**CNMG120404-SW**	0.4	●	★									★	●	★												★			●	★					C008
	CNMG120408-SW	0.8	●	★									●	●	●												●			●	★					C009
	CNMG120412-SW	1.2	●	★																							★			●	★					E015 E039 H006 −008
Light Cutting (Wiper)																																				
SY	**CNMG120404-SY**	0.4	★	★	★																						★	●		●						C008
	CNMG120408-SY	0.8	●	●	★																						★	●		●						C009 E015 E039 H006 −008
Light Cutting																																				
MJ	**CNMG120404-MJ**	0.4																●	●		●		●	●											●		C008
	CNMG120408-MJ	0.8																●	●		●		●	●											●		C009
	CNMG120412-MJ	1.2																●	●		●		●	●													E015 E039 H006
	CNMG120416-MJ	1.6																●	●		●		★	●													−008
Light Cutting																																				

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

● = NEW

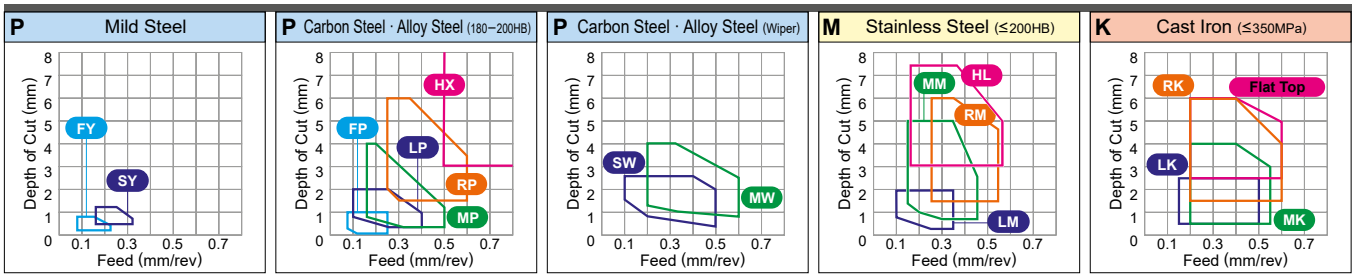
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° CN TYPE INSERTS WITH HOLE

CNGG 12 04 04- MJ
Size / Thickness / Corner Radius / Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																			Coated Cermet				Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105	NEW MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
MJ	**CNGG120404-MJ**	0.4																					●	●								●	●					C008
	CNGG120408-MJ	0.8																					●	●								●	●					C009
																																						E015 E039 H006 −008
Light Cutting																																						
MP	**CNMG120404-MP**	0.4	●	●	●	●								●													★											C008 C009 E015 E039 H006 −008
	CNMG120408-MP	0.8	●	●	●	●								●													●											
	CNMG120412-MP	1.2	●	●	●	●								●													●											
	CNMG120416-MP	1.6	●	●	★	●								●																								
	CNMG160608-MP	0.8	★	●	★									★																								
	CNMG160612-MP	1.2	★	●	★									★																								
Medium Cutting	**CNMG160616-MP**	1.6	★	●	★									★																								
MM	**CNMG120408-MM**	0.8						●	●	●																												C008 C009 E015 E039 H006 −008
	CNMG120412-MM	1.2						●	●	●																												
	CNMG120416-MM	1.6						●	●	●																												
	CNMG160608-MM	0.8						●	●	●																												
	CNMG160612-MM	1.2						●	●	●																												
	CNMG160616-MM	1.6						●	●	●																												
	CNMG190608-MM	0.8						●	●	●																												
	CNMG190612-MM	1.2						●	●	●																												
Medium Cutting	**CNMG190616-MM**	1.6						●	●	●																												
MK	**CNMG120404-MK**	0.4											●	●	●																							C008 C009 E015 E039 H006 −008
	CNMG120408-MK	0.8											●	●	●																							
	CNMG120412-MK	1.2											●	●	●																							
	CNMG120416-MK	1.6											★	●	●																							
	CNMG160608-MK	0.8											★	●	★																							
	CNMG160612-MK	1.2											●	●	●																							
	CNMG160616-MK	1.6											●	●	★																							
	CNMG190612-MK	1.2											★	●	★																							
Medium Cutting	**CNMG190616-MK**	1.6											★	●	★																							

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
* MS	CNMG090304-MS	0.4																●	●	●																	
	CNMG090308-MS	0.8																●	●	●																	C008
	CNMG120404-MS	0.4															●	●	●	●																	C009
	CNMG120408-MS	0.8															●	●	●	●																	E015
	CNMG120412-MS	1.2															●	●	●	●																	E039
	CNMG160612-MS	1.2																★	●	●																	H006
Medium Cutting	CNMG160616-MS	1.6																★	★	●																	−008
MS	CNMG090304-MS	0.4								●																											
	CNMG090308-MS	0.8	★	★						●																											
	CNMG09T304-MS	0.4								●																							●				
	CNMG09T308-MS	0.8	★	●						●																											
	CNMG120404-MS	0.4	★	★	★					●													●	●	●								★	●		●	●	C008
	CNMG120408-MS	0.8	●	★	★					●											●		●	●	●								●	●	●	●	●	C009
	CNMG120412-MS	1.2	★	★						●											★		●	●	●										●	●	E015
	CNMG160608-MS	0.8								★																											E039
	CNMG160612-MS	1.2								★																										★	H006
	CNMG160616-MS	1.6																																		★	−008
	CNMG190612-MS	1.2								●																											
Medium Cutting	CNMG190616-MS	1.6								●																											
GK	CNMG120404-GK	0.4											●	●	●																						
	CNMG120408-GK	0.8											●	●	●	★																					
	CNMG120412-GK	1.2											●	●	●	★																					
	NEW CNMG120416-GK	1.6											●	●	★																						
	NEW CNMG160612-GK	1.2											●	●	★																						
	NEW CNMG160616-GK	1.6											●	●	★																						
	NEW CNMG190612-GK	1.2											●	●	★																						
Medium Cutting	NEW CNMG190616-GK	1.6												●	★																						
GM	CNMG120404-GM	0.4						●	●	●																											
	CNMG120408-GM	0.8						●	●	●																											
	CNMG120412-GM	1.2						●	●	●																											
Medium Cutting																																					
MA	CNMG120404-MA	0.4	●	●	★				●	●	●		●	●	●				●	●				●						★							
	CNMG120408-MA	0.8	●	●	●	●			●	●	●		●	●	●	★	●		●	●				●						●							
	CNMG120412-MA	1.2	●	●	●	●			●	●	●		●	●	●	★	●		●	●				★						★							C008
	CNMG120416-MA	1.6	★	★	★					●			●	●	★		●		●	●																	C009
	CNMG160608-MA	0.8	●	●	★	★				●				●	●																						E015
	CNMG160612-MA	1.2	●	●	★	★				●				●	●																						E039
	CNMG160616-MA	1.6	●	●	★	★				●				●	★																						H006
	CNMG190612-MA	1.2	●	●	★	★				●			●	●	★																						−008
Medium Cutting	CNMG190616-MA	1.6	●	●	★	★				●				●	★																						

*Newly designed breakers : MP9005, MP9015, MP9025, MT9015, MV9005

● = NEW

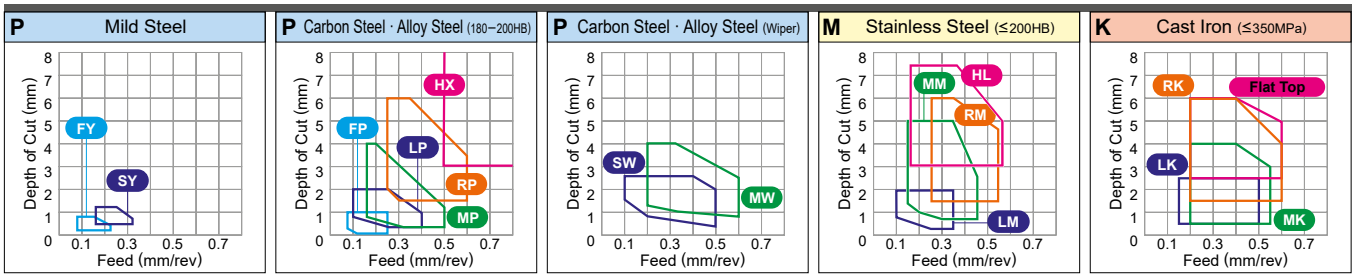
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° CN TYPE INSERTS WITH HOLE

CNMG 12 04 04- MH
Size · Thickness · Corner Radius · Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
MH	**CNMG120404-MH**	0.4	★	●	★																																		
	CNMG120408-MH	0.8	●	●	★	★								●																										
	CNMG120412-MH	1.2	●	●	★	★								●																										C008 C009 E015 E039 H006 −008
	CNMG120416-MH	1.6	★	●	★									●																									
	CNMG160608-MH	0.8	★	★										●																									
	CNMG160612-MH	1.2	●	●	★	★								●																									
	CNMG160616-MH	1.6	★	★										●																									
	CNMG190612-MH	1.2	●	●	★	★								●																									
Medium Cutting	**CNMG190616-MH**	1.6	★	●	★																																		
Standard	**CNMG090308**	0.8	★	★																																			
	CNMG09T304	0.4	★	★	★																										●								
	CNMG09T308	0.8	★	★	★																										★								
	CNMG120404	0.4	●	●	★																						★				●	★	●	●					
	CNMG120408	0.8	●	●	★	●																			●		★				●		●	●					C008 C009 E015 E039 H006 −008
	CNMG120412	1.2	●	●	●	●																			★						★								
	CNMG120416	1.6	●	●	★																																		
	CNMG160608	0.8	●	●	★	●																																	
	CNMG160612	1.2	●	●	★	●																												●					
	CNMG160616	1.6	●	●	★	●																																	
	CNMG190608	0.8	●	●	★	●																																	
	CNMG190612	1.2	●	●	★	●																																	
Medium Cutting	**CNMG190616**	1.6	●	●	★	●																																	
* **MW**	**CNMG120408-MW**	0.8	●	●	★								●	●																									C008 C009 E015 E039 H006 −008
	CNMG120412-MW	1.2	●	●	★								●	●																									
Medium Cutting (Wiper)																																							
RP	**CNMG120408-RP**	0.8	●	●	●	●																																	
	CNMG120412-RP	1.2	●	●	●	●																																	C008 C009 E015 E039 H006 −008
	CNMG120416-RP	1.6	●	●	★	●																																	
	CNMG160612-RP	1.2	●	●	●	●																																	
	CNMG160616-RP	1.6	●	●	●	●																																	
	CNMG190612-RP	1.2	●	●	●	●																																	
Rough Cutting	**CNMG190616-RP**	1.6	●	●	●	●																																	

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

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
RM	**CNMG120408-RM**	0.8						●	●	●																											
	CNMG120412-RM	1.2						●	●	●																											C008
	CNMG120416-RM	1.6						●	●	●																											C009
	CNMG160612-RM	1.2						●	●	●																											E015
	CNMG160616-RM	1.6						●	●	●																											E039
	CNMG190612-RM	1.2						●	●	●																											H006
Rough Cutting	**CNMG190616-RM**	1.6						●	●	●																											−008
RK	**CNMG120408-RK**	0.8											●	●	●	★																					
	CNMG120412-RK	1.2											●	●	●	★																					C008
	CNMG120416-RK	1.6											●	●	●																						C009
	CNMG160608-RK	0.8											★	●	★																						E015
	CNMG160612-RK	1.2											●	●	●																						E039
	CNMG160616-RK	1.6											●	●	●																						H006
	CNMG190612-RK	1.2											★	●	★																						−008
Rough Cutting	**CNMG190616-RK**	1.6											★	●	★																						
RS	**CNMG120408-RS**	0.8															●	●	●																	●	
	CNMG120412-RS	1.2															●	●	●																	●	C008
	CNMG120416-RS	1.6															●	●	●																	★	C009
	CNMG160612-RS	1.2																●	●																	★	E015
	CNMG160616-RS	1.6																●	●																	★	E039
	CNMG190612-RS	1.2																●	●																	★	H006
Rough Cutting	**CNMG190616-RS**	1.6															●	●	●																	★	−008
GH	**CNMG120408-GH**	0.8	★	●	★					●			●	●	●																						
	CNMG120412-GH	1.2	★	●	★					●			●	●	●																						C008
	CNMG120416-GH	1.6	★	★									●	●	●																						C009
	CNMG160612-GH	1.2	★	●	★					●			●	●	●																						E015
	CNMG160616-GH	1.6	★	●									●	●	●																						E039
	CNMG190612-GH	1.2	★	●	★					●			●	●	★																						H006
Rough Cutting	**CNMG190616-GH**	1.6	★	●	★					●			●	●	★																						−008
GJ	**CNMG120408-GJ**	0.8																			★		●	●										●			
	CNMG120412-GJ	1.2																			●		●	●										●			C008
	CNMG120416-GJ	1.6																			●		●	●										★			C009
	CNMG160612-GJ	1.2																			★		●											●			E015
	CNMG190612-GJ	1.2																			★		●											●			E039
Rough Cutting	**CNMG190616-GJ**	1.6																			★		●											●			H006
																																					−008
HX	**CNMM120408-HX**	0.8		★	★	★																															
	CNMM120412-HX	1.2		★	★	★																															C008
	CNMM160612-HX	1.2		★	★	★																															C009
	CNMM160616-HX	1.6		★	★	★																															E015
	CNMM190612-HX	1.2	★	●	★	●																															E039
	CNMM190616-HX	1.6	★	●	★	●																															H006
	CNMM190624-HX	2.4	★	●	★	●																															−008
Heavy Cutting	**CNMM250924-HX**	2.4	●	★	●	●																															

● = NEW

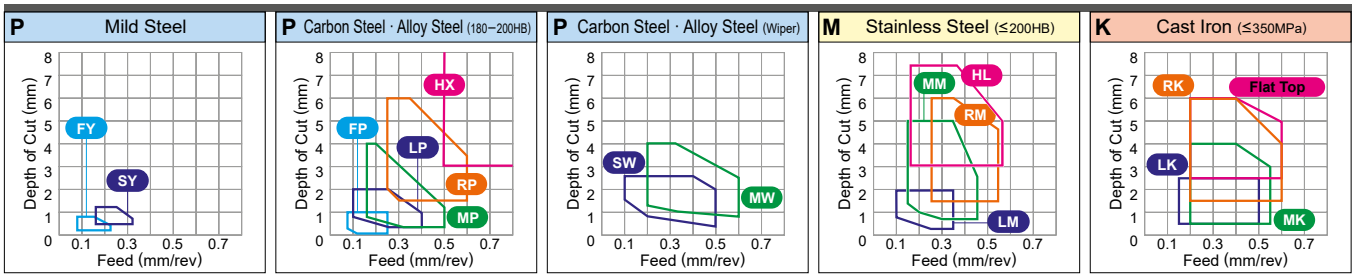
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° CN TYPE INSERTS WITH HOLE

CNMM 12 04 08- HL
Size / Thickness / Corner Radius / Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
HL	**CNMM120408-HL**	0.8		●	●	●				●																										
	CNMM120412-HL	1.2		●	★	●				●																										
	CNMM120416-HL	1.6			●	●				□																										C008 C009 E015 E039 H006 –008
	CNMM160612-HL	1.2		●	●	●				★																										
	CNMM160616-HL	1.6		★	★	●				★																										
	CNMM190612-HL	1.2		●	●	●				★																										
	CNMM190616-HL	1.6		●	★	●				★																										
Heavy Cutting	**CNMM190624-HL**	2.4		★	★	●				★																										
HR	**CNMM250924-HR**	2.4		●	●	●																														–
Heavy Cutting																																				
HV	**CNMM190616-HV**	1.6		★	●	★	●																													
	CNMM190624-HV	2.4		★	★	★	●																													C008 C009
	CNMM250924-HV	2.4		★	●	●	●																													
Heavy Cutting																																				
HZ	**CNMM120408-HZ**	0.8		●	●	★	●																													
	CNMM120412-HZ	1.2		●	●	★	●																													C008 C009 E015 E039 H006 –008
	CNMM120416-HZ	1.6				★	●																													
	CNMM160612-HZ	1.2		●	●	★																														
	CNMM160616-HZ	1.6		★	★	★																														
	CNMM190612-HZ	1.2		★	●	★																														
Heavy Cutting	**CNMM190616-HZ**	1.6		★	●	★																														
HM	**CNMM160612-HM**	1.2			●	★	●				●																									
	CNMM160616-HM	1.6			★	★	●				★																									
	CNMM190612-HM	1.2			●	●	●				●																									C008 C009
	CNMM190616-HM	1.6			●	★	●				●																									
	CNMM190624-HM	2.4			★	★	●				●																									
Heavy Cutting	**CNMM250924-HM**	2.4		★	★	●	●				□																									

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
□ : Non stock, produced to order only.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	NEW MH515	MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
Flat Top	**CNMA120404**	0.4											●	●	●																	●					
	CNMA120408	0.8											●	●	●	★																●					
	CNMA120412	1.2											●	●	●	★																					C008 C009 E015 E039 H006 −008
	CNMA120416	1.6											●	●	●																						
	CNMA160612	1.2											●	●	●																						
	CNMA160616	1.6											●	●	●																						
	CNMA190612	1.2											●	●	●																						
	CNMA190616	1.6											●	●	●																						
	CNMA190624	2.4											●	●	★																						

● = NEW

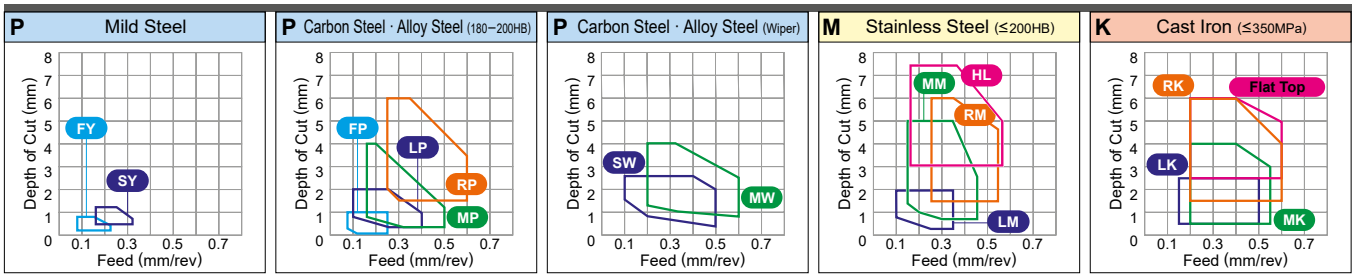
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

55° DN TYPE INSERTS WITH HOLE

DNMG 15 04 02- FP
Size / Thickness / Corner Radius / Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
FP	**DNMG150402-FP**	0.2	★★★																								●			★						
	DNMG150404-FP	0.4	★★★																								★			★						C010
	DNMG150408-FP	0.8	★★★																								★			★						C011
	DNMG150412-FP	1.2	★★★																								★			●						E015
	DNMG150602-FP	0.2	★★★																								★			★						E039
	DNMG150604-FP	0.4	●★★																								●			★						−041
	DNMG150608-FP	0.8	●★★																								●			★						H009
Finish Cutting	**DNMG150612-FP**	1.2	★★★																								●			●						−011
FH	**DNMG150402-FH**	0.2	★★★																								●			★★						C010
	DNMG150404-FH	0.4	★★																								★★			●★						C011
	DNMG150408-FH	0.8	★★																								★★			●						E015
	DNMG150602-FH	0.2	★★★																								●			★★						E039
	DNMG150604-FH	0.4	●★★																								●									−041
Finish Cutting	**DNMG150608-FH**	0.8	★★★																								●									H009
																																				−011
FS	**DNMG150404-FS**	0.4																												●						C010
	DNMG150408-FS	0.8		★★																										●						C011
	DNMG150604-FS	0.4																												●						E015
	DNMG150608-FS	0.8																												●						E039
Finish Cutting																																				−041
																																				H009
																																				−011
FS NEW	**DNGG150402-FS**	0.2																●●●																	★	C010
	DNGG150404-FS	0.4																●●●																	★	C011
	DNGG150408-FS	0.8																●●●																	★	E015
	DNGG150604-FS	0.4																●●●																	★	E039
Finish Cutting	**DNGG150608-FS**	0.8																●●●																	★	−041
																																				H009
																																				−011
FY	**DNMG150404-FY**	0.4	★★★																								★	●		★★						C010
	DNMG150408-FY	0.8	★★★																								●	★		★						C011
	DNMG150604-FY	0.4																									●									E015
	DNMG150608-FY	0.8	●●★																								●									E039
Finish Cutting																																				−041
																																				H009
																																				−011
FJ	**DNGG150404-FJ**	0.4																					●●									●					C010
	DNGG150408-FJ	0.8																					●●									●					C011
Finish Cutting																																				E015
																																				E039
																																				−041
																																				H009
																																				−011

● = NEW

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

★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
LP	**DNMG110404-LP**	0.4	●	●	●	●																				●											
	DNMG110408-LP	0.8	●	●	●	●																				●											C010
	DNMG150404-LP	0.4	●	●	★	●																				●											C011
	DNMG150408-LP	0.8	●	●	★	●																				★											E015
	DNMG150412-LP	1.2	●	●	★	●																				★											E039
	DNMG150604-LP	0.4	●	●	★	●																				●											−041
	DNMG150608-LP	0.8	●	●	★	●																				●											H009
Light Cutting	**DNMG150612-LP**	1.2	●	●	★	●																															−011
LM	**DNMG110404-LM**	0.4						●	●	●																											
	DNMG110408-LM	0.8						●	●	●																											C010
	DNMG150404-LM	0.4						●	●	★																											C011
	DNMG150408-LM	0.8						●	●	★																											E015
	DNMG150412-LM	1.2						★	★	★																											E039
	DNMG150604-LM	0.4						●	●	●																											−041
	DNMG150608-LM	0.8						●	●	●																											H009
Light Cutting	**DNMG150612-LM**	1.2						★	★	★																											−011
LK	**DNMG110408-LK**	0.8											●	●	★																						
	DNMG150404-LK	0.4											●	●	★	★																					C010
	DNMG150408-LK	0.8											★	●	★																						C011
	DNMG150412-LK	1.2											★	★	★																						E015
	DNMG150604-LK	0.4											●	●	★																						E039
	DNMG150608-LK	0.8											●	●	★																						−041
Light Cutting	**DNMG150612-LK**	1.2											●	●	★																						H009
																																					−011
LS	**DNMG150402-LS**	0.2															●	●	●	●																●	C010
	DNMG150404-LS	0.4															●	●	●	●																●	C011
	DNMG150408-LS	0.8															●	●	●	●																●	E015
	DNMG150604-LS	0.4																●	●	●																●	E039
Light Cutting	**DNMG150608-LS**	0.8																●	●	●																●	−041
																																					H009
																																					−011
LS NEW	**DNGG150402-LS**	0.2																●	●	●																★	C010
	DNGG150404-LS	0.4																●	●	●																★	C011
	DNGG150408-LS	0.8																●	●	●																★	E015
	DNGG150604-LS	0.4																●	●	●																★	E039
Light Cutting	**DNGG150608-LS**	0.8																●	●	●																★	−041
																																					H009
																																					−011
SH	**DNMG110404-SH**	0.4	●	★						●																											
	DNMG110408-SH	0.8	●	●						●																											C010
	DNMG150404-SH	0.4	★	★	★					●			★														★			●	★						C011
	DNMG150408-SH	0.8	★	★	★					●			★														★			●	★						E015
	DNMG150412-SH	1.2	★	★	★					★			★														★			★							E039
	DNMG150604-SH	0.4	★	★																																	−041
	DNMG150608-SH	0.8	★	★									●																								H009
Light Cutting	**DNMG150612-SH**	1.2	★	★									●																								−011

● = NEW

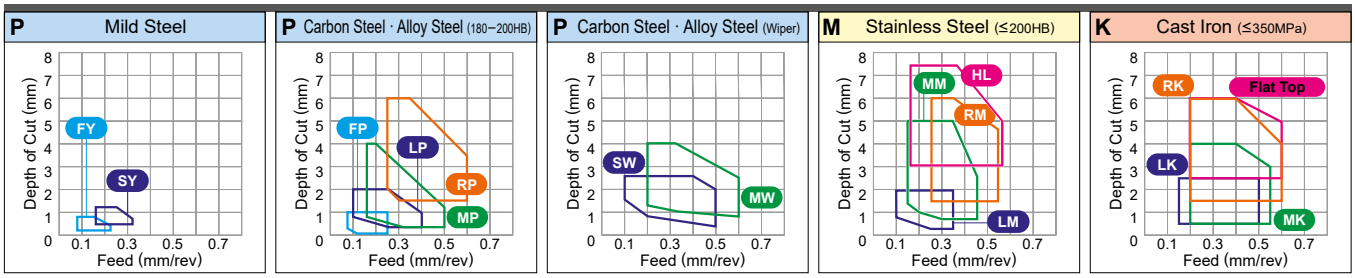
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

55° DN TYPE INSERTS WITH HOLE

DNMG 15 04 04- SA
Size / Thickness / Corner Radius / Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
SA	**DNMG150404-SA**	0.4	★	★	★																										★	●							C010
	DNMG150408-SA	0.8	★	★	★																										★	★							C011
	DNMG150412-SA	1.2	★	★	★																											★							E015
	DNMG150604-SA	0.4	★	●	★																											●							E039
	DNMG150608-SA	0.8	★	●	★																											●							−041
Light Cutting	**DNMG150612-SA**	1.2	●	●	★																											★							H009 −011
* **SW**	**DNMX110404-SW**	0.4	●	●																																			
	DNMX110408-SW	0.8	●	●																																			
	DNMX150404-SW	0.4	●	●																							★				●	★							C010
	DNMX150408-SW	0.8	●	●																							★				★	★							E015 E039
	DNMX150412-SW	1.2	●	★																											★	★							E041
	DNMX150604-SW	0.4	●	●																							●				●	★							H009
	DNMX150608-SW	0.8	●	●																							●				●	★							H011
Light Cutting (Wiper)	**DNMX150612-SW**	1.2	●	●																											★	★							
SY	**DNMG150404-SY**	0.4	●	●	★																						★				★	★							C010
	DNMG150408-SY	0.8	●	●	★																						★	★			★								C011 E015
	DNMG150604-SY	0.4																									★												E039
	DNMG150608-SY	0.8	●	●	★																						★												−041 H009
Light Cutting																																							−011
MJ	**DNMG150404-MJ**	0.4																●	●		●		●	●										●					
	DNMG150408-MJ	0.8																●	●		★		●	●										●					C010
	DNMG150412-MJ	1.2																●	●		●		★	★															C011
	DNMG150416-MJ	1.6																●	●		★		★	★															E015 E039
	DNMG150604-MJ	0.4																●	●		●		★	●															−041
	DNMG150608-MJ	0.8																●	●		●		★	●															H009
	DNMG150612-MJ	1.2																●	●		●		★	★															−011
Light Cutting	**DNMG150616-MJ**	1.6																●	●		★		★	●															
MJ	**DNGM150404-MJ**	0.4																					★	★										★	★				C010
	DNGM150408-MJ	0.8																					★	●										★	★				C011 E015
Light Cutting																																							E039 −041 H009 −011

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

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
MP	**DNMG150404-MP**	0.4	●●	●	★	●								★													★											
	DNMG150408-MP	0.8	●●	●	★	●								★													★											C010 C011 E015 E039 −041 H009 −011
	DNMG150412-MP	1.2	●●	●	★	●								★													★											
	DNMG150416-MP	1.6	★●	●	★	●								★																							
	DNMG150604-MP	0.4	●●	●	●	●								●													●											
	DNMG150608-MP	0.8	●●	●	●	●								●													●											
	DNMG150612-MP	1.2	●●	●	★	●								●													★											
Medium Cutting	**DNMG150616-MP**	1.6	●●	●	●	●								●																							
MM	**DNMG150408-MM**	0.8						●●	●																													C010 C011 E015 E039 −041 H009 −011
	DNMG150412-MM	1.2						★★	★																												
	DNMG150608-MM	0.8						●●	●																												
	DNMG150612-MM	1.2						★●	●																												
Medium Cutting																																					
MK	**DNMG110408-MK**	0.8											★●	●																							C010 C011 E015 E039 −041 H009 −011
	DNMG150404-MK	0.4											●●	★																							
	DNMG150408-MK	0.8											●●	●																							
	DNMG150412-MK	1.2											●●	★																							
	DNMG150604-MK	0.4											●●	●																							
	DNMG150608-MK	0.8											●●	●																							
Medium Cutting	**DNMG150612-MK**	1.2											●●	●																							
* **MS**	**DNMG150404-MS**	0.4															●	●●	●																		C010 C011 E015 E039 −041 H009 −011
	DNMG150408-MS	0.8															●	●●	●																		
	DNMG150412-MS	1.2															●	●●	●																		
	DNMG150604-MS	0.4																●●	●																		
	DNMG150608-MS	0.8																●●	●																		
Medium Cutting	**DNMG150612-MS**	1.2																●●	●																		
MS	**DNMG110408-MS**	0.8	★●							●																											C010 C011 E015 E039 −041 H009 −011
	DNMG150404-MS	0.4	★★	★						●											★		★	●	●											●	
	DNMG150408-MS	0.8	★★							●											★		●	●											●	●	★
	DNMG150412-MS	1.2	★★							●											★		●												★		
	DNMG150604-MS	0.4	●●							●											★		★	●											●	●	
	DNMG150608-MS	0.8	★★							●											●		●	●											●		
Medium Cutting	**DNMG150612-MS**	1.2	★★							●											●		●	●											★		
GK	NEW **DNMG110408-GK**	0.8											●●	★																							C010 C011 E015 E039 −041 H009 −011
	DNMG150404-GK	0.4											★●	★	★																						
	DNMG150408-GK	0.8											★●	★																							
	DNMG150412-GK	1.2											★●	★																							
	DNMG150604-GK	0.4											●●	★																							
	DNMG150608-GK	0.8											●●	●																							
Medium Cutting	**DNMG150612-GK**	1.2											●●	★																							

*Newly designed breakers : MP9005, MP9015, MP9025, MT9015, MV9005

● = NEW

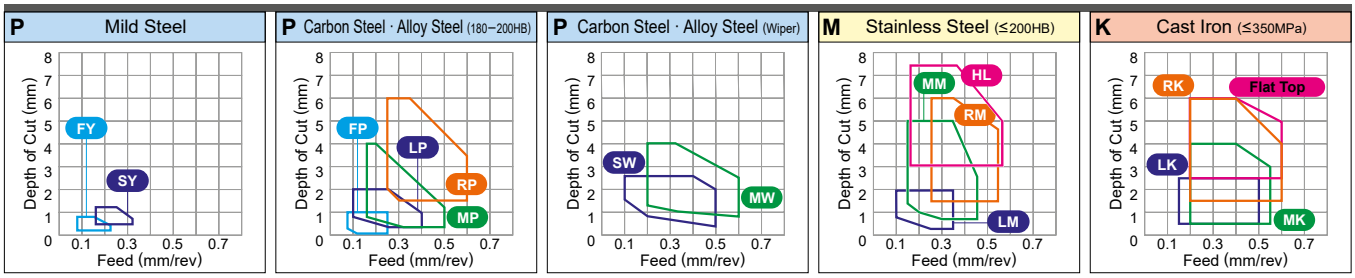
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

55° DN TYPE INSERTS WITH HOLE

DNMG 15 04 04- GM
Size / Thickness / Corner Radius / Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	NEW MH515	MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
GM	**DNMG150404-GM**	0.4						●	●	●																												C010
	DNMG150408-GM	0.8						★	★	★																												C011
	DNMG150412-GM	1.2						★	★	★																												E015
	DNMG150604-GM	0.4						●	●	★																												E039
	DNMG150608-GM	0.8						●	●	●																												−041
Medium Cutting	**DNMG150612-GM**	1.2						★	★	★																												H009
MA	**DNMG110404-MA**	0.4	●	●	★																																	−011
	DNMG110408-MA	0.8	●	●	★																																	
	DNMG110412-MA	1.2	●	★	★																																	
	DNMG150404-MA	0.4	●	●	★				●	★	●			●	●	★		●		●	●				★							●							C010
	DNMG150408-MA	0.8	●	●	●	●			●	★	●			●	●	●		●		●	●				★							●							C011
	DNMG150412-MA	1.2	●	●	★	●			★	★				★	★	★		●		●	●				★							★							E015
	DNMG150604-MA	0.4	●	●	★				●	●	●			●	●	★				●	●				●							●							E039
	DNMG150608-MA	0.8	●	●	●	●			●	●	●			●	●	●				●	●				●							●							−041
	DNMG150612-MA	1.2	●	●	★	●			★	★	●			★	●	●				●	●				★							★							H009
Medium Cutting	**DNMG150616-MA**	1.6	●	●																																		−011
MH	**DNMG150404-MH**	0.4	★	★	★																																	C010
	DNMG150408-MH	0.8	●	●	★	★								★																									C011
	DNMG150412-MH	1.2	●	●	★	★								★																									E015
	DNMG150604-MH	0.4	★	★										★																									E039
	DNMG150608-MH	0.8	●	●	★	★								●																									−041
Medium Cutting	**DNMG150612-MH**	1.2	●	●	★	★								●																									H009
Standard	**DNMG110408**	0.8	★	●												★																							−011
	DNMG150404	0.4	●	●	★																						★				●	★		●					C010
	DNMG150408	0.8	●	●	★	●																			★		★				★	★		●					C011
	DNMG150412	1.2	●	●	★	●																			★						★								E015
	DNMG150416	1.6	★	★	★	★																																	E039
	DNMG150604	0.4	●	●	★																						●				●								−041
	DNMG150608	0.8	●	●	★	●																			★		●				●								H009
	DNMG150612	1.2	●	●	★	●																			★														−011
Medium Cutting	**DNMG150616**	1.6	●	★	★	●																																	

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
□ : Non stock, produced to order only.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
* **MW**	**DNMX150408-MW**	0.8	● ★										● ★ ★																								C010
	DNMX150412-MW	1.2	● ★										★ ★ ★																								C010
	DNMX150608-MW	0.8	● ●										● ● ●																								E039
	DNMX150612-MW	1.2	● ●										● ● ★																								E041
Medium Cutting (Wiper)																																					H009 H011
R/L	**DNGG150404R**	0.4																												● ★	● ★						
	DNGG150404L	0.4																												● ★	★ ★						C010
	DNGG150408R	0.8																												● ★	●						C011
	DNGG150408L	0.8																												★ ★							E015
	DNGG150604R	0.4																													● ●						E039
	DNGG150604L	0.4																												□ ★							−041
	DNGG150608R	0.8																												□ ★							H009
Medium Cutting	**DNGG150608L**	0.8																												★							−011
RP	**DNMG150408-RP**	0.8	● ●		★	●																															C010
	DNMG150412-RP	1.2	● ●		★	●																															C011
	DNMG150416-RP	1.6	★ ★		★	★																															E015
	DNMG150608-RP	0.8	● ●		●	●																															E039
	DNMG150612-RP	1.2	● ●		●	●																															−041
Rough Cutting	**DNMG150616-RP**	1.6	● ●		●	●																															H009 −011
RM	**DNMG150408-RM**	0.8						●	●	●																											C010
	DNMG150412-RM	1.2						★	●	★																											C011
	DNMG150416-RM	1.6						★	★	★																											E015
	DNMG150608-RM	0.8						★	●	●																											E039
	DNMG150612-RM	1.2						★	●	★																											−041
Rough Cutting	**DNMG150616-RM**	1.6						★	★	★																											H009 −011
RK	**DNMG150408-RK**	0.8											● ● ★																								C010
	DNMG150412-RK	1.2											● ● ★																								C011
	DNMG150608-RK	0.8											● ● ●																								E015
	DNMG150612-RK	1.2											● ● ●																								E039
Rough Cutting																																					−041 H009 −011
RS	**DNMG150408-RS**	0.8																● ●																		●	C010
	DNMG150412-RS	1.2																● ●																		●	C011
	DNMG150416-RS	1.6																● ●																		★	E015
	DNMG150608-RS	0.8																● ●																		●	E039
	DNMG150612-RS	1.2																● ●																		●	−041
Rough Cutting	**DNMG150616-RS**	1.6																● ●																		★	H009 −011
GH	**DNMG150408-GH**	0.8	★ ●		★						●		● ● ★																								C010
	DNMG150412-GH	1.2	★ ★		★						★		● ● ★																								C011
	DNMG150608-GH	0.8	★ ●		★						●		● ● ●																								E015
	DNMG150612-GH	1.2	★ ●		★						●		● ● ●																								E039
Rough Cutting																																					−041 H009 −011

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

● = NEW

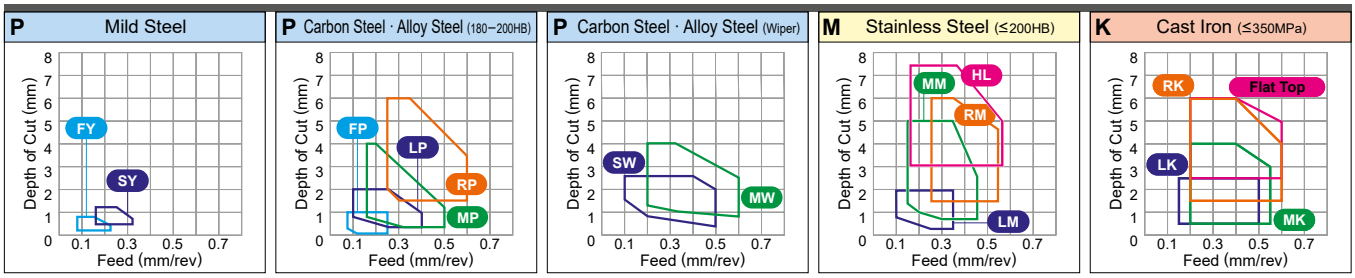
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

55° DN TYPE INSERTS WITH HOLE

DNMG 15 04 08- GJ
Size / Thickness / Corner Radius / Chipbreaker
★ Please refer to page A002.

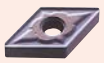
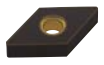
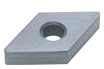
CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																			Coated Cermet				Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
GJ  Rough Cutting	DNMG150408-GJ	0.8																			★		●	●									★						C010
	DNMG150412-GJ	1.2																			★		★	●									★						C011
	DNMG150416-GJ	1.6																			★		★	★									★						E015
	DNMG150608-GJ	0.8																			●		●																E039
	DNMG150612-GJ	1.2																			★		★																−041
	DNMG150616-GJ	1.6																			★		●																H009
																																						−011
HL Heavy Cutting	DNMM150408-HL	0.8		★	★	★				★																											C010
	DNMM150412-HL	1.2		★	★	★				★																												C011
	DNMM150608-HL	0.8		●	●	●				●																												E015
	DNMM150612-HL	1.2		●	★	●				●																												E039
																																						−041
																																						H009
																																						−011
HZ Heavy Cutting	DNMM150408-HZ	0.8		★	★	★	★																														C010
	DNMM150412-HZ	1.2		★	★	★	★																															C011
	DNMM150608-HZ	0.8		★	●	★	★																															E015
	DNMM150612-HZ	1.2		★	★	★	★																															E039
																																						−041
																																						H009
																																						−011
Flat Top 	DNMA150404	0.4											●	●	★																			★					C010
	DNMA150408	0.8											●	●	★																★			★					C011
	DNMA150412	1.2											●	●	★																								E015
	DNMA150604	0.4											●	●	★																								E039
	DNMA150608	0.8											●	●	●																								−041
	DNMA150612	1.2											●	●	●																								H009
																																						−011
Flat Top 	DNGA150404	0.4																																★					C010
	DNGA150408	0.8																																★					C011
	DNGA150604	0.4																																●					E015
	DNGA150608	0.8																																□					E039
																																						−041
																																						H009
																																						−011

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
□ : Non stock, produced to order only.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

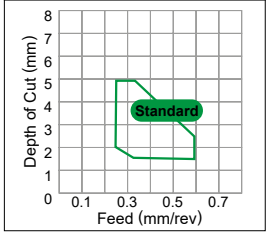
RN TYPE INSERTS WITH HOLE

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

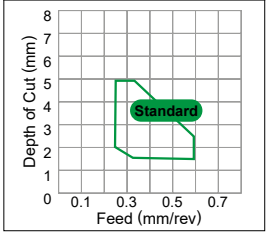
CHIP CONTROL RANGE FOR MATERIAL

Medium Cutting

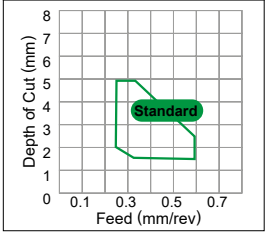
P Mild Steel



P Carbon Steel · Alloy Steel (180–200HB)



M Stainless Steel (≤200HB)



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

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

Shape	Order Number	IC (mm)	Coated: MC6115	MC6125	MC6135 (NEW)	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105 (NEW)	MC5115 (NEW)	MC5125	MH515	MV9005 (NEW)	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
Standard	**RNMG120400**	12.7	★	●	★																																		–
Medium Cutting																																							

● = NEW

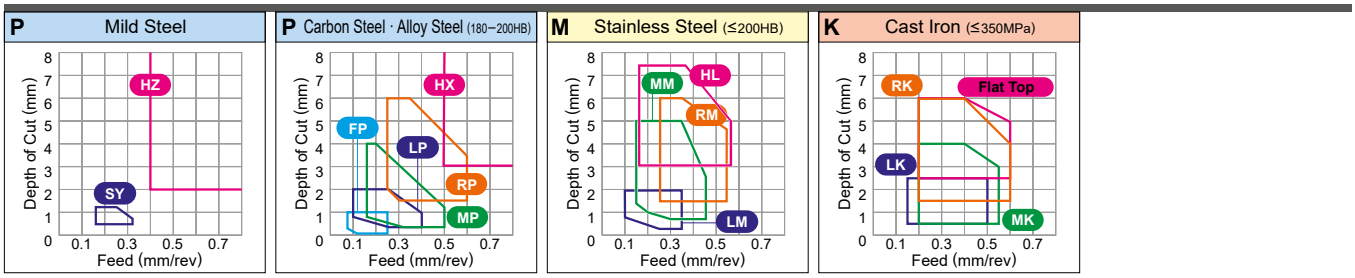
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

90° SN TYPE INSERTS WITH HOLE

SNMG 12 04 04- FP
Size Thickness Corner Radius Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

Material		MC6115	MC6125	MC6135 (NEW)	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105 (NEW)	MC5115	MC5125	MH515	MV9005 (NEW)	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M
P	Steel	◐	✣	✣	✣	●																		✣	✣	◐	●	●	◐	●	◐	✣					✣
M	Stainless Steel						○	◐	✣	✣	○										◐		◐	✣	✣		○	○		○		✣					✣
K	Cast Iron											●	◐	✣	◐								◐	✣			●	●		●		✣	◐				
N	Non-ferrous Metal																																◐				
S	Heat-resistant Alloy, Titanium Alloy															●	●	◐	✣	●	◐	●	◐	✣									◐	◐	●	◐	

Shape	Order Number	RE (mm)	Coated																						Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	MC6135 (NEW)	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105 (NEW)	MC5115	MC5125	MH515	MV9005 (NEW)	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
FP Finish Cutting	SNMG120404-FP	0.4	★	★	★																						★				★								C012 –015 E016 E038
	SNMG120408-FP	0.8	★	★	★																						●				●								
	SNMG120412-FP	1.2	★	★	★																						●				●								
FH Finish Cutting	SNMG090304-FH	0.4																													★								C012 –015 E016 E038
	SNMG090308-FH	0.8																													★								
	SNMG120404-FH	0.4	★	★																							★				●								
	SNMG120408-FH	0.8	★	★																							★												
FS Finish Cutting	SNMG120408-FS	0.8																													●								C012 –015 E016 E038
LP Light Cutting	SNMG120404-LP	0.4	●	●	★	●																					★												C012 –015 E016 E038
	SNMG120408-LP	0.8	●	●	●	●																					★												
	SNMG120412-LP	1.2	●	●	★	●																																	
LM Light Cutting	SNMG120404-LM	0.4						●	★	★																													C012 –015 E016 E038
	SNMG120408-LM	0.8						●	●	★																													
LK Light Cutting	SNMG120408-LK	0.8											★	●	★																								C012 –015 E016 E038
	SNMG120412-LK	1.2											★	●	★																								
SH Light Cutting	SNMG120404-SH	0.4	★	★										●																									C012 –015 E016 E038
	SNMG120408-SH	0.8	★	●	★									●																	★								
	SNMG120412-SH	1.2	★	★	★									●																									

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
SA	**SNMG120404-SA**	0.4	★	★																									★								C012 −015 E016 E038
	SNMG120408-SA	0.8	★	●	★																								●								
	SNMG120412-SA	1.2	●	●	★																								★								
Light Cutting																																					
SY	**SNMG120408-SY**	0.8	●	★	★																					★											C012 −015 E016 E038
Light Cutting																																					
MP	**SNMG120404-MP**	0.4	●	●	★	●							★													★											C012 −015 E016 E038
	SNMG120408-MP	0.8	●	●	★	●							★													●										
	SNMG120412-MP	1.2	●	●	★	●							★													★										
Medium Cutting																																					
MM	**SNMG120408-MM**	0.8						●	●	●																											C012 −015 E016 E038
	SNMG120412-MM	1.2						★	●	●																											
	SNMG120416-MM	1.6						★	★	★																											
	SNMG150608-MM	0.8						★	●	★																											
	SNMG150612-MM	1.2						●	●	★																											
	SNMG150616-MM	1.6						★	★	★																											
	SNMG190612-MM	1.2						★	★	●																											
Medium Cutting	**SNMG190616-MM**	1.6						★	★	●																											
MK	**SNMG120408-MK**	0.8											●	●	★																						C012 −015 E016 E038
	SNMG120412-MK	1.2											●	●	★																						
	SNMG120416-MK	1.6											★	●	★																						
	SNMG150612-MK	1.2											★	●	★																						
	SNMG150616-MK	1.6											★	●	★																						
	SNMG190612-MK	1.2											★	★	★																						
Medium Cutting	**SNMG190616-MK**	1.6											★	★	★																						
* **MS**	**SNMG120404-MS**	0.4															●	●	●	●																	C012 −015 E016 E038
	SNMG120408-MS	0.8															●	●	●	●																	
	SNMG120412-MS	1.2															●	●	●	●																	
	SNMG150612-MS	1.2																★	●	●																	
	SNMG150616-MS	1.6																★	●	●																	
	SNMG190612-MS	1.2																●	●	●																	
Medium Cutting	**SNMG190616-MS**	1.6								●																											

*Newly designed breakers : MP9005, MP9015, MP9025, MT9015, MV9005

● = NEW

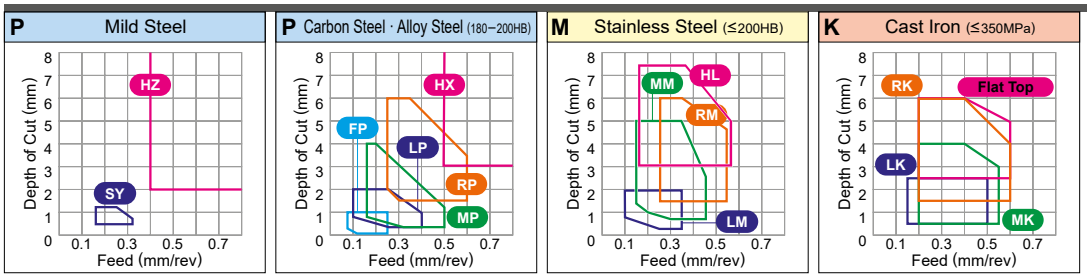
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

90° SN TYPE INSERTS WITH HOLE

SNMG 09 03 04- MS
Size / Thickness / Corner Radius / Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
MS	SNMG090304-MS	0.4								★																											
	SNMG090308-MS	0.8								★																											
	SNMG120404-MS	0.4	★	★						●																									●		
	SNMG120408-MS	0.8	★	★	★					●											●		●	●	●							●		★	●	●	C012
	SNMG120412-MS	1.2	★	★						●											●		●	●	★										★		—015
	SNMG120416-MS	1.6								★																											E016
	SNMG150612-MS	1.2																																	★		E038
	SNMG150616-MS	1.6																																	★		
Medium Cutting	SNMG190616-MS	1.6								●																											
GK	SNMG120404-GK	0.4											★	●	★	★																					
	SNMG120408-GK	0.8											★	●	●																						
	SNMG120412-GK	1.2											★	●	●	★																					C012
	NEW SNMG120416-GK	1.6											●	●	★																						—015
	NEW SNMG150612-GK	1.2											●	●	★																						E016
	NEW SNMG190612-GK	1.2											●	★	★																						E038
Medium Cutting	NEW SNMG190616-GK	1.6												★	★																						
GM	SNMG120404-GM	0.4						★	●	★																											
	SNMG120408-GM	0.8						★	●	●																											C012
	SNMG120412-GM	1.2						★	★	●																											—015
																																					E016
Medium Cutting																																					E038
MA	SNMG120404-MA	0.4	●	●	★			●	★	●			★	●	★		●		●	●					★						★						
	SNMG120408-MA	0.8	●	●	●	●		●	★	●			★	●	★		●		●	●					★						★						
	SNMG120412-MA	1.2	●	●	★	●		★	★	●			●	●	★		●		●	●					★						★						
	SNMG120416-MA	1.6											●	●	★				●	●																	C012
	SNMG150608-MA	0.8	★	●	★					●																											—015
	SNMG150612-MA	1.2	●	●	★	★				●				●	●																						E016
	SNMG150616-MA	1.6	★	★	★	★																															E038
	SNMG190612-MA	1.2	●	●	★	★				●				●	★																						
Medium Cutting	SNMG190616-MA	1.6	●	●	★	★				●																											

● = NEW

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

★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

Material		
	P	Steel
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	K	Cast Iron
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	S	Heat-resistant Alloy, Titanium Alloy

Shape	Order Number	RE (mm)	Coated																			Coated Cermet			Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	NEW MH515	MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
MH	SNMG120408-MH	0.8	●	●	★	★								★																							C012 −015 E016 E038
	SNMG120412-MH	1.2	●	●	★	★								★																							
	SNMG190612-MH	1.2	★	●	★									★																							
Medium Cutting	SNMG190616-MH	1.6	★	●	★																																
Standard	SNMG090304	0.4	★	●	★																					★				★	★	★					C012 −015 E016 E038
	SNMG090308	0.8	●	●	★																					★				★	★	●	★				
	SNMG120404	0.4	●	●	★																					★						★	●				
	SNMG120408	0.8	●	●	●	●																			★	★				●	★		●				
	SNMG120412	1.2	●	●	★	●																									★	★					
	SNMG120416	1.6	★	●	★	●																									★	★					
	SNMG120420	2.0	★	●	★	●																															
	SNMG150612	1.2	●	●	★	●																															
	SNMG150616	1.6	★	★	★	●																															
	SNMG190612	1.2	●	●	★	●																											★				
Medium Cutting	SNMG190616	1.6	●	●	★	●																											★				
R/L	SNGG090304R	0.4																												★	●	★	★				C012 −015 E016 E038
	SNGG090304L	0.4																												★	★	★					
	SNGG090308R	0.8																												★	★						
	SNGG090308L	0.8																												★	★						
	SNGG120404R	0.4																								●				★	★	★					
	SNGG120404L	0.4																								★				★	★	★					
	SNGG120408R	0.8																								★				★	★						
Medium Cutting	SNGG120408L	0.8																								★				★	★	★	★				
RP	SNMG120408-RP	0.8	●	●	★	●																															C012 −015 E016 E038
	SNMG120412-RP	1.2	●	●	●	●																															
	SNMG120416-RP	1.6	●	●	★	●																															
	SNMG150612-RP	1.2	●	●	●	●																															
	SNMG150616-RP	1.6	●	●	★	●																															
	SNMG190612-RP	1.2	●	●	●	●																															
Rough Cutting	SNMG190616-RP	1.6	●	●	★	●																															
RM	SNMG120408-RM	0.8						★	●	●																											C012 −015 E016 E038
	SNMG120412-RM	1.2						★	●	●																											
	SNMG120416-RM	1.6						★	★	●																											
	SNMG150612-RM	1.2						●	★	●																											
	SNMG150616-RM	1.6						★	★	★																											
	SNMG190612-RM	1.2						★	●	★																											
Rough Cutting	SNMG190616-RM	1.6						●	●	●																											
RK	SNMG120408-RK	0.8											●	●	★																						C012 −015 E016 E038
	SNMG120412-RK	1.2											●	●	●																						
	SNMG120416-RK	1.6											●	●	★																						
	SNMG150612-RK	1.2											★	●	★																						
	SNMG150616-RK	1.6											★	●	★																						
	SNMG190612-RK	1.2											★	●	★																						
Rough Cutting	SNMG190616-RK	1.6											★	●	★																						

● = NEW

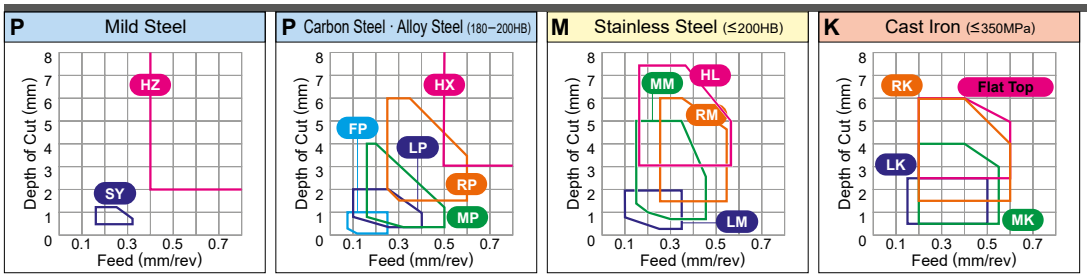
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

90° SN TYPE INSERTS WITH HOLE

SNMG 12 04 08- RS
Size / Thickness / Corner Radius / Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																			Coated Cermet				Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
RS	**SNMG120408-RS**	0.8															●		●	●															●		
	SNMG120412-RS	1.2															●		●	●															●		C012
	SNMG120416-RS	1.6															●		★	●															★		–015
	SNMG150616-RS	1.6																	●	●															★		E016
	SNMG190612-RS	1.2																	●	●																	E038
Rough Cutting	**SNMG190616-RS**	1.6																	●	●															★		
GH	**SNMG120408-GH**	0.8	★	●	★					●			●	●	★																						
	SNMG120412-GH	1.2	★	●	★					★			●	●	★																						C012
	SNMG120416-GH	1.6	★	★						●																											–015
	SNMG150612-GH	1.2	★	●																																	E016
	SNMG150616-GH	1.6	●	●																																	E038
	SNMG190612-GH	1.2	★	●						★																											
Rough Cutting	**SNMG190616-GH**	1.6	★	●						●																											
HX	**SNMM120408-HX**	0.8		★	★	★																															
	SNMM120412-HX	1.2		★	★	★																															C012
	SNMM150612-HX	1.2		★	★	★																															–015
	SNMM190612-HX	1.2	★	●	★	●																															E016
	SNMM190616-HX	1.6	★	●	★	●																															E038
	SNMM190624-HX	2.4	●	★	★	●																															
	SNMM250724-HX	2.4	★	★	●	●																															
Heavy Cutting	**SNMM250924-HX**	2.4	★	★	●	●																															
HL	**SNMM120408-HL**	0.8		●	★	●					●																										
	SNMM120412-HL	1.2		●	★	●					●																										C012
	SNMM150612-HL	1.2		●	●	●					★																										–015
	SNMM190612-HL	1.2		●	★	●					★																										E016
	SNMM190616-HL	1.6		●	★	●					★																										E038
Heavy Cutting	**SNMM190624-HL**	2.4		★	★	●					★																										
HR	**SNMM250724-HR**	2.4	●	★	●	●																															
	SNMM250924-HR	2.4	●	★	●	●																															–
Heavy Cutting																																					

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
□ : Non stock, produced to order only.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
HV	**SNMM190616-HV**	1.6	★	●	★	●																															C012 −014
	SNMM190624-HV	2.4	★	★	★	●																															
	SNMM250724-HV	2.4	★	●	●	●																															
	SNMM250924-HV	2.4	★	●	●	●																															
Heavy Cutting																																					
HZ	**SNMM120408-HZ**	0.8	★	★	★	★																															C012 −015 E016 E038
	SNMM120412-HZ	1.2	★	★	★	★																															
	SNMM150612-HZ	1.2	★	★	★																																
	SNMM190612-HZ	1.2	★	●	●																																
Heavy Cutting	**SNMM190616-HZ**	1.6	★	●	★																																
HM	**SNMM150612-HM**	1.2		★	★	●				●																											C012 −014
	SNMM150616-HM	1.6								□																											
	SNMM190612-HM	1.2		★	★	●				●																											
	SNMM190616-HM	1.6		●	★	●				●																											
	SNMM190624-HM	2.4		★	●	●				●																											
	SNMM250724-HM	2.4	★	★	●	●				●																											
Heavy Cutting	**SNMM250924-HM**	2.4	★	★	●	●				□																											
Flat Top	**SNMA090304**	0.4																															★					C012 −015 E016 E038
	SNMA090308	0.8											★	★	★																		★					
	SNMA120408	0.8											●	●	★																		●	●				
	SNMA120412	1.2											●	●	●																		●					
	SNMA120416	1.6											●	●	●																							
	SNMA150612	1.2											●	●	★																							
	SNMA150616	1.6											●	●	●																							
	SNMA190612	1.2											●	●	★																							
	SNMA190616	1.6											●	●	●																							
Flat Top	**SNGA090304**	0.4																													★							C012 −015 E016 E038
	SNGA120404	0.4																																●				
	SNGA120408	0.8																													★			●				

● = NEW

CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

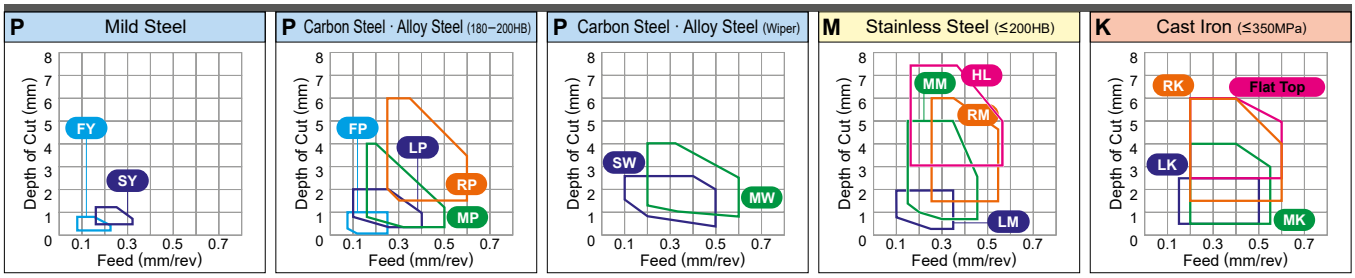
TURNING INSERTS [NEGATIVE]

60° TN TYPE INSERTS WITH HOLE

TNMG 16 04 02- FP
Size · Thickness · Corner Radius · Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
FP	**TNMG160402-FP**	0.2	★	★	★																					★				★							
	TNMG160404-FP	0.4	●	★	★																					●				★							C016 −018 E016 E038
	TNMG160408-FP	0.8	★	★	★																					●				★							
	TNMG160412-FP	1.2	★	★	★																					●				●							
Finish Cutting																																					
FH	**TNMG110304-FH**	0.4																												★							
	TNMG160402-FH	0.2	★	★	★																					●				★	★						C016 −018 E016 E038
	TNMG160404-FH	0.4	●	★																						●	★			●	★						
	TNMG160408-FH	0.8	●	★	★																					★	★			★	●						
Finish Cutting																																					
FS	**TNMG160404-FS**	0.4		★	★																									●							
	TNMG160408-FS	0.8		★	★																									●							C016 −018 E016 E038
Finish Cutting																																					
FS NEW	**TNGG160402-FS**	0.2																●	●	●																★	
	TNGG160404-FS	0.4																●	●	●																★	C016 −018 E016 E038
	TNGG160408-FS	0.8																●	●	●																★	
Finish Cutting																																					
FY	**TNMG160404-FY**	0.4	●	●	★																					●	●			★	●						
	TNMG160408-FY	0.8	●	★	★																					★	●			★							C016 −018 E016 E038
Finish Cutting																																					
R/L-FS	**TNGG160402R-FS**	0.2					●																							★							
	TNGG160402L-FS	0.2					●																							★							
	TNGG160404R-FS	0.4					●																							★							C016 −018 E016 E038
	TNGG160404L-FS	0.4					●																							★							
	TNGG160408R-FS	0.8					●																														
Finish Cutting	**TNGG160408L-FS**	0.8					●																														

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
R/L-F	**TNGG160402R-F**	0.2																						●		★			★	●							
	TNGG160402L-F	0.2																						★		★			★	★							C016
	TNGG160404R-F	0.4																						●		★			★	●							–018
	TNGG160404L-F	0.4																						●		★			★	●							E016
	TNGG160408R-F	0.8																						★		★			★	★							E038
Finish Cutting	**TNGG160408L-F**	0.8																						★		★			★	★							
LP	**TNMG160404-LP**	0.4	●	●	★	●																				●											
	TNMG160408-LP	0.8	●	●	★	●																				●											C016
	TNMG160412-LP	1.2	●	●	★	●																				●											–018
	TNMG220408-LP	0.8	●	●	★	●																				★											E016
Light Cutting	**TNMG220412-LP**	1.2	●	●	★	●																															E038
LM	**TNMG160404-LM**	0.4						●	●	●																											
	TNMG160408-LM	0.8						★	●	●																											C016
	TNMG160412-LM	1.2						★	★	★																											–018
Light Cutting																																					E016 E038
LK	**TNMG160404-LK**	0.4											●	●	★																						
	TNMG160408-LK	0.8											●	●	★																						C016
	TNMG160412-LK	1.2											★	●	★																						–018
Light Cutting																																					E016 E038
LS	**TNMG160402-LS**	0.2															●	●	●	●															●		
	TNMG160404-LS	0.4															●	●	●	●															●		C016
	TNMG160408-LS	0.8															●	●	●	●															●		–018
Light Cutting																																					E016 E038
NEW **LS**	**TNGG160402-LS**	0.2																●	●	●															★		
	TNGG160404-LS	0.4																●	●	●															★		C016
	TNGG160408-LS	0.8																●	●	●															★		–018
Light Cutting																																					E016 E038
SH	**TNMG160404-SH**	0.4	★	★	★					●			★														★			●	●					
	TNMG160408-SH	0.8	★	★	★					●			★														★			●	●					C016
	TNMG220408-SH	0.8	★	★						★																											–018
Light Cutting																																					E016 E038
SA	**TNMG160404-SA**	0.4	★	★	★																									★	●					
	TNMG160408-SA	0.8	★	★	★																									★	●					C016
	TNMG160412-SA	1.2	★	●	★																										★					–018
	TNMG220408-SA	0.8	●	★	★																																E016
Light Cutting	**TNMG220412-SA**	1.2	★	★																																	E038
* **SW**	**TNMX160404-SW**	0.4	●	●																						●				●	★					
	TNMX160408-SW	0.8	●	●																						★				●	★					C017
Light Cutting (Wiper)																																					–018

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

● = NEW

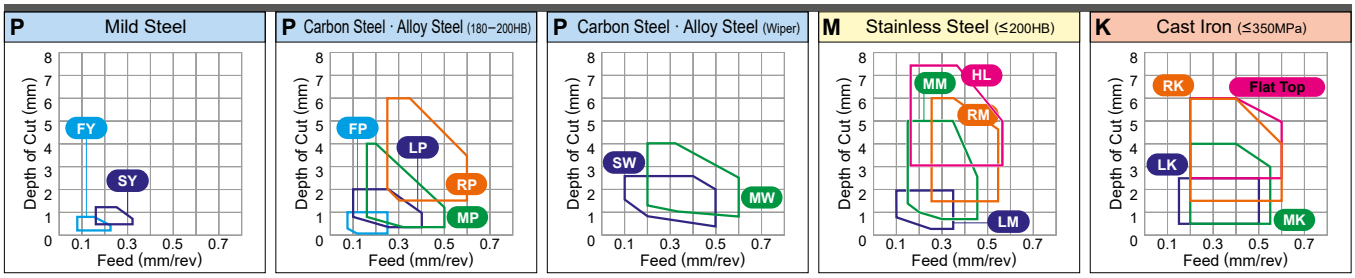
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

60° TN TYPE INSERTS WITH HOLE

TNMG 16 04 04- SY
Size Thickness Corner Radius Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
SY Light Cutting	**TNMG160404-SY**	0.4	● ★ ★																							●	●		★ ★							C016 −018 E016 E038
	TNMG160408-SY	0.8	● ● ★																							★	●		★							
MJ Light Cutting	**TNMG160404-MJ**	0.4																● ●		●			● ●											●			C016 −018 E016 E038
	TNMG160408-MJ	0.8																● ●		●			● ●											●			
	TNMG160412-MJ	1.2																● ●		●			★ ●														
R/L-K Light Cutting	**TNGG160402R-K**	0.2																								★			★ ★							C016 −018 E016 E038
	TNGG160402L-K	0.2																								★			★ ★							
	TNGG160404R-K	0.4																								●			★ ★							
	TNGG160404L-K	0.4																								★			★							
	TNGG160408R-K	0.8																								★										
	TNGG160408L-K	0.8																								●										
MP Medium Cutting	**TNMG160404-MP**	0.4	● ● ★ ●										★													★										C016 −018 E016 E038
	TNMG160408-MP	0.8	● ● ★ ●										★													●										
	TNMG160412-MP	1.2	● ● ★ ●										★													★										
	TNMG220408-MP	0.8	● ● ★ ●										★																							
	TNMG220412-MP	1.2	● ● ★ ●										★																							
MM Medium Cutting	**TNMG160408-MM**	0.8						● ● ●																												C016 −018 E016 E038
	TNMG160412-MM	1.2						★ ★ ★																												
	TNMG220408-MM	0.8						★ ● ★																												
	TNMG220412-MM	1.2						★ ★ ★																												
	TNMG220416-MM	1.6						★ ● ★																												
MK Medium Cutting	**TNMG160404-MK**	0.4											● ● ★																							C016 −018 E016 E038
	TNMG160408-MK	0.8											● ● ●																							
	TNMG160412-MK	1.2											● ● ★																							
	TNMG220408-MK	0.8											★ ● ★																							
	TNMG220412-MK	1.2											★ ★ ★																							
	TNMG220416-MK	1.6											★ ★ ★																							

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																			Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
* **MS**	**TNMG160404-MS**	0.4															●	●	●	●																		
	TNMG160408-MS	0.8															●	●	●	●																		C016 –018 E016 E038
	TNMG160412-MS	1.2															●	●	●	●																		
	TNMG220408-MS	0.8																●	●	●																		
Medium Cutting	**TNMG220412-MS**	1.2																●	●	●																		
MS	**TNMG160404-MS**	0.4	★	★						●											★		●	●	●							★				●		
	TNMG160408-MS	0.8	★	★	★					●											★		●	●	●					★			●		●	●	★	C016 –018 E016 E038
	TNMG160412-MS	1.2	★	★						●											●		★	●											★		
	TNMG220408-MS	0.8	★	★						●											★		★	●	●											★	★	
Medium Cutting	**TNMG220412-MS**	1.2								●																										★		
GK	**TNMG160404-GK**	0.4											★	●	★																							
	TNMG160408-GK	0.8											●	●	●																							C016 –018 E016 E038
	TNMG160412-GK	1.2											★	●	★	★																						
	NEW **TNMG160416-GK**	1.6											●	●	★																							
	TNMG220408-GK	0.8											★	●	★																							
Medium Cutting	**TNMG220412-GK**	1.2											★	★	★																							
GM	**TNMG160404-GM**	0.4						●	●	●																												
	TNMG160408-GM	0.8						●	●	●																												C016 –018 E016 E038
	TNMG160412-GM	1.2						★	●	★																												
	TNMG220408-GM	0.8						★	★	★																												
Medium Cutting	**TNMG220412-GM**	1.2						★	★	★																												
MA	**TNMG160404-MA**	0.4	●	●	★			●	●	●			●	●	★				●	●				★						●								
	TNMG160408-MA	0.8	●	●	●	●		●	●	●			●	●	●				●	●				★						●								C016 –018 E016 E038
	TNMG160412-MA	1.2	●	●	★	●		★	●	●			★	●	●				●	●				★						★								
	NEW **TNMG160416-MA**	1.6											●	●	★																							
	TNMG220408-MA	0.8	●	●	★	●		●	★	●			★	★	★				●	●				★														
	TNMG220412-MA	1.2	●	●	★	●		★	★	●			★	★	★				●	●				★														
	TNMG220416-MA	1.6												●	●				●	●																		
	TNMG270608-MA	0.8	★	★	★																																	
	TNMG270612-MA	1.2	★	★	★					●																												
	TNMG270616-MA	1.6																	●	●																		
Medium Cutting	**TNMG330924-MA**	2.4																	●	●																		
MH	**TNMG160404-MH**	0.4	★	●	★									★																								
	TNMG160408-MH	0.8	●	●	★	★								★																								C016 –018 E016 E038
	TNMG160412-MH	1.2	●	●	★	★								★																								
	TNMG220408-MH	0.8	●	●	★	★								★																								
Medium Cutting	**TNMG220412-MH**	1.2	●	●	★	★								★																								

*Newly designed breakers : MP9005, MP9015, MP9025, MT9015, MV9005

● = NEW

CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

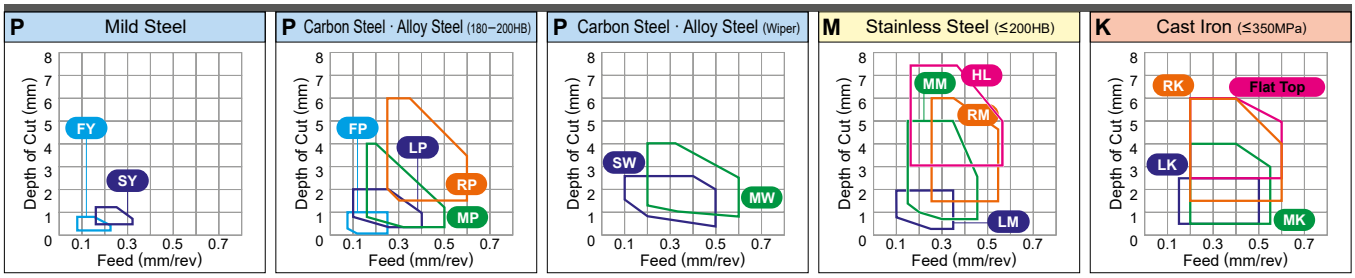
60° TN TYPE INSERTS WITH HOLE

TNMG 11 03 04
Size / Thickness / Corner Radius

★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
Standard	**TNMG110304**	0.4	★	●	★																										★	★					
	TNMG110308	0.8	★	★	★																																
	TNMG160304	0.4	★	★	★																										★						
	TNMG160308	0.8	★	★	★																										★						
	TNMG160404	0.4	●	●	★																			★			★				●	★	●	★				
	TNMG160408	0.8	●	●	★	●																		★			★				●	★	●	★				
	TNMG160412	1.2	●	●	★	●																									●						
	TNMG160416	1.6	★	★	★	★																									★						
	TNMG220404	0.4	●	●	★	●																										★	●				
	TNMG220408	0.8	●	●	★	●																									★	★	●				
	TNMG220412	1.2	●	●	★	●																															
	TNMG220416	1.6	★	★	★	●																															
	TNMG270608	0.8	★	★	★	★																															
	TNMG270612	1.2	★	★	★	★																											●				
	TNMG270616	1.6	★	★	★																																
Medium Cutting	**TNMG330924**	2.4																														★					
* **MW**	**TNMX160408-MW**	0.8	●	●									●	●	★																						
	TNMX160412-MW	1.2	●	●									●	●	★																						
Medium Cutting (Wiper)																																					
R/L-ES	**TNMG160404R-ES**	0.4	★	★						●																											
	TNMG160404L-ES	0.4	★	★						●																											
	TNMG160408R-ES	0.8	★	★						●																											
	TNMG160408L-ES	0.8	★	★						●																											
	TNMG220408R-ES	0.8	★	★						●																											
Medium Cutting	**TNMG220408L-ES**	0.8	★	★						●																											
R/L-2G	**TNMG160404R-2G**	0.4																													★						
	TNMG160404L-2G	0.4																													★						
	TNMG160408R-2G	0.8																													★						
	TNMG160408L-2G	0.8																													★						
Medium Cutting																																					

★ Please refer to page A028 before using the MW chipbreaker (wiper insert).

● = NEW

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

★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
R/L	**TNGG110302R**	0.2																											★							C016 −018 E016 E038
	TNGG110302L	0.2																											★★							
	TNGG110304R	0.4																											★★							
	TNGG110304L	0.4																											★★							
	TNGG110308R	0.8																											★							
	TNGG110308L	0.8																											★★							
	TNGG160304R	0.4																											★★		★					
	TNGG160304L	0.4																											★★							
	TNGG160402R	0.2																									●		★★		★★					
	TNGG160402L	0.2																									★		●★							
	TNGG160404R	0.4																									●		●●		●●					
	TNGG160404L	0.4																									★		●●		●●					
	TNGG160408R	0.8																									★		●★		★●					
	TNGG160408L	0.8																									★		★★		★★					
	TNGG220404R	0.4																											★★		●					
	TNGG220404L	0.4																											★★		★					
	TNGG220408R	0.8																											★★		★					
Medium Cutting	**TNGG220408L**	0.8																											★★		★					
RP	**TNMG160408-RP**	0.8	●	●	★	●																														C016 −018 E016 E038
	TNMG160412-RP	1.2	●	●	★	●																														
	TNMG220408-RP	0.8	●	●	●	●																														
	TNMG220412-RP	1.2	●	●	★	●																														
	TNMG220416-RP	1.6	●	●	★	●																														
	TNMG270612-RP	1.2	★	★	★	★																														
Rough Cutting	**TNMG270616-RP**	1.6	★	★	★	★																														
RM	**TNMG160408-RM**	0.8						★	●	★																										C016 −018 E016 E038
	TNMG160412-RM	1.2						★	★	●																										
	TNMG220408-RM	0.8						★	●	★																										
	TNMG220412-RM	1.2						★	★	★																										
Rough Cutting	**TNMG220416-RM**	1.6						★	●	★																										
RK	**TNMG160408-RK**	0.8											●	●	●																					C016 −018 E016 E038
	TNMG160412-RK	1.2											●	●	●																					
	TNMG160416-RK	1.6											●	●	★																					
	TNMG220408-RK	0.8											●	●	★																					
	TNMG220412-RK	1.2											●	●	★																					
Rough Cutting	**TNMG220416-RK**	1.6											●	●	★																					
RS	**TNMG160408-RS**	0.8																	●	●															●	C016 −018 E016 E038
	TNMG160412-RS	1.2																	●	●															●	
	TNMG220408-RS	0.8																	●	●															★	
	TNMG220412-RS	1.2																	●	●															★	
Rough Cutting																																				

● = NEW

CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

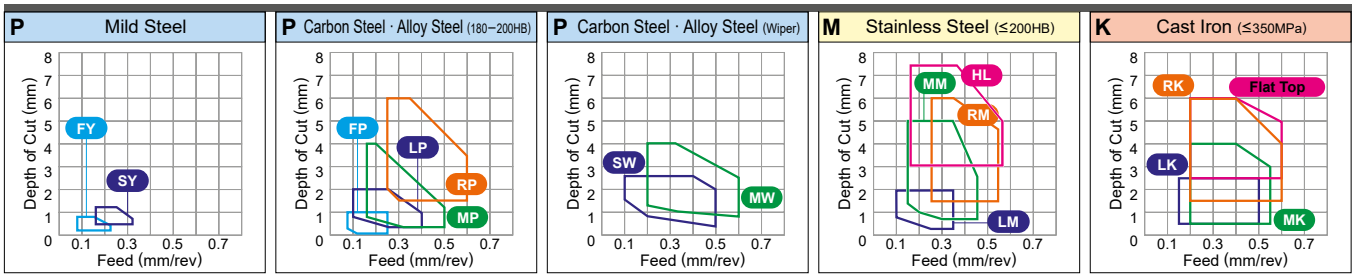
TURNING INSERTS [NEGATIVE]

60° TN TYPE INSERTS WITH HOLE

TNMG 16 04 08- GH
Size / Thickness / Corner Radius / Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
GH Rough Cutting	TNMG160408-GH	0.8	★	★	★					●			●	●	●																						C016 –018 E016 E038
	TNMG160412-GH	1.2	★	★										●	★																						
	TNMG220408-GH	0.8	★	★	★					●				●	★																						
	TNMG220412-GH	1.2	★	★	★					●			●	●	★																						
	TNMG220416-GH	1.6	★	★																																	
	TNMG270612-GH	1.2	★	★	★					★																											
	TNMG270616-GH	1.6	★	★																																	
HL Heavy Cutting	TNMM160408-HL	0.8		●	★	●				★																										C016 –018 E016 E038
	TNMM160412-HL	1.2		●	●	●				★																											
	TNMM220408-HL	0.8		●	★	●				●																											
	TNMM220412-HL	1.2		●	●	●				●																											
	TNMM220416-HL	1.6		★	★	●				●																											
HZ Heavy Cutting	TNMM160408-HZ	0.8	★	★	★	★																														C016 –018 E016 E038
	TNMM160412-HZ	1.2		★	★	★																															
	TNMM220408-HZ	0.8	★	●	★																																
	TNMM220412-HZ	1.2	★	●	★																																
	TNMM220416-HZ	1.6	★	●	★																																
Flat Top	TNMA160404	0.4											●	●	★																		●				
	TNMA160408	0.8											●	●	●																		★	●				C016 –018 E016 E038
	TNMA160412	1.2											●	●	●																						
	TNMA160416	1.6											●	●	●																						
	TNMA160420	2.0											★	★	★																						
	TNMA220404	0.4																																★			
	TNMA220408	0.8											●	●	★																★		★	●			
	TNMA220412	1.2											●	●	★																						
	TNMA220416	1.6											●	●	●																		★				
Flat Top	TNGA110304	0.4																																★			C016 –018 E016 E038
	TNGA110308	0.8																													★			★			
	TNGA160402	0.2																													★			★			
	TNGA160404	0.4																															★				
	TNGA220404	0.4																															★				

● = NEW

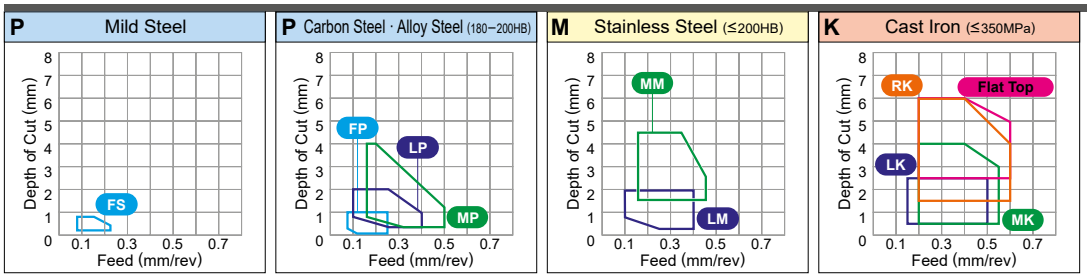
● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

35° VN TYPE INSERTS WITH HOLE

VNMG 16 04 02- FP
Size Thickness Corner Radius Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
FP	**VNMG160402-FP**	0.2	★	★	★																						★				★								
	VNMG160404-FP	0.4	●	★	★																						●				★								C019 −021 E017
	VNMG160408-FP	0.8	★	★	★																						●				★								
	VNMG160412-FP	1.2	★	★	★																						●				●								
Finish Cutting																																							
FH	**VNMG160402-FH**	0.2	★	★	★																						●				★	★							
	VNMG160404-FH	0.4	★	★	★																						●	★			●								C019 −021 E017
	VNMG160408-FH	0.8	★	★	★																						★	★			★	★							
Finish Cutting																																							
FS	**VNMG160404-FS**	0.4		★	★																										●								
	VNMG160408-FS	0.8		★	★																										●								C019 −021 E017
Finish Cutting																																							
FS NEW	**VNGG1604V5-FS**	0.05																●	●																			★		
	VNGG160401-FS	0.1																●	●	●																		★		C019 −021 E017
	VNGG160402-FS	0.2																●	●	●																		★		
	VNGG160404-FS	0.4																●	●	●																		★		
	VNGG160408-FS	0.8																●	●	●																		★		
Finish Cutting																																							
FJ	**VNGG1604V5-FJ**	0.05																						●											★					
	VNGG160401-FJ	0.1																						●											●				C019 −021 E017
	VNGG160402-FJ	0.2																						●											●				
Finish Cutting																																							
R/L-F	**VNGG160402L-F**	0.2																							★		★				★	★							
	VNGG160402R-F	0.2																							★		★				★	★							C019 −021 E017
	VNGG160404L-F	0.4																							★		★				★	★							
	VNGG160404R-F	0.4																							●		★				★	★							
Finish Cutting																																							
LP	**VNMG160404-LP**	0.4	●	●	★	●																					●												C019 −021 E017
	VNMG160408-LP	0.8	●	●	★	●																					★												
Light Cutting																																							

● = NEW

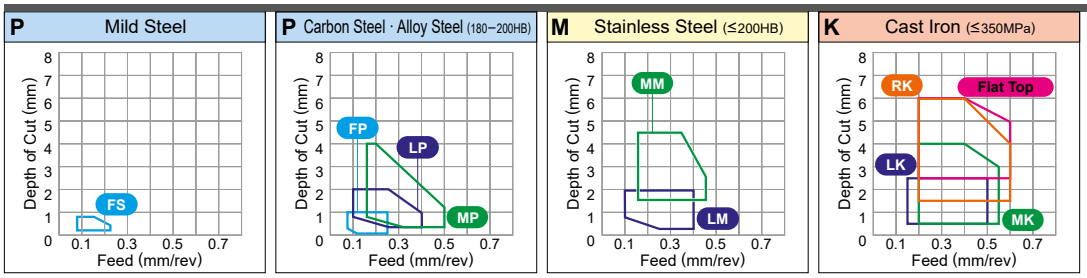
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

35° VN TYPE INSERTS WITH HOLE

VNMG 16 04 04- LM
Size · Thickness · Corner Radius · Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
LM	**VNMG160404-LM**	0.4						●	●	●																													
	VNMG160408-LM	0.8						★	●	★																														C019 −021 E017
Light Cutting																																							
LK	**VNMG160404-LK**	0.4											●	●	★																									
	VNMG160408-LK	0.8											★	●	★																								C019 −021 E017
Light Cutting																																							
LS	**VNMG160402-LS**	0.2															●	●	●	●																	●		
	VNMG160404-LS	0.4															●	●	●	●																	●		C019 −021 E017
	VNMG160408-LS	0.8															●	●	●	●																	★		
Light Cutting																																							
LS NEW	**VNGG160402-LS**	0.2																●	●	●																	★		
	VNGG160404-LS	0.4																●	●	●																	★		C019 −021 E017
	VNGG160408-LS	0.8																●	●	●																	★		
Light Cutting																																							
SH	**VNMG160404-SH**	0.4	★	★	★																						●				●	★							
	VNMG160408-SH	0.8	★	★	★																						★				●	★							C019 −021 E017
Light Cutting																																							
SA	**VNMG160404-SA**	0.4	★	★	★																										★								
	VNMG160408-SA	0.8	★	●	★																										★								C019 −021 E017
Light Cutting																																							
MJ	**VNMG160404-MJ**	0.4																●	●		●		●	●											●				
	VNMG160408-MJ	0.8																●	●		●		●	●											★				C019 −021 E017
	VNMG160412-MJ	1.2																●	●		★		★	★															
Light Cutting																																							

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
MJ	**VNGM160404-MJ**	0.4																						●								★					
	VNGM160408-MJ	0.8																						●								★					C019 −021 E017
Light Cutting																																					
MP	**VNMG160404-MP**	0.4	●	●	★	●							★														●											
	VNMG160408-MP	0.8	●	●	●	●							★														★											C019 −021 E017
	VNMG160412-MP	1.2	●	●	★	●							★																								
Medium Cutting																																					
MM	**VNMG160408-MM**	0.8						●	●	●																											
Medium Cutting																																					C019 −021 E017
MK	**VNMG160404-MK**	0.4											●	●	★																						
	VNMG160408-MK	0.8											●	●	●	★																					C019 −021 E017
	VNMG160412-MK	1.2											●	●	●																						
Medium Cutting																																					
* **MS**	**VNMG160404-MS**	0.4															●	●	●	●																	
	VNMG160408-MS	0.8															●	●	●	●																	C019 −021 E017
Medium Cutting																																					
MS	**VNMG160404-MS**	0.4	★	●						●										★			●	●												★	★	
	VNMG160408-MS	0.8	★	★						●										★			●	●						★				●		●	C019 −021 E017
Medium Cutting																																					
GK	**VNMG160404-GK**	0.4											★	●	★																						
	VNMG160408-GK	0.8											★	●	★																						C019 −021 E017
	VNMG160412-GK	1.2											★	●	★																						
Medium Cutting																																					
GM	**VNMG160404-GM**	0.4						●	●	★																											
	VNMG160408-GM	0.8						★	●	●																											C019 −021 E017
Medium Cutting																																					
MA	**VNMG160404-MA**	0.4	●	●	★				●	★	●		●	●	★		●							★													
	VNMG160408-MA	0.8	●	●	★	●			●	★	●		★	●	★		●							●													C019 −021 E017
Medium Cutting																																					

*Newly designed breakers : MP9005, MP9015, MP9025, MT9015, MV9005

● = NEW

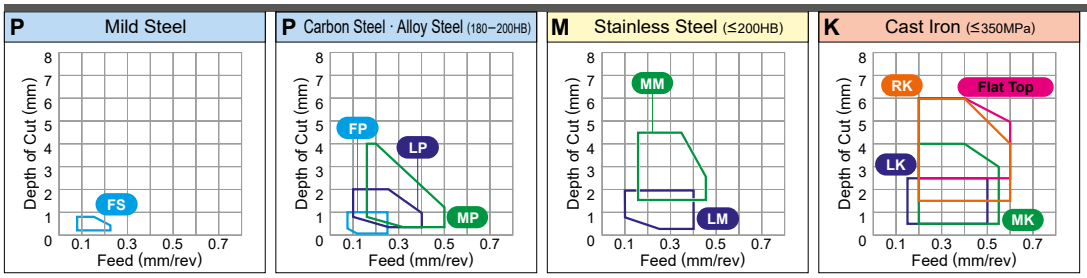
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

35° VN TYPE INSERTS WITH HOLE

VNMG 16 04 04- MH
Size / Thickness / Corner Radius / Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
MH	**VNMG160404-MH**	0.4	★	★	★									★																									
	VNMG160408-MH	0.8	●	●	★	★								★																									C019 −021 E017
Medium Cutting																																						
Standard	**VNMG160404**	0.4	●	●	★																			★			★			●	★	★	●					
	VNMG160408	0.8	●	●	★	●																		★			★			●	★	★	●					C019 −021 E017
	VNMG160412	1.2	●	●	★	●																								★								
Medium Cutting																																						
R/L	**VNGG160404L**	0.4																												★	★	★						
	VNGG160404R	0.4																												★	★	★	●					C019 −021 E017
Medium Cutting																																						
Flat Top	**VNMA160404**	0.4											★	●	★																							
	VNMA160408	0.8											★	●	●																							C019 −021 E017
	VNMA160412	1.2											★	●	★																							
Flat Top	**VNGA160404**	0.4																																●					
	VNGA160408	0.8																																★					C019 −021 E017

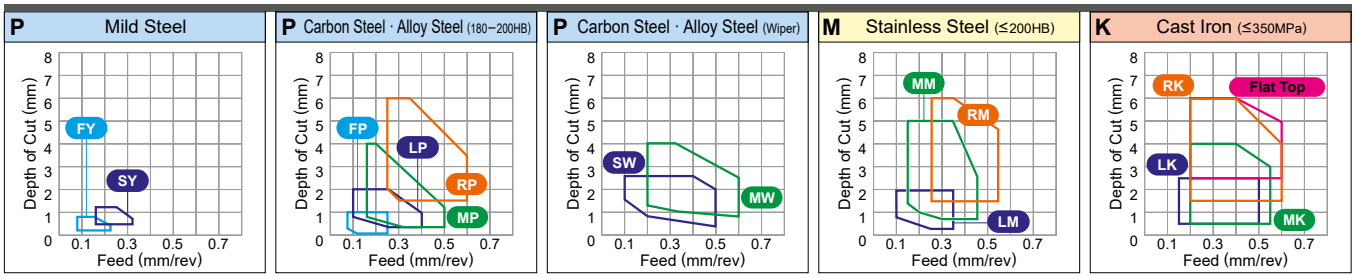
● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

WNMG 08 04 02- FP
Size Thickness Corner Radius Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
FP Finish Cutting	**WNMG080402-FP**	0.2	★★★																							★			★							C022 C023 E017 E042
	WNMG080404-FP	0.4	★★★																							●			★							
	WNMG080408-FP	0.8	★★★																							●			★							
	WNMG080412-FP	1.2	★★★																							●			●							
FH Finish Cutting	**WNMG080404-FH**	0.4	★★																							★			●							C022 C023 E017 E042
	WNMG080408-FH	0.8	★★																							★★			★							
FS Finish Cutting	**WNMG080404-FS**	0.4		★★																									★							C022 C023 E017 E042
	WNMG080408-FS	0.8		★★																									●							
FY Finish Cutting	**WNMG080404-FY**	0.4																								★			★							C022 C023 E017 E042
	WNMG080408-FY	0.8	★★★																							★	★		★							
LP Light Cutting	**WNMG060404-LP**	0.4	●●●	●																						●										C022 C023 E017 E040 E042
	WNMG060408-LP	0.8	●●●	●																						★										
	WNMG06T304-LP	0.4	★★●	●																						★										
	WNMG06T308-LP	0.8	●★●	●																						●										
	WNMG080404-LP	0.4	●●	★	●																					★										
	WNMG080408-LP	0.8	●●	★	●																					●										
	WNMG080412-LP	1.2	●●	★	●																															
LM Light Cutting	**WNMG060404-LM**	0.4					●●●																												C022 C023 E017 E042
	WNMG060408-LM	0.8					●●★																													
	WNMG080404-LM	0.4					●●●																													
	WNMG080408-LM	0.8					●●●																													

● = NEW

CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

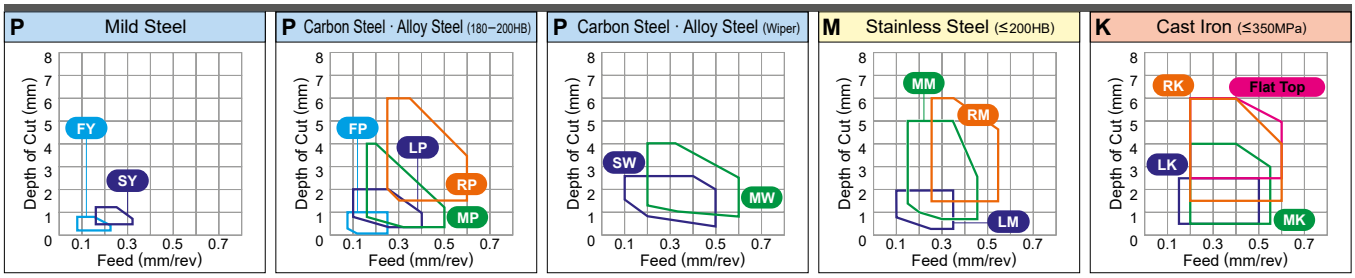
TURNING INSERTS [NEGATIVE]

80° WN TYPE INSERTS WITH HOLE

WNMG 08 04 04- LK
Size · Thickness · Corner Radius · Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
LK	**WNMG080404-LK**	0.4											●	●	★																						C022 C023 E017 E042
	WNMG080408-LK	0.8											●	●	★	★																					
	WNMG080412-LK	1.2											★	●	★	★																					
Light Cutting																																					
LS	**WNMG080402-LS**	0.2																●	●	●															●		C022 C023 E017 E042
	WNMG080404-LS	0.4																●	●	●															●		
	WNMG080408-LS	0.8																●	●	●															●		
Light Cutting																																					
SH	**WNMG06T304-SH**	0.4	●	●						●																											C022 C023 E017 E040 E042
	WNMG06T308-SH	0.8	●	●						●																											
	WNMG060404-SH	0.4	★	●						●																											
	WNMG060408-SH	0.8	●	★						●																											
	WNMG080404-SH	0.4	★	★	★					●				★																	●						
	WNMG080408-SH	0.8	★	★	★					●				★																	●						
	WNMG080412-SH	1.2	★	★	★					★				★																							
Light Cutting																																					
SA	**WNMG080404-SA**	0.4	★	★	★																										★	★					C022 C023 E017 E042
	WNMG080408-SA	0.8	★	★	★																										★	●					
	WNMG080412-SA	1.2	★	★	★																											★					
Light Cutting																																					
* **SW**	**WNMG060404-SW**	0.4	●	★																						●				●							C022 C023 E017 E042
	WNMG060408-SW	0.8	●	●																						●				●							
	WNMG080404-SW	0.4	●	★										★	★	★										★				●	★						
	WNMG080408-SW	0.8	●	★										★	●	●										●				★	★						
Light Cutting (Wiper)	**WNMG080412-SW**	1.2	●	★																						★				★	★						
SY	**WNMG080404-SY**	0.4																								★				★							C022 C023 E017 E042
	WNMG080408-SY	0.8	●	●	★																					★	★			★	★						
Light Cutting																																					

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

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																			Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
MJ	**WNMG080408-MJ**	0.8																●	●		●		●	●														
	WNMG080412-MJ	1.2																●	●		★		★	●														C022 C023 E017 E042
	WNMG080416-MJ	1.6																●	●		★		★	★														
Light Cutting																																						
MP	**WNMG06T304-MP**	0.4	●	●	●	●							●																										
	WNMG06T308-MP	0.8	●	●	●	●							●																										
	WNMG06T312-MP	1.2	●	●	●	●							●																										
	WNMG060404-MP	0.4	●	●	●	●							●																										C022 C023 E017 E040 E042
	WNMG060408-MP	0.8	●	●	●	●							●																										
	WNMG060412-MP	1.2	●	●	●	●							●																										
	WNMG080404-MP	0.4	●	●	★	●							●														★												
	WNMG080408-MP	0.8	●	●	●	●							●														★												
	WNMG080412-MP	1.2	●	●	★	●							●														★												
Medium Cutting	**WNMG080416-MP**	1.6	●	●	★	●							●																										
MM	**WNMG060408-MM**	0.8						★	●	●																													
	WNMG060412-MM	1.2						★	●	●																													C022 C023 E017 E042
	WNMG080408-MM	0.8						●	●	●																													
	WNMG080412-MM	1.2						●	●	●																													
Medium Cutting																																						
MK	**WNMG080404-MK**	0.4											●	●	★																								
	WNMG080408-MK	0.8											●	●	●																								C022 C023 E017 E042
	WNMG080412-MK	1.2											●	●	●																								
	WNMG080416-MK	1.6											★	●	★																								
Medium Cutting																																						
* **MS**	**WNMG080404-MS**	0.4																●	●	●																			
	WNMG080408-MS	0.8																●	●	●	●																		C022 C023 E017 E040 E042
	WNMG080412-MS	1.2																●	●	●	●																		
Medium Cutting																																						
MS	**WNMG060404-MS**	0.4	★	★						●																											●		
	WNMG060408-MS	0.8	★	★						●																											●		
	WNMG06T304-MS	0.4	★	●						●																													C022 C023 E017 E040 E042
	WNMG06T308-MS	0.8	★	★						●																													
	WNMG080404-MS	0.4	★	★	★					●																											●		
	WNMG080408-MS	0.8	★	★	★					●														●	●	●										●	●		
Medium Cutting	**WNMG080412-MS**	1.2	★	★						●														●	●												★		
GK	**WNMG060404-GK**	0.4											★	★	●																								
	WNMG060408-GK	0.8											●	●	★																								C022 C023 E017 E042
	WNMG080404-GK	0.4											★	●	★																								
	WNMG080408-GK	0.8											●	●	●	★																							
	WNMG080412-GK	1.2											●	●	●	★																							
Medium Cutting	NEW **WNMG080416-GK**	1.6											●	●	★																								

*Newly designed breakers : MP9005, MP9015, MP9025, MT9015, MV9005

● = NEW

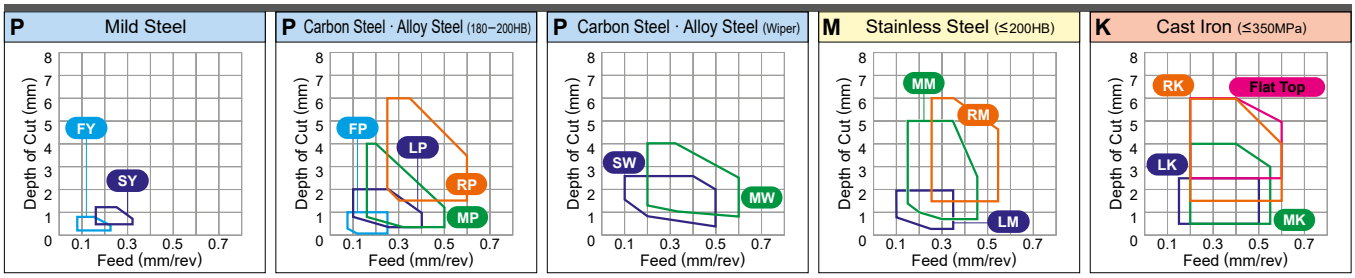
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° WN TYPE INSERTS WITH HOLE

WNMG 06 04 04- GM
Size Thickness Corner Radius Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																					Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
GM	**WNMG060404-GM**	0.4						●	●	●																											
	WNMG060408-GM	0.8						★	●	●																											C022 C023 E017 E042
	WNMG080404-GM	0.4						★	●	●																											
	WNMG080408-GM	0.8						●	●	●																											
Medium Cutting	**WNMG080412-GM**	1.2						★	●	●																											
MA	**WNMG06T304-MA**	0.4	★	●						●																											
	WNMG06T308-MA	0.8	★	●						●																											
	WNMG06T312-MA	1.2	★	★						★																											
	WNMG060404-MA	0.4	●	●	★					●																											
	WNMG060408-MA	0.8	●	●	★				●	★	●		★	●	●									●													C022 C028 E017 E040 E042
	WNMG060412-MA	1.2	★	●	★				★	●	●		★	●	★									★													
	WNMG080404-MA	0.4	●	●	★				●	★	●		★	●	★				●	●				●							●						
	WNMG080408-MA	0.8	●	●	●	●			●	●	●		●	●	●				●	●				●							★						
	WNMG080412-MA	1.2	●	●	★	●			●	●	●		●	●	●				●	●				★							★						
	WNMG080416-MA	1.6	●	●									●	●	★				●	●																	
Medium Cutting	NEW **WNMG100612-MA**	1.2		★	★																																
MH	**WNMG080404-MH**	0.4	★	●	★																																
	WNMG080408-MH	0.8	●	●	★	★								●																							C022 C023 E017 E042
	WNMG080412-MH	1.2	●	●	★	★								●																							
Medium Cutting																																					
Standard	**WNMG080404**	0.4	●	●	★																					★				●							
	WNMG080408	0.8	●	●	★	●																		●		★				●		●					C022 C023 E017 E042
	WNMG080412	1.2	●	●	★	●																		★								★					
Medium Cutting																																					
* **MW**	**WNMG060408-MW**	0.8	●	●	★								●	●	★																						
	WNMG060412-MW	1.2	●	●	★								★	●	★																						C022 C023 E017 E042
	WNMG080408-MW	0.8	●	●	★								●	●	●																						
	WNMG080412-MW	1.2	●	●	★								●	●	★																						
Medium Cutting (Wiper)																																					

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

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
RP Rough Cutting	**WNMG080408-RP**	0.8	●	●	●	●																															C022 C023 E017 E042
	WNMG080412-RP	1.2	●	●	●	●																															
	NEW **WNMG080416-RP**	1.6	●	●																																	
RM Rough Cutting	**WNMG060408-RM**	0.8						●	★	★																											C022 C023 E017 E042
	WNMG060412-RM	1.2						★	★	★																											
	WNMG080408-RM	0.8						●	●	●																											
	WNMG080412-RM	1.2						●	●	●																											
RK Rough Cutting	**WNMG080408-RK**	0.8											●	●	●																						C022 C023 E017 E042
	WNMG080412-RK	1.2											●	●	●	★																					
	WNMG080416-RK	1.6											●	●	●	★																					
RS Rough Cutting	**WNMG080408-RS**	0.8																	●	●																●	C022 C023 E017 E042
	WNMG080412-RS	1.2																	●	●																●	
	WNMG080416-RS	1.6																	●	●																★	
	WNMG100612-RS	1.2																	●	●																★	
GH Rough Cutting	**WNMG080408-GH**	0.8	★	●	★					●			●	●	●																						C022 C023 E017 E042
	WNMG080412-GH	1.2	★	●	★					●			●	●	●																						
GJ Rough Cutting	**WNMG080408-GJ**	0.8																			●		●										★				C022 C023 E017 E042
	WNMG080412-GJ	1.2																			★		●										★				
	WNMG080416-GJ	1.6																			★		●										★				
	WNMG100612-GJ	1.2																					●										★				
Flat Top	**WNMA060408**	0.8											★	●	★																						C022 C023 E017 E042
	WNMA060412	1.2											★	●	★																						
	WNMA080404	0.4											●	●	★																		●				
	WNMA080408	0.8											●	●	●																		●				
	WNMA080412	1.2											●	●	●																						
	WNMA080416	1.6											●	●	★																						

● = NEW

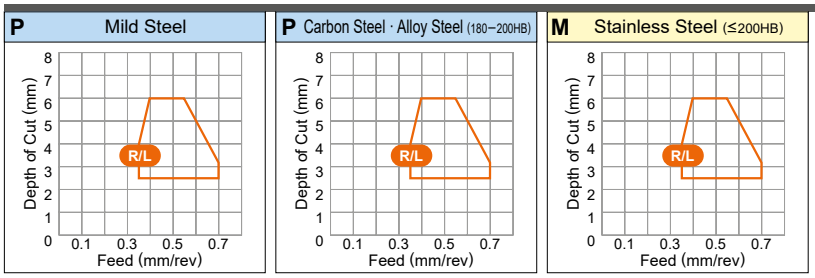
CHIPBREAKERS ➤ A042
GRADES ➤ A030
IDENTIFICATION ➤ A002

55° KN TYPE INSERTS WITHOUT HOLE

KNUX 16 04 05 R-M1
Size Thickness Corner Radius Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

Rough Cutting



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

Material			MC6115	MC6125	MC6135 (NEW)	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105 (NEW)	MC5115	MC5125	MH515	MV9005 (NEW)	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
	P	Steel	◐	✣	✣	✣	●																		✣	✣	◐	●	●	◐	●	◐	✣					✣	
	M	Stainless Steel						○	◐	✣	✣	○										◐		◐	✣	✣		○	○		○		✣					✣	
	K	Cast Iron											●	◐	✣	◐								◐	✣			●	●		●		✣	◐					
	N	Non-ferrous Metal																																◐					
	S	Heat-resistant Alloy, Titanium Alloy															●	●	◐	✣	●	◐	●	◐	✣									◐	◐	●	◐		

Shape	Order Number	RE (mm)	Coated																								Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	MC6135 (NEW)	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105 (NEW)	MC5115	MC5125	MH515	MV9005 (NEW)	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
R/L-M1 Rough Cutting	KNUX160405R-M1	0.5																															●						–
	KNUX160405L-M1	0.5																															●						

● = NEW

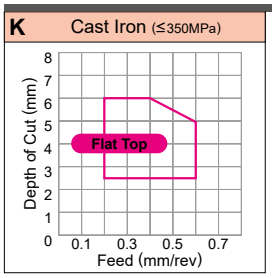
● : Inventory maintained. ★ : Inventory maintained in Japan.
* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

CHIP CONTROL RANGE FOR MATERIAL

Heavy Cutting·····

K Cast Iron (≤350MPa)



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	NEW MH515	MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
Flat Top	CNMN120408	0.8											★	●	★																							—
	CNMN120412	1.2											★	●	★																							
	CNMN120416	1.6											★	●	★																							

● = NEW

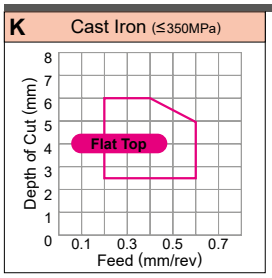
CHIPBREAKERS ➤ A072
GRADES ➤ A030
IDENTIFICATION ➤ A002

90° SN TYPE INSERTS WITHOUT HOLE

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

CHIP CONTROL RANGE FOR MATERIAL

Heavy Cutting·····



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
Flat Top	SNMN120408	0.8											★	●	★																★		●	★					
	SNMN120412	1.2											★	●	●																★		●						
	SNMN120416	1.6											★	★	★																								–
	NEW SNMN120420	2.0											★	●	★																								
	SNMN190412	1.2																															●						
Flat Top	SNGN090308	0.8																																★					
	SNGN120404	0.4																															★	★					
	SNGN120408	0.8																															★						–

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

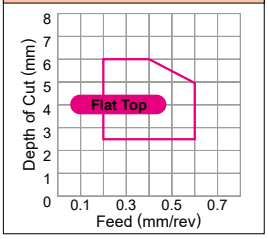
60° TN TYPE INSERTS WITHOUT HOLE

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

CHIP CONTROL RANGE FOR MATERIAL

Heavy Cutting

K Cast Iron (≤350MPa)



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

Material			MC6115	MC6125	MC6135 (NEW)	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105 (NEW)	MC5115	MC5125	MH515	MV9005 (NEW)	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M
	P	Steel	◐	✣	✣	✣	●																		✣	✣	◐	●	●	◐	●	◐	✣					✣
	M	Stainless Steel						○	◐	✣	✣	○										◐		◐	✣	✣		○	○		○		✣					✣
	K	Cast Iron											●	◐	✣	◐								◐	✣			●	●		●		✣	◐				
	N	Non-ferrous Metal																																◐				
	S	Heat-resistant Alloy, Titanium Alloy															●	●	◐	✣	●	◐	●	◐	✣									◐	◐	●	◐	

Shape	Order Number	RE (mm)	Coated																								Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	MC6135 (NEW)	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105 (NEW)	MC5115	MC5125	MH515	MV9005 (NEW)	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
Flat Top	TNMN160308	0.8																													★								–
	TNMN160408	0.8											★	●	★																★								
	TNMN160412	1.2											★	●	★																								
	TNMN160416	1.6											★	★	●																								
	NEW TNMN160420	2.0											★	●	★																								
	TNMN220408	0.8																													●								
	TNMN220412	1.2																															●						
Flat Top	TNGN110304	0.4																																●					–
	TNGN110308	0.8																																●					
	TNGN160404	0.4																																★					
	TNGN160408	0.8																																★					

● = NEW

CHIPBREAKERS ➤ A072
GRADES ➤ A030
IDENTIFICATION ➤ A002

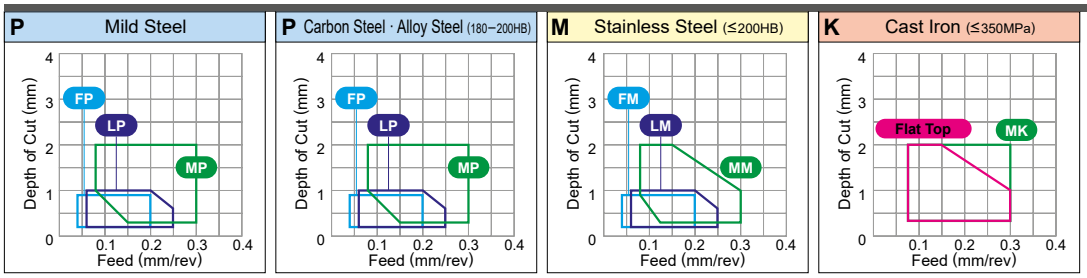
TURNING INSERTS [POSITIVE]

80° CC TYPE INSERTS WITH HOLE

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

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
FP	CCMT060202-FP	0.2	●	●	★																						●				●						C024 D010 E007 E008 E033 E037 E047 E048
	CCMT060204-FP	0.4	●	●	★																						●				●						
	CCMT09T302-FP	0.2	●	●	★																						●				●						
	CCMT09T304-FP	0.4	●	●	★																						●				●						
Finish Cutting	CCMT09T308-FP	0.8	●	●	★																						●				★						
FM	CCMT060202-FM	0.2																							●												C024 D010 E007 E008 E033 E037 E047 E048
	CCMT060204-FM	0.4																							●												
	CCMT09T302-FM	0.2																							●												
	CCMT09T304-FM	0.4																							●												
Finish Cutting	CCMT09T308-FM	0.8																							●												
FS	NEW CCMT060202-FS	0.2																		●																	C024 D010 E007 E008 E033 E037 E047 E048
	NEW CCMT060204-FS	0.4																		●																	
	NEW CCMT09T302-FS	0.2																		●																	
	NEW CCMT09T304-FS	0.4																		●																	
Finish Cutting	NEW CCMT09T308-FS	0.8																		●																	
FS	CCGT060201M-FS	0.1*																●	●	●					●												C024 D010 E007 E008 E033 E037 E047 E048
	CCGT060202M-FS	0.2*																●	●	●					●												
	NEW CCGT060204M-FS	0.4*																		●					●												
	CCGT09T301M-FS	0.1*																●	●	●					●												
	CCGT09T302M-FS	0.2*																●	●	●					●												
Finish Cutting	CCGT09T304M-FS	0.4*																●	●	●					●												
FS-P	CCGT060201M-FS-P	0.1*										●										●			●										●		C024 D010 E007 E008 E033 E037 E047 E048
	CCGT060202M-FS-P	0.2*										●										●			●										●		
	NEW CCGT060204M-FS-P	0.4*										●										●			●												
	CCGT09T301M-FS-P	0.1*										●										●			●										●		
	CCGT09T302M-FS-P	0.2*										●										●			●										●		
Finish Cutting	CCGT09T304M-FS-P	0.4*										●										●			●										●		
FV	CCMT060202-FV	0.2		●	★																				●			●	●	●	●						C024 D010 E007 E008 E033 E037 E047 E048
	CCMT060204-FV	0.4		●	★																				●			●	●	●	●						
	CCMT09T302-FV	0.2		●	★																								●	●	★						
	CCMT09T304-FV	0.4		●	★																						●		●	●	●						
Finish Cutting	CCMT09T308-FV	0.8		●	★																						●		●	●	★						

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

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
FJ	**CCGT0602V5-FJ**	0.05																						●													C024
	CCGT060201-FJ	0.1																						●													D010
	CCGT060202-FJ	0.2																						●													E007
	CCGT09T3V5-FJ	0.05																						●													E008
	CCGT09T301-FJ	0.1																						●										●			E033 E037
	CCGT09T302-FJ	0.2																						●										●			E047
Finish Cutting	**CCGT09T304-FJ**	0.4																						●										●			E048
AZ	**CCGT060202-AZ**	0.2																															●				
	CCGT060204-AZ	0.4																															●				C024
	CCGT09T302-AZ	0.2																															●				D010
	CCGT09T304-AZ	0.4																															●				E007
	CCGT09T308-AZ	0.8																															●				E008
	CCGT120402-AZ	0.2																															●				E033
	CCGT120404-AZ	0.4																															●				E037
Medium – Finish Cutting	**CCGT120408-AZ**	0.8																															●				E047 E048
R/L-F	**CCGT03S1V3L-F**	0.03																							●					●							
	CCGT03S101L-F	0.1																							●					●							
	CCGT03S102L-F	0.2																							●		●			●							
	CCGT03S104L-F	0.4																							●		★			●							E018
	CCGT04T0V3L-F	0.03																							●					★							E047
	CCGT04T001L-F	0.1																							●					●							
	CCGT04T002L-F	0.2																							●		●			●							
	CCGT04T004L-F	0.4																							●		●			●							
	CCGT03S101MR-F	0.1*					●																														E018
	CCGT03S101ML-F	0.1*					●																														E047
	CCGT03S102MR-F	0.2*					●																														
	CCGT03S102ML-F	0.2*					●																														
	CCGT03S104MR-F	0.4*					●																														
	CCGT03S104ML-F	0.4*					●																														
	CCGT04T001MR-F	0.1*					●																														
	CCGT04T001ML-F	0.1*					●																														
	CCGT04T002MR-F	0.2*					●																														
	CCGT04T002ML-F	0.2*					●																														
	CCGT04T004MR-F	0.4*					●																														
Finish Cutting	**CCGT04T004ML-F**	0.4*					●																														
R/L-F	**CCGH060202R-F**	0.2																							●		★			★			★				
	CCGH060202L-F	0.2																							●		★			●			★				C024
	CCGH060204R-F	0.4																							●		★			★			★				D010
	CCGH060204L-F	0.4																							●		★			●			★				E007
	CCGH060202MR-F	0.2*					●																														E008
	CCGH060202ML-F	0.2*					●																														E033
	CCGH060204MR-F	0.4*					●																														E037
Finish Cutting	**CCGH060204ML-F**	0.4*					●																														E047 E048

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

● = NEW

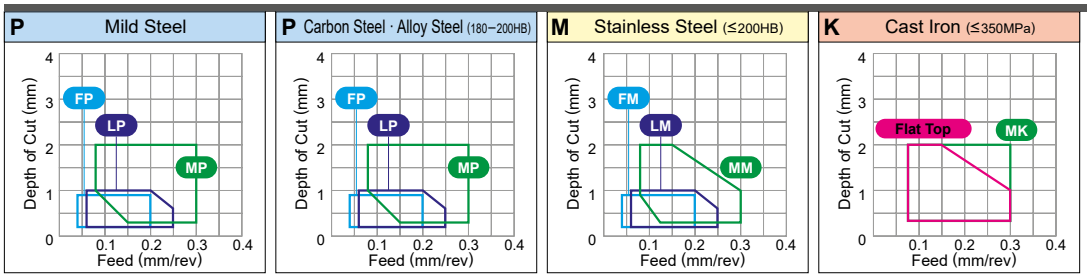
CHIPBREAKERS ➤ A056
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° CC TYPE INSERTS WITH HOLE

CCET 06 02 01M R- SRF
Size · Thickness · Corner Radius · R/L · Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
R/L-SRF NEW	CCET060201MR-SRF	0.1*																				●																
	CCET060201ML-SRF	0.1*																				●																
	CCET060202MR-SRF	0.2*																				●																
	CCET060202ML-SRF	0.2*																				●																C024 D010
	CCET060204MR-SRF	0.4*																				●																E007
	CCET060204ML-SRF	0.4*																				●																E008
	CCET09T301MR-SRF	0.1*																				●																E033
	CCET09T301ML-SRF	0.1*																				●																E037
	CCET09T302MR-SRF	0.2*																				●																E047
	CCET09T302ML-SRF	0.2*																				●																E048
	CCET09T304MR-SRF	0.4*																				●																
Finish Cutting	CCET09T304ML-SRF	0.4*																				●																
LP	NEW CCMT060202-LP	0.2	●	●	★																																	
	CCMT060204-LP	0.4	●	●	★																						●			●								
	CCMT060208-LP	0.8	●	●	★																						★			●								
	NEW CCMT09T302-LP	0.2	●	●	●																																	
	CCMT09T304-LP	0.4	●	●	★																						●			●								
Light Cutting	CCMT09T308-LP	0.8	●	●	★																						★			●								
LM	NEW CCMT060202-LM	0.2						●	●																													
	CCMT060204-LM	0.4						●	●	●															●													
	CCMT060208-LM	0.8							●	★															●													
	NEW CCMT09T302-LM	0.2						●	●																													
	CCMT09T304-LM	0.4						●	●	●															●													
Light Cutting	CCMT09T308-LM	0.8						●	●	●															●													
LS	CCMT060202-LS	0.2																●	●	●																●		
	CCMT060204-LS	0.4																●	●	●																●		
	CCMT09T302-LS	0.2																●	●	●																●		
	CCMT09T304-LS	0.4																●	●	●																●		
Light Cutting	CCMT09T308-LS	0.8																●	●	●																●		
LS	CCGT060201M-LS	0.1*																●	●	●						●												
	CCGT060202M-LS	0.2*																●	●	●						●												
	NEW CCGT060204M-LS	0.4*																		●						●												
	CCGT09T301M-LS	0.1*																●	●	●						●												
	CCGT09T302M-LS	0.2*																●	●	●						●												
Light Cutting	CCGT09T304M-LS	0.4*																●	●	●						●												

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

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																		Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
LS-P	CCGT060201M-LS-P	0.1*2					●					●										●												●			C024 D010 E007 E008 E033 E037 E047 E048
	CCGT060202M-LS-P	0.2*2					●					●										●												●			
	NEW CCGT060204M-LS-P	0.4*2										●										●															
	CCGT09T301M-LS-P	0.1*2					●					●										●												●			
	CCGT09T302M-LS-P	0.2*2					●					●										●												●			
Light Cutting	CCGT09T304M-LS-P	0.4*2					●					●										●												●			
SV	CCMH060202-SV	0.2									●													●			★		★	●	★						C024 D010 E007 E008 E033 E037 E047 E048
	CCMH060204-SV	0.4									●													●			●		★	★	★						
Light Cutting																																					
*1 **SW**	CCMT060202-SW	0.2	●	●	★														●								●	★		●							C024 D010 E007 E008 E033 E037 E047 E048
	CCMT060204-SW	0.4	●	●	★								●						●								●	★		●							
	NEW CCMT060208-SW	0.8	●	●	●														●																		
	CCMT09T302-SW	0.2	●	●	★								●						●								●	★		●							
Light Cutting (Wiper)	CCMT09T304-SW	0.4	●	●	★								●						●								●	★		●							
	NEW CCMT09T308-SW	0.8	●	●	●														●																		
R/L-SS	CCGT0602V3R-SS	0.03																							★												C024 D010 E007 E008 E033 E037 E047 E048
	CCGT0602V3L-SS	0.03																							★												
	CCGT060201R-SS	0.1																							★												
	CCGT060201L-SS	0.1																							★												
	CCGT060202R-SS	0.2																							★												
	CCGT060202L-SS	0.2																							●												
	CCGT09T3V3R-SS	0.03																							★												
	CCGT09T3V3L-SS	0.03																							★												
	CCGT09T301R-SS	0.1																							●												
	CCGT09T301L-SS	0.1																							★												
	CCGT09T302R-SS	0.2																							●												
	CCGT09T302L-SS	0.2																							●												
	CCGT060201MR-SS	0.1*2					●																														C024 D010 E007 E008 E033 E037 E047 E048
	CCGT060201ML-SS	0.1*2					●																														
	CCGT060202MR-SS	0.2*2					●																														
	CCGT060202ML-SS	0.2*2					●																														
	CCGT09T301MR-SS	0.1*2					●																														
	CCGT09T301ML-SS	0.1*2					●																														
	CCGT09T302MR-SS	0.2*2					●																														
	CCGT09T302ML-SS	0.2*2					●																														
	CCGT09T304MR-SS	0.4*2					●																														
Light Cutting	CCGT09T304ML-SS	0.4*2					●																														

*1 Please refer to page A028 before using the SW chipbreaker (wiper insert).
*2 Indicates the maximum value of the corner R. For more details, see page D003.

● = NEW

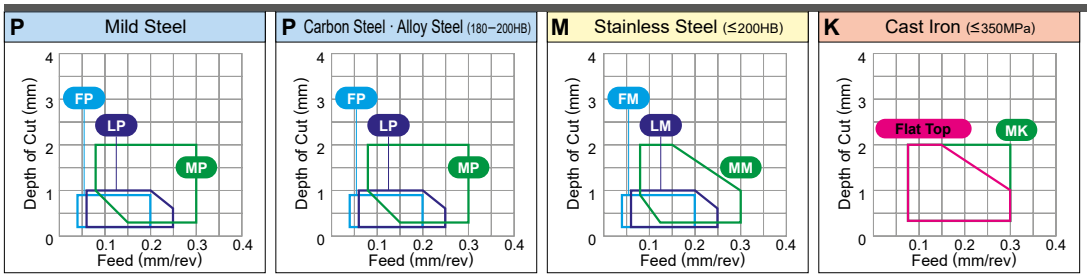
CHIPBREAKERS ➤ A056
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° CC TYPE INSERTS WITH HOLE

CCMT 06 02 02- MP
Size Thickness Corner Radius Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
MP	NEW **CCMT060202-MP**	0.2	●	●	★																																		
	CCMT060204-MP	0.4	●	●	★																						●				●									
	CCMT060208-MP	0.8	●	●	★																						★				★									
	NEW **CCMT080302-MP**	0.2	★	★																																				C024 D010 E007 E008 E033 E037 E047 E048
	NEW **CCMT080304-MP**	0.4	●	★																																				
	NEW **CCMT080308-MP**	0.8	●	★																																				
	NEW **CCMT09T302-MP**	0.2	●	●	★																																			
	CCMT09T304-MP	0.4	●	●	★																						●				●									
	CCMT09T308-MP	0.8	●	●	★																						★				●									
	CCMT120404-MP	0.4	●	●	★																						●				★									
	CCMT120408-MP	0.8	●	●	★																						★				●									
Medium Cutting	**CCMT120412-MP**	1.2	●	●	★																						★				★									
MM	NEW **CCMT060202-MM**	0.2						●	●																															
	CCMT060204-MM	0.4						●	●	●															●															C024 D010 E007 E008 E033 E037 E047 E048
	CCMT060208-MM	0.8							●	●															●															
	NEW **CCMT09T302-MM**	0.2						●	●																															
	CCMT09T304-MM	0.4						●	●	●															●															
	CCMT09T308-MM	0.8						●	●	●															●	●														
	CCMT120404-MM	0.4						●	●	●															●															
	CCMT120408-MM	0.8						●	●	●															●															
Medium Cutting	**CCMT120412-MM**	1.2						●	●	★															●															
MK	NEW **CCMT060202-MK**	0.2											●	●	●																									
	CCMT060204-MK	0.4											●	●	●																									C024 D010 E007 E008 E033 E037 E047 E048
	CCMT060208-MK	0.8											●	●	★																									
	NEW **CCMT09T302-MK**	0.2											●	●	●																									
	CCMT09T304-MK	0.4											●	●	●																									
	CCMT09T308-MK	0.8											●	●	●																									
	CCMT120404-MK	0.4											●	●	★																									
	CCMT120408-MK	0.8											●	●	●																									
Medium Cutting	**CCMT120412-MK**	1.2											★	●	★																									

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																			Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
MS	**CCMT060202-MS**	0.2																●	●	●														●				
	CCMT060204-MS	0.4																●	●	●														●				C024
	CCMT060208-MS	0.8																●	●	●														●				D010
	CCMT09T302-MS	0.2																●	●	●																		E007
	CCMT09T304-MS	0.4																●	●	●														●				E008
	CCMT09T308-MS	0.8																●	●	●														●				E033
	CCMT120404-MS	0.4																●	●	●														●				E037
	CCMT120408-MS	0.8																●	●	●														●				E047
Medium Cutting	**CCMT120412-MS**	1.2																●	●	●														●				E048
Standard	**CCMT060202**	0.2								●																	●	★			●	●	●					
	CCMT060204	0.4								●															●		●	★			●	●	●					
	CCMT060208	0.8								●															●						★		●					C024
	CCMT080304	0.4								●																	●	★			●	★	●					D010
	CCMT080308	0.8								●																							●					E007
	CCMT09T302	0.2								●																	●	★			●	●						E008
	CCMT09T304	0.4								●															●		●	★			●	●						E033
	CCMT09T308	0.8								●															●		●	★			●	●	●					E037
	CCMT120404	0.4								●															●		●	★			●	●	●					E047
	CCMT120408	0.8								●															●		●				●	●	●					E048
Medium Cutting	**CCMT120412**	1.2								●																						★						
MV	**CCMH060202-MV**	0.2		●	★					●															●		●	★	★		★	★						C024
	CCMH060204-MV	0.4		●	★					●			★												●		●	★	●		●	●						D010
Medium Cutting																																						E007 E008 E033 E037 E047 E048
* **MW**	**CCMT060204-MW**	0.4		●	●	★																					●		★		●							C024
	CCMT060208-MW	0.8		●	●	★																					★		★		●							D010
	CCMT09T304-MW	0.4		●	●	★																					●		★		●							E007 E008 E033 E037 E047 E048
	CCMT09T308-MW	0.8		●	●	★																					●		★		●							
Medium Cutting (Wiper)	**CCMT120404-MW**	0.4		●	●	★							●																★		●							
	CCMT120408-MW	0.8		●	●	★							●																★		●							
R/L-SR	**CCET0602V3R-SR**	0.03																							★						★		★					
	CCET0602V3L-SR	0.03																							●						★		★					C024
	CCET060201R-SR	0.1																							★						★		★					D010
	CCET060201L-SR	0.1																							★						★		★					E007
	CCET060202R-SR	0.2																							★						★		★					E008
	CCET060202L-SR	0.2																							●						●		★					E033
	CCET060204R-SR	0.4																							★						★		★					E037
Medium Cutting	**CCET060204L-SR**	0.4																							●						●		★					E047 E048

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

● = NEW

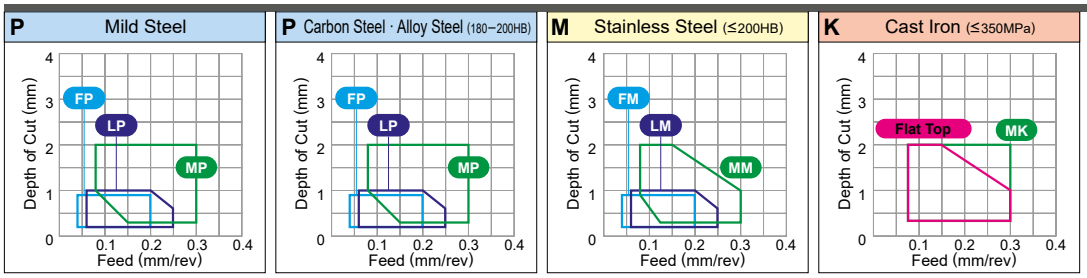
CHIPBREAKERS ➤ A056
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° CC TYPE INSERTS WITH HOLE

CCGT 06 02 V3 R- SN
Size · Thickness · Corner Radius · R/L · Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
R/L-SR	**CCET09T3V3R-SR**	0.03																						★						★		★							
	CCET09T3V3L-SR	0.03																						●						★		★							
	CCET09T301R-SR	0.1																						●						★		★							C024 D010 E033 E037 E047 E048
	CCET09T301L-SR	0.1																						●						★		★							
	CCET09T302R-SR	0.2																						★						★		★							
	CCET09T302L-SR	0.2																						●						★		★							
	CCET09T304R-SR	0.4																						●						★		★							
Medium Cutting	**CCET09T304L-SR**	0.4																						●						★		★							
R/L-SN	**CCGT0602V3R-SN**	0.03																						●															
	CCGT060201R-SN	0.1																						★															
	CCGT060201L-SN	0.1																						★															
	CCGT060202R-SN	0.2																						●															C024 D010 E007 E008 E033 E037 E047 E048
	CCGT060202L-SN	0.2																						●															
	CCGT09T3V3R-SN	0.03																						★															
	CCGT09T3V3L-SN	0.03																						★															
	CCGT09T301R-SN	0.1																						●															
	CCGT09T301L-SN	0.1																						★															
	CCGT09T302R-SN	0.2																						●															
	CCGT09T302L-SN	0.2																						●															
	CCGT09T304R-SN	0.4																						●															
	CCGT09T304L-SN	0.4																						●															
	CCGT060201MR-SN	0.1*					●		●													●																	
	CCGT060201ML-SN	0.1*					●																																
	CCGT060202MR-SN	0.2*					●		●													●																	C024 D010 E007 E008 E033 E037 E047 E048
	CCGT060202ML-SN	0.2*					●																																
	CCGT09T301MR-SN	0.1*					●		●													●																	
	CCGT09T301ML-SN	0.1*					●																																
	CCGT09T302MR-SN	0.2*					●		●													●																	
	CCGT09T302ML-SN	0.2*					●																																
	CCGT09T304MR-SN	0.4*					●		●													●																	
Medium Cutting	**CCGT09T304ML-SN**	0.4*					●																																

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

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																			Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
R/L-SN	**CCET060200R-SN**	0																						★					★		★						
	CCET060200L-SN	0																						★					★		★						
	CCET0602V3R-SN	0.03																						★					★		★						
	CCET0602V3L-SN	0.03																						★					★		★						
	CCET060201R-SN	0.1																						★					★		★						
	CCET060201L-SN	0.1																						★					★		★						
	CCET060202R-SN	0.2																						★					★		★						
	CCET060202L-SN	0.2																						★					★		★						
	CCET060204R-SN	0.4																						★					★		★						
	CCET060204L-SN	0.4																						●					★		★						
	CCET09T300R-SN	0																						●					★		★						
	CCET09T300L-SN	0																						★					★		★						
	CCET09T3V3R-SN	0.03																						●					★		★						
	CCET09T3V3L-SN	0.03																						★					★		★						
	CCET09T301R-SN	0.1																						●					★		★						
	CCET09T301L-SN	0.1																						●					★		★						
	CCET09T302R-SN	0.2																						●					★		★						
	CCET09T302L-SN	0.2																						●					★		★						
	CCET09T304R-SN	0.4																						●					★		★						
Medium Cutting	**CCET09T304L-SN**	0.4																						●					★		★						
R/LW-SN	**CCET0602V3RW-SN**	0.03																						★													
*1	**CCET0602V3LW-SN**	0.03																						●													
	CCET09T3V3RW-SN	0.03																						★													
	CCET09T3V3LW-SN	0.03																						★													
Medium Cutting (Wiper)																																					
SMG	**CCGT060201M-SMG**	0.1*2					●																														
	CCGT060202M-SMG	0.2*2					●																		●												
	CCGT060204M-SMG	0.4*2					●																		●												
	CCGT09T301M-SMG	0.1*2					●																														
	CCGT09T302M-SMG	0.2*2					●																														
Medium Cutting	**CCGT09T304M-SMG**	0.4*2					●																														
Flat Top	**CCMW060202**	0.2																															●				
	CCMW060204	0.4											●	●	★																		●	●				
	CCMW060208	0.8											★	●	★																						
	CCMW09T304	0.4											●	●	●																			●				
	CCMW09T308	0.8											●	●	●																		●	●				
	CCMW09T312	1.2											★	●	★																						
	CCMW120404	0.4											●	●	★																			●				
	CCMW120408	0.8											●	●	●																			●				
	CCMW120412	1.2											★	●	★																						

*1 Please refer to page A028 before using the R/LW-SN chipbreaker (wiper insert).
*2 Indicates the maximum value of the corner R. For more details, see page D003.

● = NEW

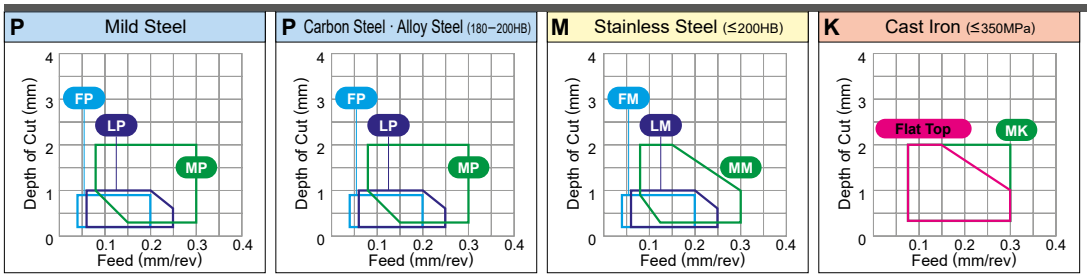
CHIPBREAKERS ➤ A056
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° CC TYPE INSERTS WITH HOLE

CCGW 06 02 00
Size Thickness Corner Radius
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide								Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
Flat Top	CCGW060200	0																											★								
	CCGW0602V5	0.05																											●								C024
	CCGW060201	0.1																														★					D010
	CCGW060202	0.2																														★					E007
	CCGW09T300	0																											●			★					E008
	CCGW09T3V5	0.05																											●								E033
	CCGW09T301	0.1																														★					E037
	CCGW09T302	0.2																														★					E047
	CCGW09T304	0.4																														★					E048

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

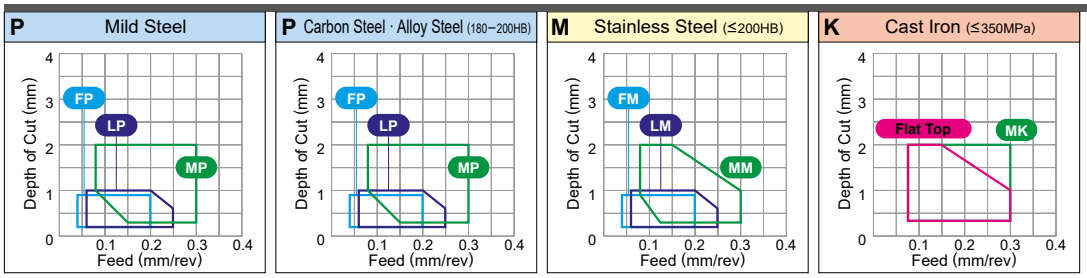
CHIPBREAKERS ➤ A056

80° CP TYPE INSERTS WITH HOLE

CPMH 08 02 02- FP
Size Thickness Corner Radius Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																			Coated Cermet				Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	NEW MH515	MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
FP NEW	CPMH080202-FP	0.2	●	●																																
	CPMH080204-FP	0.4	●	●																																E007 E008 E048 E049
	CPMH090302-FP	0.2	●	●																																
	CPMH090304-FP	0.4	●	●																																
Finish Cutting	CPMH090308-FP	0.8	●	●																																
FM NEW	CPMH080202-FM	0.2																							●											
	CPMH080204-FM	0.4																							●											E007 E008 E048 E049
	CPMH090302-FM	0.2																							●											
	CPMH090304-FM	0.4																							●											
Finish Cutting	CPMH090308-FM	0.8																							●											
FS NEW	CPMH080202-FS	0.2																		●																
	CPMH080204-FS	0.4																		●																E007 E008 E048 E049
	CPMH090302-FS	0.2																		●																
	CPMH090304-FS	0.4																		●																
Finish Cutting	CPMH090308-FS	0.8																		●																
FV	CPMH080202-FV	0.2	★	★																				●		★				★	★					
	CPMH080204-FV	0.4	●	★																●				●	●	★				●	★					E007 E008 E048 E049
	CPMH090302-FV	0.2	★	★																				●		★				★	★					
	CPMH090304-FV	0.4	●	★																●				●	●	★				★	★					
Finish Cutting	CPMH090308-FV	0.8	●	★																●				●	●	★				★	★					
Standard	CPGT080202	0.2																															●			
	CPGT080204	0.4																															●			E007 E008 E048 E049
	CPGT090302	0.2																															★			
	CPGT090304	0.4																															●			
Finish Cutting																																				
R/L-F	CPMH080204R-F	0.4																						●						★	★					
	CPMH080204L-F	0.4																						●						★	★					E007 E008 E048 E049
	CPMH090304R-F	0.4																						●						★	★					
	CPMH090304L-F	0.4																						●			★			★	★					
Finish Cutting																																				

● = NEW

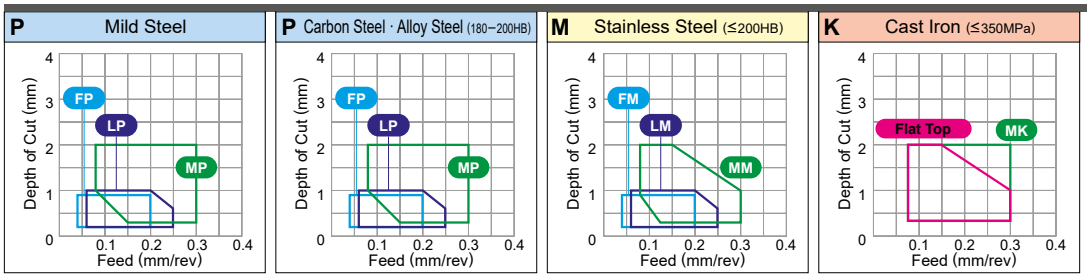
CHIPBREAKERS ➤ A064
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° CP TYPE INSERTS WITH HOLE

CPGT 08 02 04 R- F
Size / Thickness / Corner Radius / R/L / Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
R/L-F	CPGT080204R-F	0.4																													★								
	CPGT080204L-F	0.4																													★								E007
	CPGT090302R-F	0.2																													★								E008
	CPGT090302L-F	0.2																													★								E048
	CPGT090304R-F	0.4																													★								E049
Finish Cutting	CPGT090304L-F	0.4																													★								
LP NEW	CPMH080202-LP	0.2		●	★																																	
	CPMH080204-LP	0.4	●	●	★																																	E007
	CPMH080208-LP	0.8	●	●	●																																	E008
	CPMH090302-LP	0.2		●	★																																	E048
	CPMH090304-LP	0.4	●	★	★																																	E049
Light Cutting	CPMH090308-LP	0.8	●	★	★																																	
LM NEW	CPMH080204-LM	0.4						●	●																●														
	CPMH080208-LM	0.8						●	●																●														E007
	CPMH090304-LM	0.4						●	●																●														E008
	CPMH090308-LM	0.8						●	●																●														E048
Light Cutting																																							E049
LS NEW	CPMH080204-LS	0.4																		●																		
	CPMH080208-LS	0.8																		●																		E007
	CPMH090304-LS	0.4																		●																		E008
	CPMH090308-LS	0.8																		●																		E048
Light Cutting																																							E049
SV	CPMH080202-SV	0.2								●															●			★		★	●	★						
	CPMH080204-SV	0.4								●															●			●		●	●	★						E007
	CPMH090302-SV	0.2								●															●			★		★	★	★						E008
	CPMH090304-SV	0.4								●															●			★		●	●	★						E048
Light Cutting	CPMH090308-SV	0.8								●															●			★		★	●	★						E049
MP NEW	CPMH080204-MP	0.4	●	●	●																																	
	CPMH080208-MP	0.8	●	●	●																																	E007
	CPMH090304-MP	0.4	●	●	●																																	E008
	CPMH090308-MP	0.8	●	●	●																																	E048
Medium Cutting																																							E049

● = NEW

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

★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
MM NEW Medium Cutting	**CPMH080204-MM**	0.4						●	●																●												E007 E008 E048 E049
	CPMH080208-MM	0.8						●	●																●												
	CPMH090304-MM	0.4						●	●																●												
	CPMH090308-MM	0.8						●	●																●												
MK NEW Medium Cutting	**CPMH080204-MK**	0.4											●	●	●																						E007 E008 E048 E049
	CPMH080208-MK	0.8											●	●	●																						
	CPMH090304-MK	0.4											●	●	●																						
	CPMH090308-MK	0.8											●	●	●																						
MS NEW Medium Cutting	**CPMH080204-MS**	0.4																		●																	E007 E008 E048 E049
	CPMH080208-MS	0.8																		●																	
	CPMH090304-MS	0.4																		●																	
	CPMH090308-MS	0.8																		●																	
Standard NEW Medium Cutting	**CPMH080204**	0.4	★	●																																	E007 E008 E048 E049
	CPMH080208	0.8	★	●																																	
	CPMH090304	0.4	★	●																																	
	CPMH090308	0.8	★	●	★																																
Standard Medium Cutting	**CPMX080204**	0.4																																	★		E007 E008 E048 E049
	CPMX080208	0.8																																	★		
	CPMX090304	0.4																													★		★		★		
	CPMX090308	0.8																															★		★		
MV Medium Cutting	**CPMH080204-MV**	0.4		●	★					●				★										●		★	●		●	★						E007 E008 E048 E049
	CPMH080208-MV	0.8		●	★					●				★										●		★	★		★	★						
	CPMH090304-MV	0.4		●	★					●				★										●		★	●		●	★						
	CPMH090308-MV	0.8		●	★					●				★										●		★	★		●	★						
Flat Top NEW	**CPMB080202**	0.2																														★					E007 E008 E048 E049
	CPMB080204	0.4																														★					
	CPMB080208	0.8																														★					
	CPMB090302	0.2																														★					
	CPMB090304	0.4																														★					
	CPMB090308	0.8																														★					

● = NEW

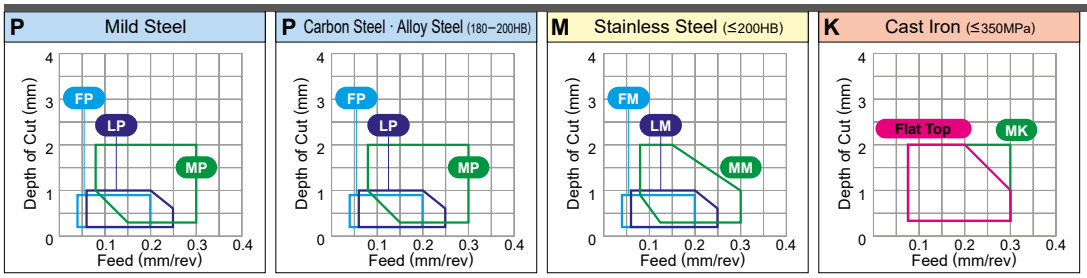
CHIPBREAKERS ➤ A064
GRADES ➤ A030
IDENTIFICATION ➤ A002

55° DC TYPE INSERTS WITH HOLE

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

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
FP	DCMT070202-FP	0.2	● ● ★																							●			●							C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCMT070204-FP	0.4	● ● ★																							●			●							
	DCMT11T302-FP	0.2	● ● ★																							●			●							
	DCMT11T304-FP	0.4	● ● ★																							●			●							
Finish Cutting	DCMT11T308-FP	0.8	● ● ★																							●			●							
FM	DCMT070202-FM	0.2																						●	●											C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCMT070204-FM	0.4																						●	●											
	DCMT11T302-FM	0.2																						●	●											
	DCMT11T304-FM	0.4																						●	●											
Finish Cutting	DCMT11T308-FM	0.8																						●	●											
FS NEW	DCMT070202-FS	0.2																		●																C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCMT070204-FS	0.4																		●																
	DCMT11T302-FS	0.2																		●																
	DCMT11T304-FS	0.4																		●																
Finish Cutting	DCMT11T308-FS	0.8																		●																
FS	DCGT070201M-FS	0.1*																●	●	●					●											C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCGT070202M-FS	0.2*																●	●	●					●											
	NEW DCGT070204M-FS	0.4*																●	●	●					●											
	DCGT11T301M-FS	0.1*																●	●	●					●											
	DCGT11T302M-FS	0.2*																●	●	●					●											
Finish Cutting	NEW DCGT11T304M-FS	0.4*																●	●	●					●											
FS-P	DCGT070201M-FS-P	0.1*							●													●			●										●	C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCGT070202M-FS-P	0.2*							●													●			●										●	
	DCGT070204M-FS-P	0.4*							●													●			●										●	
	DCGT11T301M-FS-P	0.1*							●													●			●										●	
	DCGT11T302M-FS-P	0.2*							●													●			●										●	
Finish Cutting	DCGT11T304M-FS-P	0.4*							●													●			●										●	
FV	DCMT070202-FV	0.2	● ● ★																	●					●		●				●					C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCMT070204-FV	0.4	● ● ★																	●					●		●				●					
	DCMT070208-FV	0.8		● ★																					●						★	★				
	DCMT11T302-FV	0.2		● ★																					●						●	★				
	DCMT11T304-FV	0.4	● ● ★																	●					●		●				●					
Finish Cutting	DCMT11T308-FV	0.8	● ● ★																	●					●		●				●	★				

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

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
AZ	**DCGT070202-AZ**	0.2																														●					C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCGT070204-AZ	0.4																														●					
	DCGT11T302-AZ	0.2																														●					
	DCGT11T304-AZ	0.4																														●					
Medium — Finish Cutting	**DCGT11T308-AZ**	0.8																														●					
R/L-F	**DCGT070202R-F**	0.2																						●						●		★					C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCGT070202L-F	0.2																						●				★		●		★					
	DCGT070204R-F	0.4																						●						●		★					
	DCGT070204L-F	0.4																						●				★		●		★					
	DCGT11T302R-F	0.2																						●						●		★					
	DCGT11T302L-F	0.2																						●				★		●		★					
	DCGT11T304R-F	0.4																						●						●		★					
Finish Cutting	**DCGT11T304L-F**	0.4																						●				★		●		★					
R/L-SRF	**DCGT11T301MR-SRF**	0.1*										●										●															C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCGT11T302MR-SRF	0.2*										●										●															
	DCGT11T304MR-SRF	0.4*										●										●															
Finish Cutting																																					
R/L-SRF NEW	**DCET070201MR-SRF**	0.1*																				●															C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCET070201ML-SRF	0.1*																				●															
	DCET070202MR-SRF	0.2*																				●															
	DCET070202ML-SRF	0.2*																				●															
	DCET070204MR-SRF	0.4*																				●															
	DCET070204ML-SRF	0.4*																				●															
	DCET11T301ML-SRF	0.1*																				●															
	DCET11T302ML-SRF	0.2*																				●															
Finish Cutting	**DCET11T304ML-SRF**	0.4*																				●															
LP	NEW **DCMT070202-LP**	0.2	●	●	★																																C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCMT070204-LP	0.4	●	●	★																						★			●							
	DCMT070208-LP	0.8	●	●	★																						★			★							
	NEW **DCMT11T302-LP**	0.2	●	●	★																																
	DCMT11T304-LP	0.4	●	●	★																						●			●							
Light Cutting	**DCMT11T308-LP**	0.8	●	●	★																						●			★							
LM	NEW **DCMT070202-LM**	0.2						●	●																	●											C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCMT070204-LM	0.4						●	●	●															●	●											
	DCMT070208-LM	0.8						●	●	●															★	●											
	NEW **DCMT11T302-LM**	0.2						●	●																	●											
	DCMT11T304-LM	0.4						●	●	●															●	●											
Light Cutting	**DCMT11T308-LM**	0.8						●	●	●															●	●											
LS	**DCMT070202-LS**	0.2																●	●	●															●		C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCMT070204-LS	0.4																●	●	●															●		
	NEW **DCMT070208-LS**	0.8																		●																	
	DCMT11T302-LS	0.2																●	●	●															●		
	DCMT11T304-LS	0.4																●	●	●															●		
Light Cutting	**DCMT11T308-LS**	0.8																●	●	●															●		

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

● = NEW

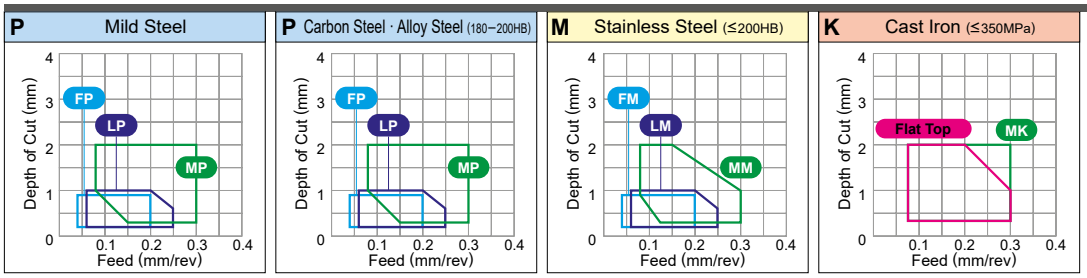
CHIPBREAKERS ➤ A056
GRADES ➤ A030
IDENTIFICATION ➤ A002

55° DC TYPE INSERTS WITH HOLE

DCGT 07 02 01M- LS
Size / Thickness / Corner Radius / Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																			Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
LS	**DCGT070201M-LS**	0.1*2																●	●	●					●												C025
	DCGT070202M-LS	0.2*2																●	●	●					●												D011
	DCGT070204M-LS	0.4*2																●	●	●					●												D026
	DCGT11T301M-LS	0.1*2																●	●	●					●												E010
	DCGT11T302M-LS	0.2*2																●	●	●					●												E011
	DCGT11T304M-LS	0.4*2																●	●	●					●												E032 E034 E052 E053
Light Cutting																																					
LS-P	**DCGT070201M-LS-P**	0.1*2					●					●										●													●		C025
	DCGT070202M-LS-P	0.2*2					●					●										●													●		D011
	DCGT070204M-LS-P	0.4*2					●					●										●													●		D026
	DCGT11T301M-LS-P	0.1*2					●					●										●													●		E010
	DCGT11T302M-LS-P	0.2*2					●					●										●													●		E011
	DCGT11T304M-LS-P	0.4*2					●					●										●													●		E032 E034 E052 E053
Light Cutting																																					
SV	**DCMT070202-SV**	0.2								●															●			★	●	●							C025
	DCMT070204-SV	0.4								●															●			●	●	●							D011
	DCMT070208-SV	0.8								●															●			★	●	★							D026
	DCMT11T302-SV	0.2								●															●			●	●	●							E010
	DCMT11T304-SV	0.4								●															●			●	●	●							E011
	DCMT11T308-SV	0.8								●															●			●	●	★							E032 E034 E052 E053
Light Cutting																																					
*1 **SW** NEW	**DCMX070202-SW**	0.2		●	●	●														●																	
	DCMX070204-SW	0.4		●	●	●														●																	
	DCMX070208-SW	0.8		●	●	●														●																	E052
	DCMX11T302-SW	0.2		●	●	●														●																	E053
	DCMX11T304-SW	0.4		●	●	●														●																	
Light Cutting (Wiper)	**DCMX11T308-SW**	0.8		●	●	●														●																	

*1 Please refer to page A028 before using the SW chipbreaker (wiper insert).
*2 Indicates the maximum value of the corner R. For more details, see page D003.

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																			Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
R/L-SS	**DCGT0702V3R-SS**	0.03																						★													C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCGT0702V3L-SS	0.03																						★													
	DCGT070201R-SS	0.1																						★													
	DCGT070201L-SS	0.1																						●													
	DCGT070202R-SS	0.2																						★													
	DCGT070202L-SS	0.2																						★													
	DCGT11T3V3R-SS	0.03																						●													
	DCGT11T301R-SS	0.1																						●													
	DCGT11T302R-SS	0.2																						●													
	DCGT070201MR-SS	0.1*					●																														
	DCGT070201ML-SS	0.1*					●																														
	DCGT070202MR-SS	0.2*					●																														
	DCGT070202ML-SS	0.2*					●																														
	DCGT11T301MR-SS	0.1*					●																														
	DCGT11T301ML-SS	0.1*					●																														
	DCGT11T302MR-SS	0.2*					●																														
	DCGT11T302ML-SS	0.2*					●																														
	DCGT11T304MR-SS	0.4*					●																														
Light Cutting	**DCGT11T304ML-SS**	0.4*					●																														
MP	NEW **DCMT070202-MP**	0.2	●	●	★																																
	DCMT070204-MP	0.4	●	●	★																					●			★								C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCMT070208-MP	0.8	●	●	★																					★			★								
	NEW **DCMT11T302-MP**	0.2	●	●	★																																
	DCMT11T304-MP	0.4	●	●	★																					●				●							
	DCMT11T308-MP	0.8	●	●	★																					●			★								
	NEW **DCMT11T312-MP**	1.2	●	●																																	
	DCMT150404-MP	0.4	●	●	★																					★			★								
	DCMT150408-MP	0.8	●	●	★																					★			★								
Medium Cutting	NEW **DCMT150412-MP**	1.2	●	●																																	
MM	NEW **DCMT070202-MM**	0.2						●	●																	●											
	DCMT070204-MM	0.4						●	●	●															●	●											C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCMT070208-MM	0.8						●	●	★															●	●											
	NEW **DCMT11T302-MM**	0.2						●	●																	●											
	DCMT11T304-MM	0.4						●	●	●															●	●											
	DCMT11T308-MM	0.8						●	●	●															●	●											
	DCMT150404-MM	0.4							●	★															●												
Medium Cutting	**DCMT150408-MM**	0.8							●	★															●												
MK	NEW **DCMT070202-MK**	0.2											●	●	●																						
	DCMT070204-MK	0.4											★	●	★																						C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCMT070208-MK	0.8											★	●	★																						
	NEW **DCMT11T302-MK**	0.2											●	●	●																						
	DCMT11T304-MK	0.4											●	●	●																						
	DCMT11T308-MK	0.8											●	●	●																						
	DCMT150404-MK	0.4											★	●	★																						
Medium Cutting	**DCMT150408-MK**	0.8											★	●	★																						

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

● = NEW

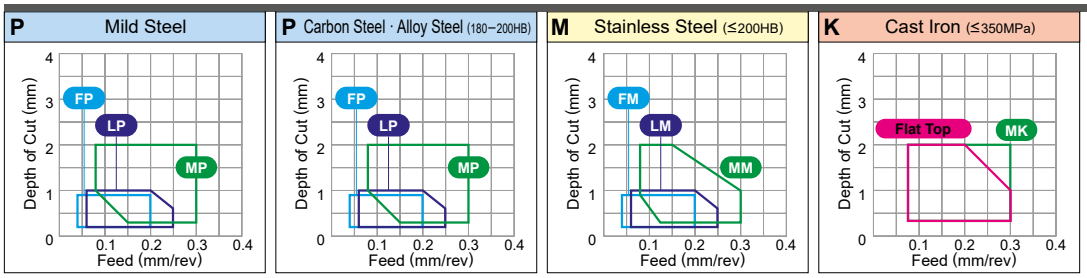
CHIPBREAKERS ➤ A056
GRADES ➤ A030
IDENTIFICATION ➤ A002

55° DC TYPE INSERTS WITH HOLE

DCMT 07 02 02- MS
Size Thickness Corner Radius Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																		Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
MS	**DCMT070202-MS**	0.2																		●																		C025
	DCMT070204-MS	0.4																●	●	●																		D011
	DCMT070208-MS	0.8																●	●	●																		D026
	DCMT11T302-MS	0.2																		●																		E010
	DCMT11T304-MS	0.4																●	●	●																		E011
	DCMT11T308-MS	0.8																●	●	●																		E032
Medium Cutting	**DCMT11T312-MS**	1.2																●	●	●																		E034 E052 E053
Standard	**DCMT070202**	0.2								●																	●	●		●	●	●						C025
	DCMT070204	0.4								●															●		●	●		●	●	●						D011
	DCMT070208	0.8								●																	●	★		●	●							D026
	DCMT11T302	0.2								●																	●	●		●	●	●						E010
	DCMT11T304	0.4								●															●		●	●		●	●	●						E011
	DCMT11T308	0.8								●															●		●	★		●	●	●						E032
	DCMT150404	0.4								●																	★	★		●	●	●						E034
Medium Cutting	**DCMT150408**	0.8								●																	★			●	●	●						E052 E053
MV	**DCMT070202-MV**	0.2		●	●	★				●															●		●	●	●	●	★							C025
	DCMT070204-MV	0.4		●	●	★				●			●												●		●	●	★	●	★							D011
	DCMT070208-MV	0.8		●	●	★				●			●												●		●	●	★	★	★							D026
	DCMT11T302-MV	0.2		●	●	★				●															●		●	●	●	●	●							E010
	DCMT11T304-MV	0.4		●	●	★				●			●												●		●	●	●	●	●							E011
Medium Cutting	**DCMT11T308-MV**	0.8		●	★	★				●			●												●		●	●	●	●	●							E032 E034 E052 E053
R/L-SR	**DCET0702V3R-SR**	0.03																						★							★		★					C025
	DCET0702V3L-SR	0.03																						★							★		★					D011
	DCET070201R-SR	0.1																						★							★		★					D026
	DCET070201L-SR	0.1																						★							★		★					E010
	DCET070202R-SR	0.2																						★							★		★					E011
	DCET070202L-SR	0.2																						★							★		★					E032
	DCET070204R-SR	0.4																						★							★		★					E034
Medium Cutting	**DCET070204L-SR**	0.4																						★							★		★					E052 E053

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																		Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
R/L-SR	**DCET11T3V3R-SR**	0.03																						●					★		★						C025
	DCET11T3V3L-SR	0.03																						★					★		★						D011
	DCET11T301R-SR	0.1																						★					★		★						D026
	DCET11T301L-SR	0.1																						★					★		★						E010
	DCET11T302R-SR	0.2																						●					★		★						E011
	DCET11T302L-SR	0.2																						★					★		★						E032
	DCET11T304R-SR	0.4																						●					★		★						E034
Medium Cutting	**DCET11T304L-SR**	0.4																						●					★		★						E052 E053
R/L-SN	**DCGT0702V3R-SN**	0.03																						●													
	DCGT070201R-SN	0.1																						●													
	DCGT070202R-SN	0.2																						●													
	DCGT070202L-SN	0.2																						●													
	DCGT11T3V3R-SN	0.03																						★													
	DCGT11T3V3L-SN	0.03																						★													
	DCGT11T301R-SN	0.1																						●													
	DCGT11T301L-SN	0.1																						●													
	DCGT11T302R-SN	0.2																						●													
	DCGT11T302L-SN	0.2																						●													
	DCGT11T304R-SN	0.4																						●													
	DCGT11T304L-SN	0.4																						●													
	DCGT070201MR-SN	0.1*					●					●										●															
	DCGT070201ML-SN	0.1*					●					★										★															
	DCGT070202MR-SN	0.2*					●					●										●															
	DCGT070202ML-SN	0.2*					●					★										★															
	DCGT070204MR-SN	0.4*										●										●															
	DCGT11T301MR-SN	0.1*					●					●										●															
	DCGT11T301ML-SN	0.1*					●					★										★															
	DCGT11T302MR-SN	0.2*					●					●										●															
	DCGT11T302ML-SN	0.2*					●					★										★															
	DCGT11T304MR-SN	0.4*					●					●										●															
Medium Cutting	**DCGT11T304ML-SN**	0.4*					●					★										★															
R/L-SN	**DCET070200R-SN**	0																						●					★		★						C025
	DCET070200L-SN	0																						★					★		★						D011
	DCET0702V3R-SN	0.03																						●					★		★						D026
	DCET0702V3L-SN	0.03																						★					★		★						E010
	DCET070201R-SN	0.1																						●					★		★						E011
	DCET070201L-SN	0.1																						●					★		★						E032
	DCET070202R-SN	0.2																						●					★		★						E034
	DCET070202L-SN	0.2																						●					★		★						E052
	DCET070204R-SN	0.4																						★					★		★						E053
	DCET070204L-SN	0.4																						●					★		★						
	DCET11T300R-SN	0																						★					★		★						
	DCET11T300L-SN	0																						★					★		★						
	DCET11T3V3R-SN	0.03																						●					★		★						
	DCET11T3V3L-SN	0.03																						★					★		★						
Medium Cutting	**DCET11T301R-SN**	0.1																						●					★		★						

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

● = NEW

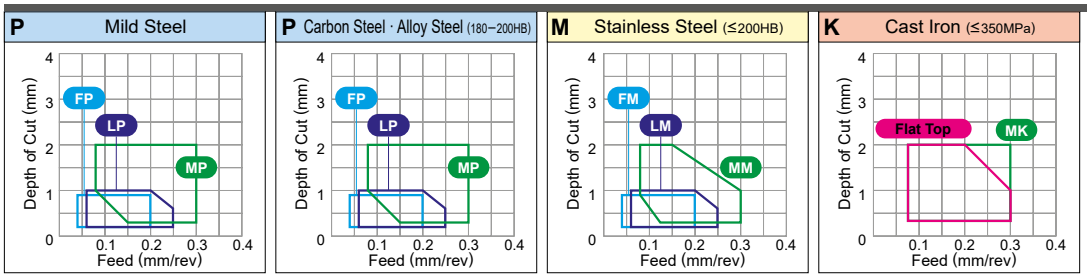
CHIPBREAKERS ➤ A056
GRADES ➤ A030
IDENTIFICATION ➤ A002

55° DC TYPE INSERTS WITH HOLE

DCET 11 T3 01 L- SN
Size / Thickness / Corner Radius / R/L / Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
R/L-SN	**DCET11T301L-SN**	0.1																						●						★		★						C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCET11T302R-SN	0.2																						●						★		★						
	DCET11T302L-SN	0.2																						●						★		★						
	DCET11T304R-SN	0.4																						●						★		★						
Medium Cutting	**DCET11T304L-SN**	0.4																						●						★		★						
R/LW-SN *1	**DCET0702V3RW-SN**	0.03																						●														C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCET0702V3LW-SN	0.03																						★														
	DCET11T3V3RW-SN	0.03																						●														
Medium Cutting (Wiper)	**DCET11T3V3LW-SN**	0.03																						★														
SMG	**DCGT070201M-SMG**	0.1*2					●																															C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCGT070202M-SMG	0.2*2					●																	●														
	DCGT070204M-SMG	0.4*2					●																	●														
	DCGT11T301M-SMG	0.1*2					●																															
	DCGT11T302M-SMG	0.2*2					●																		●														
Medium Cutting	**DCGT11T304M-SMG**	0.4*2					●																		●														
Flat Top	**DCMW070204**	0.4											●	★	★																				●					C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCMW11T304	0.4											●	●	★																	□		★	●					
	DCMW11T308	0.8											●	●	●																				●					
	DCMW150404	0.4																																	●					
	DCMW150408	0.8																																	●					
Flat Top	**DCGW070200**	0																													★								
	DCGW0702V5	0.05																													★								C025 D011 D026 E010 E011 E032 E034 E052 E053
	DCGW070201	0.1																																★					
	DCGW070202	0.2																																★					
	DCGW11T300	0																													★								
	DCGW11T3V5	0.05																													●								
	DCGW11T301	0.1																																★					
	DCGW11T302	0.2																																★					
	DCGW11T304	0.4																													●			★					

*1 Please refer to page A028 before using the R/LW-SN chipbreaker (wiper insert).
*2 Indicates the maximum value of the corner R. For more details, see page D003.

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
□ : Non stock, produced to order only.
* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

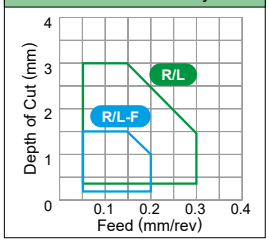
CHIPBREAKERS ➤ A056

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

CHIP CONTROL RANGE FOR MATERIAL

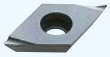
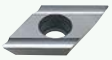
Finish Cutting ····· Medium Cutting ·····

N Aluminium Alloy



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
R/L-F  Finish Cutting (For Aluminium Alloy)	**DEGX150402L-F**	0.2																																★						C034
	DEGX150404R-F	0.4																																★						
	DEGX150404L-F	0.4																																★						
R/L  Medium Cutting (For Aluminium Alloy)	**DEGX150402R**	0.2																																●						C034
	DEGX150402L	0.2																																★						
	DEGX150404R	0.4																																●						
	DEGX150404L	0.4																																●						

● = NEW

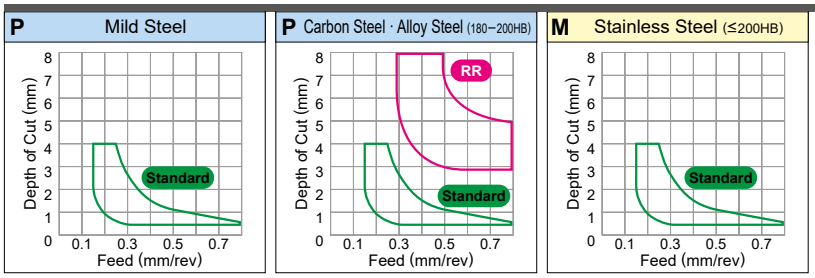
CHIPBREAKERS ➤ A070
GRADES ➤ A030
IDENTIFICATION ➤ A002

RC TYPE INSERTS WITH HOLE

RCGT 08 03 M0- AZ
Size / Thickness / Corner Radius / Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

Medium Cutting ····· Heavy Cutting ·····



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

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

Shape	Order Number	IC (mm)	Coated: MC6115	MC6125	MC6135 NEW	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105 NEW	MC5115	MC5125	MH515	MV9005 NEW	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
AZ	RCGT0803M0-AZ	8.0																																●						
	RCGT10T3M0-AZ	10.0																																●						
Medium — Finish Cutting																																								C027
Standard	RCMT0602M0	6.0	●	●							★						●	●	●	●							★				●	★	●			●	●			
	RCMT0803M0	8.0	●	●							●						●	●	●	●							★				●	★	●			●	●			
	RCMT10T3M0	10.0															●	●	●	●																●	●			C027
	RCMT1204M0	12															●	●	●	●																●	●			
Medium Cutting	RCMT1606M0	16.0															●	●	●	●																●	●			
Standard	RCMX1003M0	10.0	●	●	★						●						●						●				★				★	★								
	RCMX1204M0	12	★	●	★						●			●			●				●		★	●			★				●	★								
	RCMX1606M0	16.0	★	●	★						●						●				●		●	●															C026 H012
	RCMX2006M0	20.0	●	●	●						●																													
	RCMX2507M0	25.0	★	●	★																																			
Medium Cutting	RCMX3209M0	32.0	★	★	★																																			
RR	RCMX1606M0-RR	16.0	★	●	●						●																													
	RCMX2006M0-RR	20.0	●	★	●						●																													
	RCMX2507M0-RR	25.0	★	●	●						●																													C026
Heavy Cutting	RCMX3209M0-RR	32.0	★	★	★																																		

● = NEW

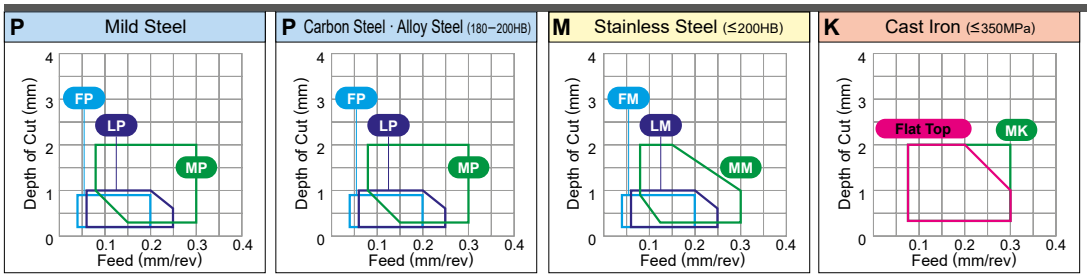
● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

90° SC TYPE INSERTS WITH HOLE

SCMT 09 T3 04- FP
Size · Thickness · Corner Radius · Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
FP	**SCMT09T304-FP**	0.4	●	●	★																						★			★							C028 E036
	SCMT09T308-FP	0.8	●	●	★																						★			★							
Finish Cutting																																					
FM	**SCMT09T304-FM**	0.4																						●													C028 E036
	SCMT09T308-FM	0.8																						●													
Finish Cutting																																					
FV	**SCMT09T304-FV**	0.4		●	★																							★	★	★	●						C028 E036
Finish Cutting																																					
LP	**SCMT09T304-LP**	0.4	●	●	★																						★			★							C028 E036
	SCMT09T308-LP	0.8	●	●	★																						★			●							
Light Cutting																																					
LM	**SCMT09T304-LM**	0.4							★	★														●													C028 E036
	SCMT09T308-LM	0.8							★	★														●													
Light Cutting																																					
MP	**SCMT09T304-MP**	0.4	●	●	★																						★			★							C028 E036
	SCMT09T308-MP	0.8	●	●	★																						●			★							
	SCMT120404-MP	0.4	●	●	★																						★			★							
	SCMT120408-MP	0.8	●	●	★																						●			★							
Medium Cutting	NEW **SCMT120412-MP**	1.2	●	★																																	
MM	**SCMT09T304-MM**	0.4							●	★														●													C028 E036
	SCMT09T308-MM	0.8							●	★														●													
	SCMT120404-MM	0.4							●	★														●													
	SCMT120408-MM	0.8							●	●														●													
Medium Cutting																																					

● = NEW

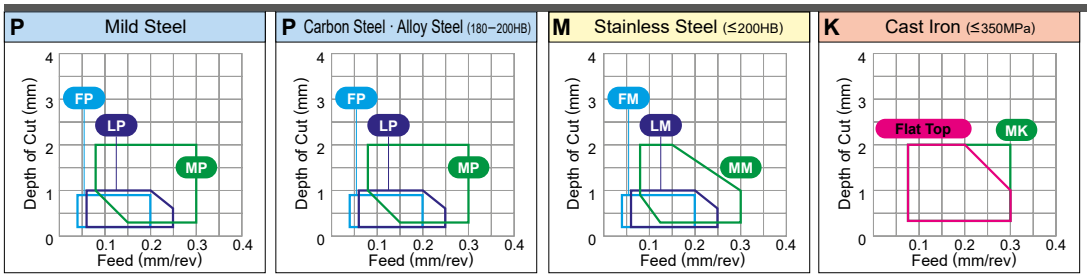
CHIPBREAKERS ➤ A056
GRADES ➤ A030
IDENTIFICATION ➤ A002

90° SC TYPE INSERTS WITH HOLE

SCMT 09 T3 04- MK
Size Thickness Corner Radius Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
MK Medium Cutting	**SCMT09T304-MK**	0.4											★	●	★																							C028 E036
	SCMT09T308-MK	0.8											●	●	●																							
	SCMT120404-MK	0.4											★	●	★																							
	SCMT120408-MK	0.8											●	●	●																							
MS Medium Cutting	**SCMT09T304-MS**	0.4																●	●	●															●		
	SCMT09T308-MS	0.8																●	●	●															●		
	SCMT120404-MS	0.4																●	●	●															●		C028 E036
	SCMT120408-MS	0.8																●	●	●															●		
	SCMT120412-MS	1.2																●	●	●															●		
Standard Medium Cutting	**SCMT09T304**	0.4								●																	★	★			●	●	●				
	SCMT09T308	0.8								●																	●	★			●	●	●				
	SCMT120404	0.4								●																	★				●	★					C028 E036
	SCMT120408	0.8								●																	●	★			●	●					
Flat Top	**SCMW09T304**	0.4												●	●	★																	●	●				
	SCMW09T308	0.8												●	●	●																						
	SCMW120408	0.8												●	●	★																					C028 E036

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

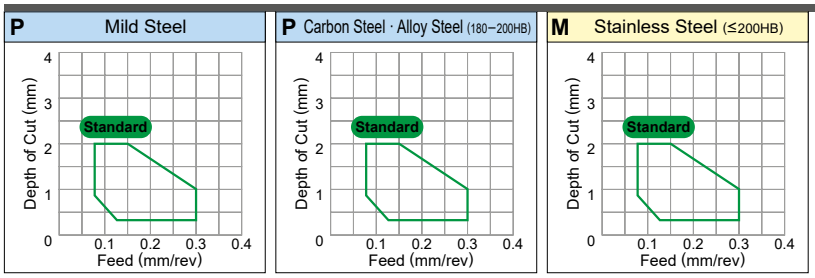
CHIPBREAKERS ➤ A056

90° SP TYPE INSERTS WITH HOLE

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

CHIP CONTROL RANGE FOR MATERIAL

Medium Cutting·····



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
Standard	**SPMT090304**	0.4																												★						
	SPMT090308	0.8																												★						
	SPMT120308	0.8																												●		★				–
Medium Cutting																																				
Flat Top	**SPMW090304**	0.4																												●						
	SPMW090308	0.8																												★						
	SPMW120304	0.4																												●						–
	SPMW120308	0.8																												●						
Flat Top	**SPGX090304**	0.4																												★		★				
	SPGX090308	0.8																														★				
	SPGX120304	0.4																														★				–
	SPGX120308	0.8																														★				

● = NEW

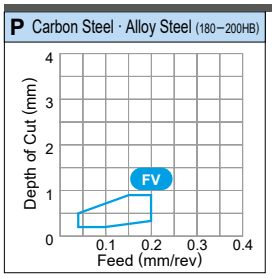
CHIPBREAKERS ➤ A064
GRADES ➤ A030
IDENTIFICATION ➤ A002

60° TB TYPE INSERTS WITH HOLE

TBMT 06 01 02- FV
Size / Thickness / Corner Radius / Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

Finish Cutting



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

Material			Coated																						Coated Cermet				Cermet		Carbide					
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M
Material	P	Steel	◐	✠	✠	✠	●																		✠	✠	◐	●	●	◐	●	◐	✠					✠
	M	Stainless Steel						○	◐	✠	✠	○										◐		◐	✠	✠		○	○		○		✠					✠
	K	Cast Iron											●	◐	✠	◐								◐	✠			●	●		●		✠	◐				
	N	Non-ferrous Metal																																◐				
	S	Heat-resistant Alloy, Titanium Alloy																●	●	◐	✠	●	◐	◐	✠									◐	◐	●	◐	

Shape	Order Number	RE (mm)	MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
FV NEW Finish Cutting	TBMT060102-FV	0.2	●		●																																		–
	TBMT060104-FV	0.4	●		●																																		

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

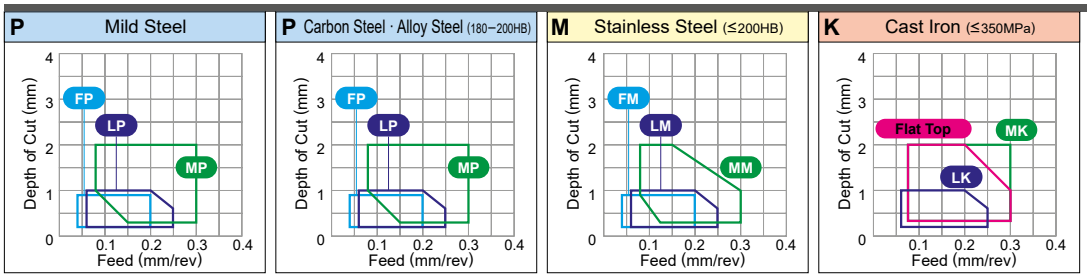
CHIPBREAKERS ➤ A052

60° TC TYPE INSERTS WITH HOLE

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

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																			Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
FP	**TCMT090202-FP**	0.2	●	★	★																					★				★							
	TCMT090204-FP	0.4	●	●	★																					●				●							C029 E031 E050
	TCMT110202-FP	0.2	●	★	★																					●				★							
	TCMT110204-FP	0.4	●	●	★																					●				★							
Finish Cutting	**TCMT16T304-FP**	0.4	●	●	★																					●				●							
FM	**TCMT090202-FM**	0.2																							★												
	TCMT090204-FM	0.4																							●												C029 E031 E050
	TCMT110202-FM	0.2																							●												
	TCMT110204-FM	0.4																							●												
Finish Cutting	**TCMT16T304-FM**	0.4																							●												
FV	**TCMT110204-FV**	0.4		●	★																						●		●	●	●						
	TCMT16T304-FV	0.4		●	★																						●			●	●						C029 E031 E050
Finish Cutting																																					
AZ	**TCGT110202-AZ**	0.2																															●				
	TCGT110204-AZ	0.4																															●				
	TCGT110208-AZ	0.8																															●				C029 E031 E050
	TCGT16T302-AZ	0.2																															●				
	TCGT16T304-AZ	0.4																															●				
Medium – Finish Cutting	**TCGT16T308-AZ**	0.8																															●				
R/L-F	**TCGT060101L-F**	0.1																							●					●							
	TCGT060101ML-F	0.1*					●																															
	TCGT060101MR-F	0.1*					●																															E019 E049
	TCGT060102L-F	0.2																							●					●			★				
	TCGT060102ML-F	0.2*					●																															
	TCGT060102MR-F	0.2*					●																															
	TCGT060102R-F	0.2																							★					★			★				
	TCGT060104L-F	0.4																							●					●			★				
	TCGT060104ML-F	0.4*					●																															E019 E049
	TCGT060104MR-F	0.4*					●																															
	TCGT060104R-F	0.4																													●		★				
Finish Cutting	**TCGT0601V3L-F**	0.03																													★						

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

● = NEW

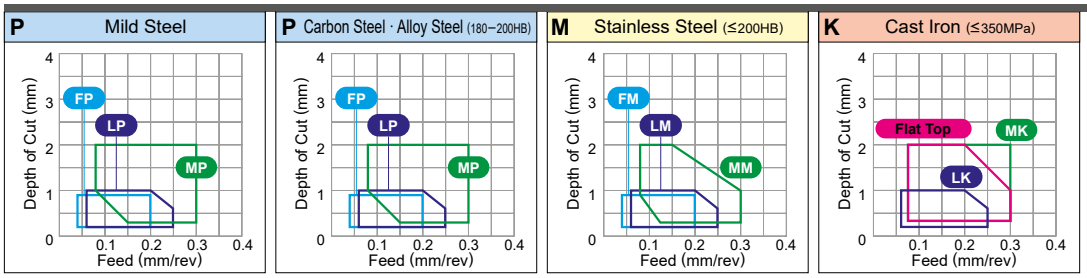
CHIPBREAKERS ➤ A056
GRADES ➤ A030
IDENTIFICATION ➤ A002

60° TC TYPE INSERTS WITH HOLE

TCMT 09 02 04- LP
Size / Thickness / Corner Radius / Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
LP	TCMT090204-LP	0.4	●	●	★																						●				★								
	TCMT090208-LP	0.8	●	★	★																						★				★								
	NEW TCMT110202-LP	0.2	●	●	●																																			C029 E031 E050
	TCMT110204-LP	0.4	●	●	★																						★				●								
	TCMT110208-LP	0.8	●	●	★																						★				★								
	TCMT16T304-LP	0.4	●	●	★																						●				★								
Light Cutting	TCMT16T308-LP	0.8	●	●	★																						★				★								
LM	TCMT090204-LM	0.4						●	★																●														
	TCMT090208-LM	0.8						★	★																★														
	TCMT110204-LM	0.4						●	●																●														C029 E031 E050
	TCMT110208-LM	0.8						●	●																●														
	TCMT16T304-LM	0.4						●	★																●														
Light Cutting	TCMT16T308-LM	0.8						●	★																●														
LK NEW	TCMT110202-LK	0.2											●	●	●																								
	TCMT110204-LK	0.4											●	●	●																								C029 E031 E050
	TCMT110208-LK	0.8											●	●	●																								
Light Cutting																																							
LS	TCMT090202-LS	0.2																●	●	●																	●			
	TCMT110202-LS	0.2																●	●	●																	●			C029 E031 E050
Light Cutting																																							
* **SW** NEW	TCMX090204-SW	0.4	●	●	●															●																				
	TCMX110204-SW	0.4	●	●	●															●																				C029 E031 E050
Light Cutting (Wiper)																																							

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

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
MP	TCMT090204-MP	0.4	●	★	★																					★				★							C029 E031 E050
	TCMT090208-MP	0.8	●	★	★																					★				★							
	NEW TCMT110202-MP	0.2	●	●	★																																
	TCMT110204-MP	0.4	●	★	★																					●				★							
	TCMT110208-MP	0.8	●	★	★																					★				★							
	TCMT130304-MP	0.4	●	●	★																					★				★							
	TCMT16T304-MP	0.4	●	●	★																					★				★							
	TCMT16T308-MP	0.8	●	●	★																					●				●							
Medium Cutting	TCMT16T312-MP	1.2	●	●	★																					★				★							
MM	TCMT090204-MM	0.4						●	★																●												C029 E031 E050
	TCMT090208-MM	0.8						★	★																★												
	TCMT110204-MM	0.4						●	●																●												
	TCMT110208-MM	0.8						●	★																●												
	TCMT130304-MM	0.4						★	★																★												
	TCMT16T304-MM	0.4						●	●																●												
	TCMT16T308-MM	0.8						●	●																●												
Medium Cutting	TCMT16T312-MM	1.2						●	●																●												
MK	TCMT110204-MK	0.4											★	●	★																						C029 E031 E050
	TCMT110208-MK	0.8											★	●	★																						
	TCMT16T304-MK	0.4											●	●	★																						
	TCMT16T308-MK	0.8											●	●	●																						
Medium Cutting	TCMT16T312-MK	1.2											●	●	●																						
MS	TCMT090204-MS	0.4																●	●	●															●		C029 E031 E050
	TCMT090208-MS	0.8																●	●	●															●		
	TCMT110204-MS	0.4																●	●	●																	
	TCMT110208-MS	0.8																●	●	●																	
	TCMT16T304-MS	0.4																●	●	●															●		
	TCMT16T308-MS	0.8																●	●	●															●		
Medium Cutting	TCMT16T312-MS	1.2																●	●	●															●		
Standard	TCMT080204	0.4																								●					●	●				C029 E031 E050
	TCMT090204	0.4								★																★	●				●	●				
	TCMT110202	0.2								●															★	★	★				●	●				
	TCMT110204	0.4								●															●	●	★				●	●	●			
	TCMT110208	0.8																							★	●										
	TCMT130302	0.2																								★	★									
	TCMT130304	0.4								●																★					●					
	TCMT16T304	0.4								●															★	●	★				●	●	●			
Medium Cutting	TCMT16T308	0.8								●															●	●	★					●				
Flat Top	TCMW110204	0.4											●	●	★																		●				C029 E031 E050
	TCMW130304	0.4																															★				
	TCMW16T304	0.4											●	●	●																		●				
	TCMW16T308	0.8											●	●	●																		●				
	TCMW16T312	1.2											●	●	★																						

● = NEW

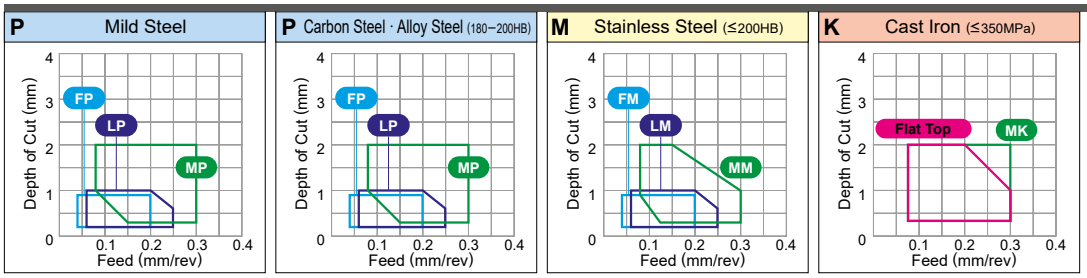
CHIPBREAKERS ➤ A056
GRADES ➤ A030
IDENTIFICATION ➤ A002

60° TC TYPE INSERTS WITH HOLE

TCGW 08 02 01
Size Thickness Corner Radius
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
Flat Top	TCGW080201	0.1																																★					
	TCGW080202	0.2																																★					C029 E031 E050
	TCGW110201	0.1																																★					
	TCGW110202	0.2																																★					
	TCGW110204	0.4																																★					

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

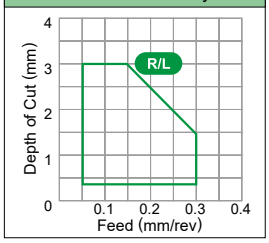
CHIPBREAKERS ➤ A056

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

CHIP CONTROL RANGE FOR MATERIAL

Medium Cutting·····

N Aluminium Alloy



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
R/L Medium Cutting (For Aluminium Alloy)	TEGX160302R	0.2																																●					C035 E043
	TEGX160302L	0.2																																●					
	TEGX160304R	0.4																																●					
	TEGX160304L	0.4																																●					

● = NEW

A
TURNING INSERTS
POSI 20°
WITH HOLE
C
D
R
S
T
V
W

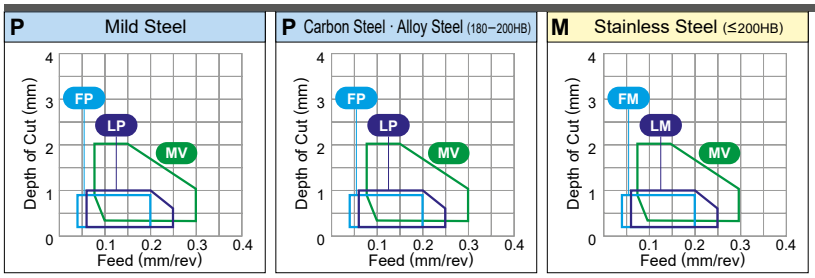
CHIPBREAKERS ➤ A070
GRADES ➤ A030
IDENTIFICATION ➤ A002

60° TP TYPE INSERTS WITH HOLE

TPMH 09 02 02- FP
Size Thickness Corner Radius Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
FP NEW Finish Cutting	TPMH090202-FP	0.2	●	●	●																															E009 E051
	TPMH090204-FP	0.4	●	●	●																															
	TPMH110302-FP	0.2	●	●	●																															
	TPMH110304-FP	0.4	●	●	●																															
	TPMH110308-FP	0.8	●	●	●																															
FM NEW Finish Cutting	TPMH090202-FM	0.2																							●											E009 E051
	TPMH090204-FM	0.4																							●											
	TPMH110302-FM	0.2																							●											
	TPMH110304-FM	0.4																							●											
	TPMH110308-FM	0.8																							●											
FS NEW Finish Cutting	TPMH090202-FS	0.2																		●																E009 E051
	TPMH090204-FS	0.4																		●																
	TPMH110302-FS	0.2																		●																
	TPMH110304-FS	0.4																		●																
	TPMH110308-FS	0.8																		●																
FV Finish Cutting	TPMH080202-FV	0.2		★	★																			●		★				★	★					E009 E051
	TPMH080204-FV	0.4		★	★																			●		★				★	★					
	TPMH090202-FV	0.2		★	★															●				●	●	●				●	★					
	TPMH090204-FV	0.4		●	★															●				●	●	★				★	★					
	TPMH110302-FV	0.2		★	★																			●		●				★	★					
	TPMH110304-FV	0.4	●	●	★															●				●	●	●				★	★					
	TPMH110308-FV	0.8	●	●	★															●				★	●	★				●	★					
	TPMH160302-FV	0.2		●	★																			★		★				★	★					
	TPMH160304-FV	0.4	●	★	★															●				★	●	★				★	★					
	TPMH160308-FV	0.8		●	★																			★		★				★	★					

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	NEW MH515	MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
R/L-FS	**TPGH080202R-FS**	0.2																						●					★		★						
	TPGH080202L-FS	0.2																						●		★	●		★		★						
	TPGH080204R-FS	0.4																						●					★		★						
	TPGH080204L-FS	0.4																						●		★	●		★		★						
	TPGH090202R-FS	0.2																						●					★		★						
	TPGH090202L-FS	0.2																						●		★	●		★		★						
	TPGH090204R-FS	0.4																						●					★		★						
	TPGH090204L-FS	0.4																						●		●	★		★		★						E009 E051
	TPGH110302R-FS	0.2																						●					●		★						
	TPGH110302L-FS	0.2																						●		★	●		★		★						
	TPGH110304R-FS	0.4																						●					★		★						
	TPGH110304L-FS	0.4																						●		●	●		●		★						
	TPGH160304R-FS	0.4																						●					★		★						
	TPGH160304L-FS	0.4																						●		★			★		★						
Finish Cutting	**TPGH160308R-FS**	0.8																						●					★		★						
	TPGH160308L-FS	0.8																						★		★	★		★		★						
R/L	**TPGX080202R**	0.2																											●								
	TPGX080202L	0.2																											●		●	★					
	TPGX080204R	0.4																											●			★					
	TPGX080204L	0.4																											●		●	●				●	
	TPGX090202R	0.2																											●								
	TPGX090202L	0.2																											●		●	●					
	TPGX090204R	0.4																											●			●					
	TPGX090204L	0.4																											●							●	E009 E028 E051
	TPGX090208R	0.8																														★					
	TPGX090208L	0.8																											●			●					
	TPGX110302L	0.2																											●		●	●					
	TPGX110304R	0.4																											●			★				●	
	TPGX110304L	0.4																											●		●					●	
Finish Cutting	**TPGX110308R**	0.8																											★			★					
	TPGX110308L	0.8																											●		●	●				●	
L	**TPMX090204L**	0.4																											★								
	TPMX110304L	0.4																											★								E009 E028 E051
Finish Cutting																																					
LP NEW	**TPMH080202-LP**	0.2		●	★																																
	TPMH080204-LP	0.4		●	★																																
	TPMH090202-LP	0.2	●	★	★																																
	TPMH090204-LP	0.4	●	●	★																																
	TPMH110302-LP	0.2	●	★	★																																E009 E051
	TPMH110304-LP	0.4	●	●	★																																
	TPMH110308-LP	0.8	●	★	★																																
	TPMH160302-LP	0.2	●	★	★																																
	TPMH160304-LP	0.4	●	★	★																																
Light Cutting	**TPMH160308-LP**	0.8	●	★	★																																

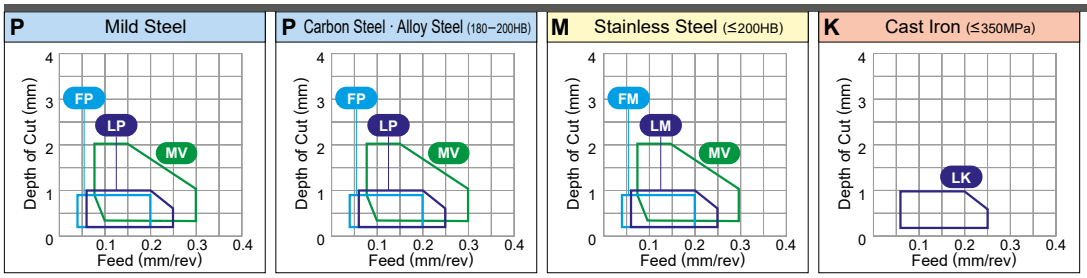
● = NEW

60° TP TYPE INSERTS WITH HOLE

TPMH 09 02 02- LM
Size Thickness Corner Radius Chipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
LM NEW	**TPMH090202-LM**	0.2						●	●																●													
	TPMH090204-LM	0.4						●	●																●													
	TPMH110302-LM	0.2						●	●																●													
	TPMH110304-LM	0.4						●	●																●													E009 E051
	TPMH110308-LM	0.8						●	●																●													
	TPMH160302-LM	0.2						●	●																●													
	TPMH160304-LM	0.4						●	●																●													
Light Cutting	**TPMH160308-LM**	0.8						●	●																●													
LK NEW	**TPMH110302-LK**	0.2											●	●	●																							
	TPMH110304-LK	0.4											●	●	●																							
	TPMH110308-LK	0.8											●	●	●																							E009 E051
	TPMH160302-LK	0.2											●	●	●																							
	TPMH160304-LK	0.4											●	●	●																							
Light Cutting	**TPMH160308-LK**	0.8											●	●	●																							
LS NEW	**TPMH090202-LS**	0.2																		●																	
	TPMH090204-LS	0.4																		●																	
	TPMH110302-LS	0.2																		●																	
	TPMH110304-LS	0.4																		●																	E009 E051
	TPMH110308-LS	0.8																		●																	
	TPMH160302-LS	0.2																		●																	
	TPMH160304-LS	0.4																		●																	
Light Cutting	**TPMH160308-LS**	0.8																		●																	
SV	**TPMH080202-SV**	0.2								★														●		★				●	★						
	TPMH080204-SV	0.4								●														●		★		★		●	★						
	TPMH090202-SV	0.2								●														●		★				★	★						
	TPMH090204-SV	0.4								●														●		★		●		●	★						
	TPMH110302-SV	0.2								●														★		★		★		★	★						E009 E051
	TPMH110304-SV	0.4								●														●		★		★		●	●						
	TPMH110308-SV	0.8								★														★		★		●		★	★						
	TPMH160302-SV	0.2								★														★		★		★		★	★						
	TPMH160304-SV	0.4								★														★		★		★		★	★						
Light Cutting	**TPMH160308-SV**	0.8								★														★		★		★		★	★						

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
* **SW** NEW Light Cutting (Wiper)	**TPMX090202-SW**	0.2	●	●	●															●															E009 E028 E051
	TPMX090204-SW	0.4	●	●	●															●															
	TPMX090208-SW	0.8	●	●	●															●															
	TPMX110302-SW	0.2	●	●	●															●															
	TPMX110304-SW	0.4	●	●	●															●															
	TPMX110308-SW	0.8	●	●	●															●															
Standard Medium Cutting	**TPMX110304**	0.4																									★				★							E009 E028 E051
	TPMX110308	0.8																									★				★							
MV Medium Cutting	**TPMH080202-MV**	0.2		●	★					●														★			★			★							E009 E051
	TPMH080204-MV	0.4		●	★					●				●										●			★	★		●	★						
	TPMH090202-MV	0.2		●	★					●														●			★			●	★						
	TPMH090204-MV	0.4		●	★					●				★										●			★	●	★	●	★						
	TPMH090208-MV	0.8		●	★									★										●			★				★						
	TPMH110302-MV	0.2		●	★					★														★			★	★		●	★						
	TPMH110304-MV	0.4		●	★					●				★										●			★	★		●	★						
	TPMH110308-MV	0.8		●	★					●				★										●			★	★		★	★						
	TPMH160304-MV	0.4		●	★					●				●										●			★	★		★	★						
	TPMH160308-MV	0.8		★	★					●				●										●			★	★		★	★						
Flat Top	**TPGX080202**	0.2																														●					E009 E028 E051
	TPGX080204	0.4																												●	★	●				★	
	TPGX080208	0.8																												★		★					
	TPGX090202	0.2																														●					
	TPGX090204	0.4																												●	●	●				★	
	TPGX090208	0.8																												●	★	★				★	
	TPGX110304	0.4																												●	●					★	
	TPGX110308	0.8																												●	★					★	
	TPGX160304	0.4																												★	●	★					
	TPGX160308	0.8																													★	●					

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

● = NEW

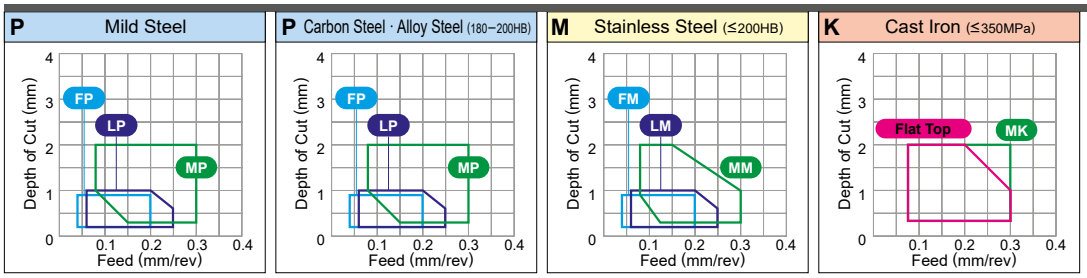
CHIPBREAKERS ➤ A064
GRADES ➤ A030
IDENTIFICATION ➤ A002

35° VB TYPE INSERTS WITH HOLE

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

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
FP	VBMT110302-FP	0.2	●	●	★																						●				●								
	VBMT110304-FP	0.4	●	●	★																						●				●								D012
	VBMT110308-FP	0.8	●	★	★																						★				★								D013
	VBMT160404-FP	0.4	●	●	★																						●				●								E013
	VBMT160408-FP	0.8	●	●	★																						●				●								E014
Finish Cutting	NEW VBMT160412-FP	1.2	●	●	●																																		H013
FM	VBMT110302-FM	0.2																							●	●													
	VBMT110304-FM	0.4																							●	●													D012
	VBMT110308-FM	0.8																							★	●													D013
	VBMT160404-FM	0.4																							●	●													E013
	VBMT160408-FM	0.8																							★	●													E014
Finish Cutting	NEW VBMT160412-FM	1.2																								●													H013
FS NEW	VBMT110302-FS	0.2																		●																			
	VBMT110304-FS	0.4																		●																			D012
	VBMT110308-FS	0.8																		●																			D013
	VBMT160404-FS	0.4																		●																			E013
	VBMT160408-FS	0.8																		●																			E014
Finish Cutting	VBMT160412-FS	1.2																		●																			H013
FV	VBMT110304-FV	0.4	●	●	★															●					●	●					●	★							D012
	VBMT110308-FV	0.8		●	★																				●						★	★							D013
	VBMT160404-FV	0.4	●	●	★															●					●	●					●	★							E013
	VBMT160408-FV	0.8	●	●	★															●					●	●					★	★							E014
Finish Cutting																																							H013
R/L-F NEW	VBGT110302R-F	0.2																							●		★	★			★			★					
	VBGT110302L-F	0.2																							●		●	★			★			★					D012
	VBGT110304R-F	0.4																							●			★			★			★					D013
	VBGT110304L-F	0.4																							●			★			★			★					H013
	VBGT160402R-F	0.2																							●			★			★			★					
	VBGT160402L-F	0.2																							●			★			★			★					
	VBGT160404R-F	0.4																							●			★			★			★					
Finish Cutting	VBGT160404L-F	0.4																							●			★			★			★					

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
LP	**VBMT110304-LP**	0.4	●	●	★																					●			★								D012
	VBMT110308-LP	0.8	●	●	★																					★			●								D013
	VBMT160404-LP	0.4	●	●	★																					●			●								E013
	VBMT160408-LP	0.8	●	●	★																					●			●								E014
Light Cutting	**VBMT160412-LP**	1.2	●	●	●																																H013
LM	**VBMT110304-LM**	0.4						●	●	●														●	●												D012
	VBMT110308-LM	0.8						●	★	★														●	●												D013
	VBMT160404-LM	0.4						●	●	●														●													E013
	VBMT160408-LM	0.8						●	●	★														●													E014
Light Cutting	NEW **VBMT160412-LM**	1.2						●	●																												H013
LS	**VBMT110302-LS**	0.2																●	●	●															●		D012
	VBMT110304-LS	0.4																●	●	●															●		D013
	VBMT110308-LS	0.8																●	●	●															●		E013
	VBMT160404-LS	0.4																●	●	●															●		E014
	VBMT160408-LS	0.8																●	●	●															●		H013
Light Cutting	NEW **VBMT160412-LS**	1.2																		●																	
SV	**VBMT110304-SV**	0.4																						●							★						D012
	VBMT110308-SV	0.8																						●							●						D013
	VBMT160404-SV	0.4																						●							●						E013
	VBMT160408-SV	0.8																						●							★						E014
Light Cutting																																					H013
MP	**VBMT160404-MP**	0.4	●	●	★																					●			★								E013
	VBMT160408-MP	0.8	●	●	★																					★			★								H013
Medium Cutting																																					
MM	**VBMT160404-MM**	0.4							●	●														●													E013
	VBMT160408-MM	0.8							●	●														●													H013
Medium Cutting																																					
MK	**VBMT160404-MK**	0.4											★	●	★																							E013
	VBMT160408-MK	0.8											★	●	★																							H013
Medium Cutting																																					
MS	**VBMT160402-MS**	0.2																●	●	●															●		E013
	VBMT160404-MS	0.4																●	●	●															●		H013
	VBMT160408-MS	0.8																●	●	●															●		
	VBMT160412-MS	1.2																●	●	●															●		
Medium Cutting																																					
MV	**VBMT110304-MV**	0.4		●	★					●				●										●			●	●	★	●	★						D012
	VBMT110308-MV	0.8		●	★					★				●										●			★	●	★	●	★						D013
	VBMT160404-MV	0.4		●	★					●				●										●			●	●	●	●	●						E013
	VBMT160408-MV	0.8		★	★					●				●										●			★	●	★	●	★						E014
Medium Cutting																																					H013

● = NEW

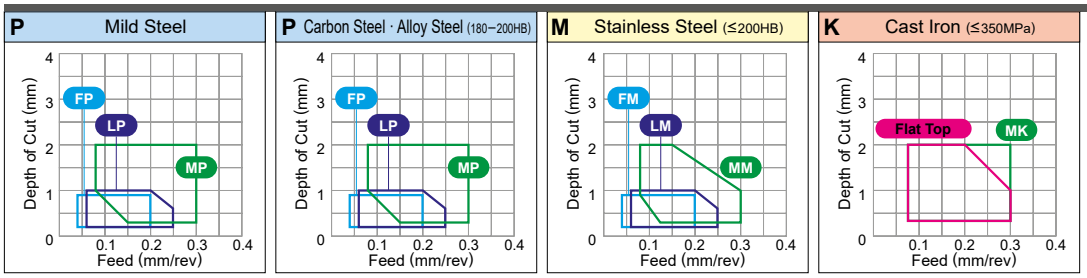
CHIPBREAKERS ➤ A052
GRADES ➤ A030
IDENTIFICATION ➤ A002

35° VB TYPE INSERTS WITH HOLE

VBET 11 03 V3 R- SR
Size / Thickness / Corner Radius / R/L Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
R/L-SR	**VBET1103V3R-SR**	0.03																						★						★		★						
	VBET1103V3L-SR	0.03																						★						★		★						
	VBET110301R-SR	0.1																						●						★		★						D012 D013 E013 E014
	VBET110301L-SR	0.1																						●						★		★						
	VBET110302R-SR	0.2																						●						★		★						
	VBET110302L-SR	0.2																						★						★		★						
	VBET110304R-SR	0.4																						●						★		★						
Medium Cutting	**VBET110304L-SR**	0.4																						★						★		★						
R/L-SN	**VBET110300R-SN**	0																						●						★		★						
	VBET110300L-SN	0																						★						★		★						
	VBET1103V3R-SN	0.03																						●						★		★						
	VBET1103V3L-SN	0.03																						●						★		★						
	VBET110301R-SN	0.1																						●						★		★						D012 D013 E013 E014
	VBET110301L-SN	0.1																						●						★		★						
	VBET110302R-SN	0.2																						●						★		★						
	VBET110302L-SN	0.2																						●						★		★						
	VBET110304R-SN	0.4																						●						★		●						
Medium Cutting	**VBET110304L-SN**	0.4																						★						★		★						
R/LW-SN *	**VBET1103V3RW-SN**	0.03																						●														
	VBET1103V3LW-SN	0.03																						★														D012 D013 E013 E014
Medium Cutting (Wiper)																																						
Flat Top	**VBMW160408**	0.8											★★★																										E013 H013

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

● = NEW

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

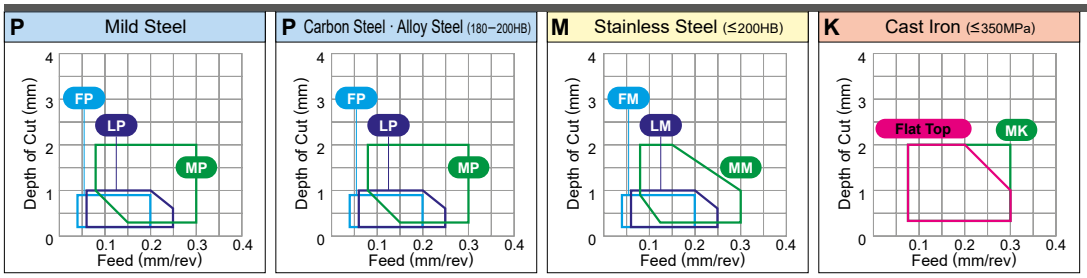
* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

CHIPBREAKERS ➤ A052

VCMT 08 02 02- FP
Size Thickness Corner Radius Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
FP	NEW VCMT080202-FP	0.2	●	●	●																																		C030
	NEW VCMT080204-FP	0.4	●	●	●																																		C031
	VCMT110302-FP	0.2	●	●	★																						●				●								D013
	VCMT110304-FP	0.4	●	●	★																						●				●								E013
	VCMT160404-FP	0.4	●	●	★																						●				●								E014
Finish Cutting	VCMT160408-FP	0.8	●	●	★																						●				★								E035 E036
FM	NEW VCMT080202-FM	0.2																							●														C030
	NEW VCMT080204-FM	0.4																							●														C031
	VCMT110302-FM	0.2																						●															D013
	VCMT110304-FM	0.4																						●															E013
	VCMT160404-FM	0.4																						●	●														E014
Finish Cutting	VCMT160408-FM	0.8																						★	●														E035 E036
FS NEW	VCMT080202-FS	0.2																		●																			C030
	VCMT080204-FS	0.4																		●																			C031
	VCMT160404-FS	0.4																		●																			D013
	VCMT160408-FS	0.8																		●																			E013
Finish Cutting																																							E014 E035 E036
FS-P NEW	VCGT110301M-FS-P	0.1*							●																●														C030
	VCGT110302M-FS-P	0.2*							●																●														C031
Finish Cutting																																							D013 E035 E036
FV	VCMT080202-FV	0.2		●	★																			●			★				●	★							C030
	VCMT080204-FV	0.4		●	★																			●			★				●	★							C031
	VCMT160404-FV	0.4	●	●	★																							●			●	●							E013
Finish Cutting	VCMT160408-FV	0.8	●	●	★																							●			●	●							E014 E035 E036
AZ	VCGT160404-AZ	0.4																																●					C030
	VCGT160408-AZ	0.8																																●					C031
	VCGT160412-AZ	1.2																																●					E035
Medium – Finish Cutting																																							E036

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

● = NEW

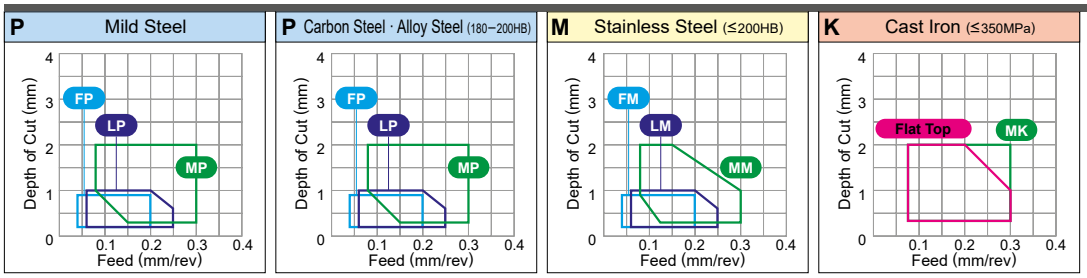
CHIPBREAKERS ➤ A056
GRADES ➤ A030
IDENTIFICATION ➤ A002

35° VC TYPE INSERTS WITH HOLE

VCGT 08 02 02 R- F
Size · Thickness · Corner Radius · R/L · Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
R/L-F	**VCGT080202R-F**	0.2																						●			★			★			★						
	VCGT080202L-F	0.2																						●			★			★			★						
	VCGT080204R-F	0.4																						●			★			★			★						E013 E014
	VCGT080204L-F	0.4																						●			★			★			★						
Finish Cutting																																							
R/L-SRF	**VCET080202MR-SRF**	0.2*																				●																	–
	VCET080202ML-SRF	0.2*																				●																	
	VCET080204MR-SRF	0.4*																				●																	
	VCET080204ML-SRF	0.4*																				●																	
	VCET110301MR-SRF	0.1*																				●																	
	VCET110301ML-SRF	0.1*																				●																	
	VCET110302MR-SRF	0.2*																				●																	
	VCET110302ML-SRF	0.2*																				●																	
	VCET110304MR-SRF	0.4*																				●																	
Finish Cutting	**VCET110304ML-SRF**	0.4*																				●																	
LP	NEW **VCMT080202-LP**	0.2	●	★	★																																		C030
	NEW **VCMT080204-LP**	0.4	●	●	★																																		C031
	VCMT110304-LP	0.4	●	●	★																						●				●								D013
	VCMT110308-LP	0.8	●	●	★																						●				●								E013
	VCMT160404-LP	0.4	●	●	★																						●				●								E014
Light Cutting	**VCMT160408-LP**	0.8	●	●	★																						★				★								E035 E036
LM	NEW **VCMT080202-LM**	0.2																							●														C030
	NEW **VCMT080204-LM**	0.4																							●														C031
	VCMT110304-LM	0.4						●	●															●															D013
	VCMT110308-LM	0.8						●	●															●															E013
	VCMT160404-LM	0.4						●	●															●															E014
Light Cutting	**VCMT160408-LM**	0.8						●	★															●															E035 E036
LS	NEW **VCMT080202-LS**	0.2																		●																		C030
	NEW **VCMT080204-LS**	0.4																		●																		C031
	VCMT110302-LS	0.2																●	●	●																●			D013
	VCMT110304-LS	0.4																●	●	●																●			E013
	VCMT160404-LS	0.4																●	●	●																●			E014
Light Cutting	**VCMT160408-LS**	0.8																●	●	●																●			E035 E036

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

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																			Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
LS	**VCGT110301M-LS**	0.1*																●	●	●																		
	VCGT110302M-LS	0.2*																●	●	●																		C030 D013 E035 E036
	VCGT110304M-LS	0.4*																●	●	●																		
	VCGT130301M-LS	0.1*																●	●	●																		
	VCGT130302M-LS	0.2*																●	●	●																		
Light Cutting	**VCGT130304M-LS**	0.4*																●	●	●																		
LS-P	**VCGT110301M-LS-P**	0.1*										●										●													●			
	VCGT110302M-LS-P	0.2*										●										●													●			C030 D013 E035 E036
	VCGT110304M-LS-P	0.4*										●										●													●			
	VCGT130301M-LS-P	0.1*																																	●			
	VCGT130302M-LS-P	0.2*																																	●			
Light Cutting	**VCGT130304M-LS-P**	0.4*																																	●			
SV	**VCMT080202-SV**	0.2																						●			★			★							
	VCMT080204-SV	0.4																						●			★			★							E013 E014
Light Cutting																																					
MP	NEW **VCMT110304-MP**	0.4	●	●	★																																
	VCMT160404-MP	0.4	●	●	★																						●			●							C030 C031 D013 E035 E036
	VCMT160408-MP	0.8	●	●	★																						★			●							
	VCMT160412-MP	1.2	●	★	★																						●			★							
Medium Cutting																																					
MM	**VCMT160404-MM**	0.4							●	●														●													
	VCMT160408-MM	0.8							●	●														●													C030 C031 E035 E036
	VCMT160412-MM	1.2							★	★														●													
Medium Cutting																																					
MK	**VCMT160404-MK**	0.4											●	●	●	★																					
	VCMT160408-MK	0.8											●	●	●																						C030 C031 E035 E036
Medium Cutting																																					
MS	**VCMT110302-MS**	0.2																●	●	●																		
	VCMT110304-MS	0.4																●	●	●															●			C030 C031 D013 E035 E036
	VCMT110308-MS	0.8																●	●	●															●			
	VCMT160404-MS	0.4																●	●	●															●			
Medium Cutting	**VCMT160408-MS**	0.8																●	●	●															●			
Standard	**VCMT110304**	0.4									●													●			●			●		★	★					C030 C031 D013 E035 E036
	VCMT160404	0.4									●													●			●			●		●	★				
	VCMT160408	0.8									●													●			●			●		●					
	VCMT160412	1.2									●																			●		★					
Medium Cutting																																					

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

● = NEW

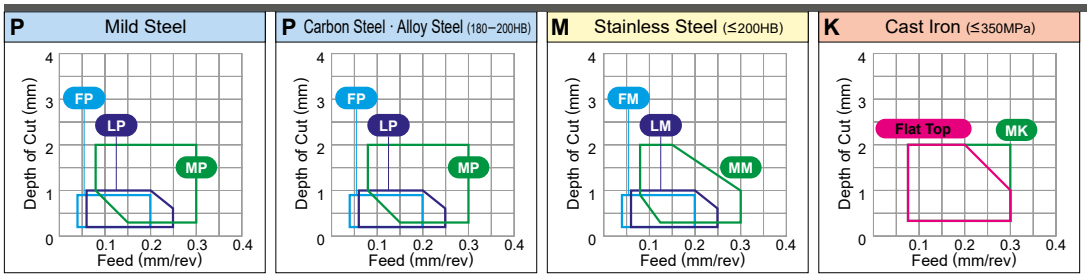
CHIPBREAKERS ➤ A056
GRADES ➤ A030
IDENTIFICATION ➤ A002

35° VC TYPE INSERTS WITH HOLE

VCMT 08 02 02- MV
Size · Thickness · Corner Radius · Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
MV	**VCMT080202-MV**	0.2		★	★					●														●		★	●	★	●	★									
	VCMT080204-MV	0.4		●	★					●				●										●		★	●	★	●	★									E013 E014
Medium Cutting																																							
Flat Top	**VCMW110304**	0.4																																●						C030 C031 D013 E035 E036
	VCMW160404	0.4												●	●	★																		●						
	VCMW160408	0.8												●	●	★	★																	●						

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

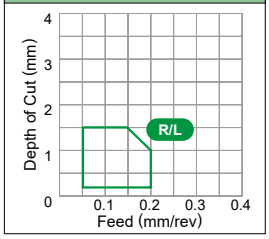
CHIPBREAKERS ➤ A056

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

CHIP CONTROL RANGE FOR MATERIAL

Medium Cutting·····

N Aluminium Alloy



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
R/L	VDGX160302R	0.2																																●					C036
	VDGX160302L	0.2																																●					
	VDGX160304R	0.4																																●					
	VDGX160304L	0.4																																●					
Medium Cutting (For Aluminium)																																							

● = NEW

A TURNING INSERTS
POSI 15° WITH HOLE
C D R S T V W

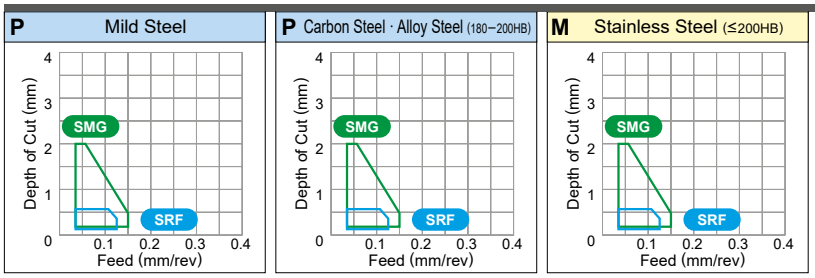
CHIPBREAKERS ➤ A070
GRADES ➤ A030
IDENTIFICATION ➤ A002

35° VP TYPE INSERTS WITH HOLE

VPET 08 02 01 R- SRF
Size Thickness Corner Radius R/L Chipbreaker
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
R/L-SRF	**VPET080201R-SRF**	0.1																							★												
	VPET080201L-SRF	0.1																							★												
	VPET080202R-SRF	0.2																							★												
	VPET080202L-SRF	0.2																							★												
	VPET1103V3R-SRF	0.03																							★												
	VPET1103V3L-SRF	0.03																							★												
	VPET110301R-SRF	0.1																							●												
	VPET110301L-SRF	0.1																							★												
	VPET110302R-SRF	0.2																							★												
	VPET110302L-SRF	0.2																							★												D012 D013
	VPET080201MR-SRF	0.1 *																				●															
	VPET080201ML-SRF	0.1 *																				●															
	VPET080202MR-SRF	0.2 *																				●															
	VPET080202ML-SRF	0.2 *																				●															
	VPET1103V3MR-SRF	0.03*																				●															
	VPET1103V3ML-SRF	0.03*																				●															
	VPET110301MR-SRF	0.1 *																				●															
	VPET110301ML-SRF	0.1 *																				●															
	VPET110302MR-SRF	0.2 *																				●															
Finish Cutting	**VPET110302ML-SRF**	0.2 *																				●															
SMG	**VPGT080201M-SMG**	0.1 *																							★												
	VPGT080202M-SMG	0.2 *																							★												
	VPGT110301M-SMG	0.1 *																							●												D012 D013
	VPGT110302M-SMG	0.2 *																							●												
Medium Cutting																																					

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

● = NEW

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

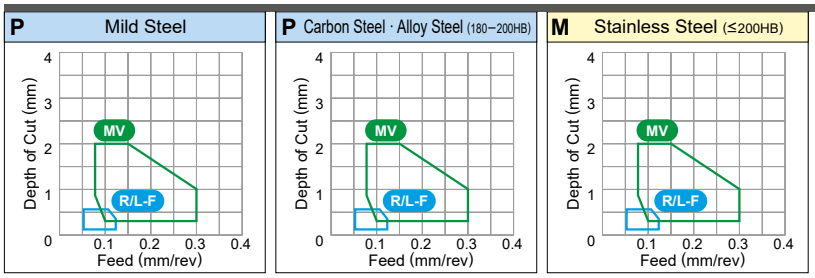
* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

CHIPBREAKERS ➤ A064

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

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
R/L-F	WBGT0201V3L-F	0.03																							★				★							
	WBGT020101L-F	0.1																							●				●							
	WBGT020102L-F	0.2																							●	★			●							
	WBGT020104L-F	0.4																							●	★			●							
	WBGTL302V3L-F	0.03																							●				★							E012 E018
	WBGTL30201L-F	0.1																							★				★							
	WBGTL30202R-F	0.2																							★				★							
	WBGTL30202L-F	0.2																							●	★			●							
	WBGTL30204R-F	0.4																							●				★							
Finish Cutting	WBGTL30204L-F	0.4																							●	●			★							
R/L-MV	WBMTL30202R-MV	0.2		●	★																				★	★		★	★	★						E012 E018
	WBMTL30202L-MV	0.2		★	★																				★	★		★	★	★						
	WBMTL30204R-MV	0.4		★	★																				★	★		★	★	★						
	WBMTL30204L-MV	0.4		★	★																				●	★		★	★	●						
Medium Cutting																																				

● = NEW

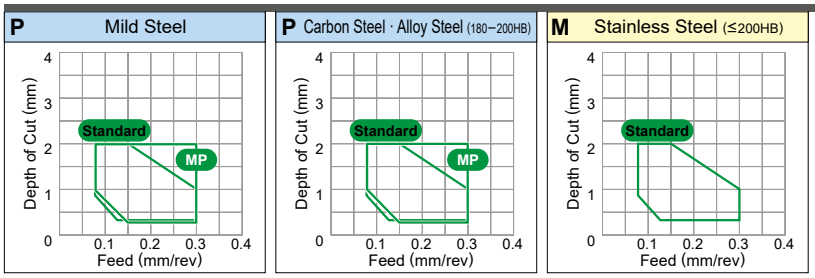
CHIPBREAKERS ➤ A052
GRADES ➤ A030
IDENTIFICATION ➤ A002

80° WC TYPE INSERTS WITH HOLE

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

CHIP CONTROL RANGE FOR MATERIAL

Medium Cutting·····



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	MC6135 NEW	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105 NEW	MC5115	MC5125	MH515	MV9005 NEW	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
R/L	**WCGT020102R**	0.2																													●								
	WCGT020102L	0.2																													●			●					
	WCGT020104R	0.4																													★								E030 E054
	WCGT020104L	0.4																													●			●					
	WCGTL30202L	0.2																													●								
Finish Cutting	**WCGTL30204L**	0.4																													●								
FV NEW	**WCMT020102-FV**	0.2		●																●					●													E030 D013
	WCMT020104-FV	0.4		●																●					●													
	WCMT040202-FV	0.2		●																●					●													
	WCMT040204-FV	0.4		●																●					●													
	WCMT06T302-FV	0.2		●																●					●													
	WCMT06T304-FV	0.4		●																●					●													
	WCMTL30202-FV	0.2		●																●					●													
Finish Cutting	**WCMTL30204-FV**	0.4		●																●					●													
MP NEW	**WCMT020102-MP**	0.2	★★★																																			E030 D013
	WCMT020104-MP	0.4	★★★																																			
	WCMT040202-MP	0.2	★★★																																			
	WCMT040204-MP	0.4	★★★																																			
	WCMT040208-MP	0.8	★★																																			
	WCMT06T304-MP	0.4	★★★																																			
	WCMT06T308-MP	0.8	★★★																																			
	WCMTL30202-MP	0.2	★★																																			
Medium Cutting	**WCMTL30204-MP**	0.4	★★																																			
Standard	**WCMT020102**	0.2								●																	●★				●●		●						E030 D013
	WCMT020104	0.4								●																	●★				●●		●						
	WCMTL30202	0.2								●																	★★				●●		●						
	WCMTL30204	0.4								●																	●★				●●		●						
	WCMT040202	0.2								●																	●★				●●		●						
	WCMT040204	0.4								●																	●★				●★		●						
	WCMT06T304	0.4								●																	●★				●●		●						
Medium Cutting	**WCMT06T308**	0.8								●																	★★				●★		●						

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

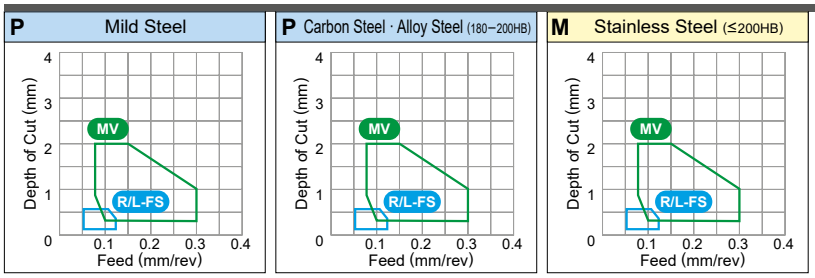
CHIPBREAKERS ➤ A056

80° WP TYPE INSERTS WITH HOLE

WPGT 04 02 04 R- FS
Size Thickness Corner Radius R/LChipbreaker
★ Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
R/L-FS	**WPGT040204R-FS**	0.4																						●					★							E012
	WPGT040204L-FS	0.4																						●					★							
	WPGT060304R-FS	0.4																						●					★							
Finish Cutting	**WPGT060304L-FS**	0.4																						●					★							
MV	**WPMT040202-MV**	0.2		●	★					★														●			★			★	★						E012
	WPMT040204-MV	0.4		★	★					●			★											●			★		★	●	●						
	WPMT060304-MV	0.4		★	★					●			★											●			★			●	★						
Medium Cutting	**WPMT060308-MV**	0.8		●	★					●			★											●			★		★	★	★						

● = NEW

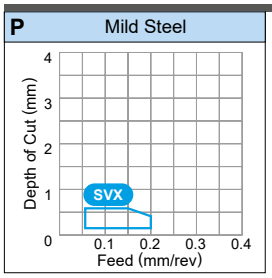
CHIPBREAKERS ➤ A064
GRADES ➤ A030
IDENTIFICATION ➤ A002

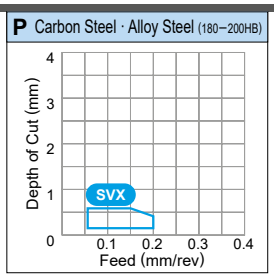
25° XC TYPE INSERTS WITH HOLE

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

CHIP CONTROL RANGE FOR MATERIAL

Finish Cutting





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

Material			MC6115	MC6125	MC6135 (NEW)	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105 (NEW)	MC5115	MC5125	MH515	MV9005 (NEW)	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M
Material	P	Steel	◐	✠	✠	✠	●																		✠	✠	◐	●	●	◐	●	◐	✠					✠
	M	Stainless Steel						○	◐	✠	✠	○										◐		◐	✠	✠		○	○		○		✠					✠
	K	Cast Iron											●	◐	✠	◐								◐	✠			●	●		●		✠	◐				
	N	Non-ferrous Metal																																◐				
	S	Heat-resistant Alloy, Titanium Alloy																●	●	◐	✠	●	◐	●	◐	✠								◐	●	◐	●	◐	

Shape	Order Number	RE (mm)	MC6115	MC6125	MC6135 (NEW)	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	MC5105 (NEW)	MC5115	MC5125	MH515	MV9005 (NEW)	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
			Coated																								Coated Cermet				Cermet		Carbide						
SVX Light Cutting	XCMT150302-SVX	0.2																							●														C032
	XCMT150304-SVX	0.4		●	★																				●														
	XCMT150308-SVX	0.8		●	★																				●														

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

CHIPBREAKERS ➤ A056

RTG TYPE INSERTS WITHOUT HOLE

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet			Cermet		Carbide						Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	NEW MH515	MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
Special Purpose (For TL Holder)	**RTG05A**	–																													●	●					C037
	RTG06A	–																													●	●					
	RTG07A	–																													●						
	RTG08A	–																													●	●					
	RTG10A	–																													●	●					

● = NEW

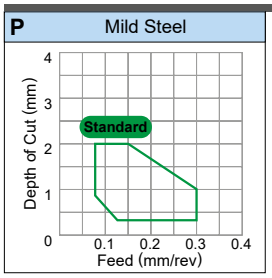
CHIPBREAKERS ➤ A073
GRADES ➤ A030
IDENTIFICATION ➤ A002

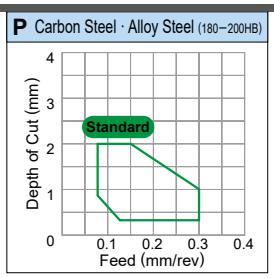
90° SP TYPE INSERTS WITHOUT HOLE

SPGR 09 03 04 R
Size · Thickness · Corner Radius · R/L
* Please refer to page A002.

CHIP CONTROL RANGE FOR MATERIAL

Medium Cutting·····





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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
R	**SPGR090304R**	0.4																															★						–
Finish Cutting																																								
Standard	**SPMR090304**	0.4	★	★	★																						●				★	★								–
	SPMR090308	0.8	●	★	★																						★				●	●								
	SPMR120304	0.4	●	★	★																						★				●	●								
	SPMR120308	0.8	●	★	★																						★				●	★								
Light – Medium Cutting																																							
Flat Top	**SPMN090304**	0.4																													★			★						–
	SPMN090308	0.8	★																												★		●	●						
	SPMN120304	0.4	★																														●	●						
	SPMN120304T	0.4																													●									
	SPMN120308	0.8	●																															●					★	
	SPMN120312	1.2	●		★																																			–
	SPMN120408	0.8																															●	★						
	SPMN120412	1.2																															★							
	SPMN150408	0.8																															●							
	SPMN190404	0.4																															●							
	SPMN190408	0.8																															●							
Flat Top	**SPGN090304**	0.4																													★		★	★						–
	SPGN090308	0.8																																●						
	SPGN120304	0.4																													★		★	●						
	SPGN120308	0.8																													★		★	●					★	
	SPGN120312	1.2																																★						
	SPGN120404	0.4																																★						
	SPGN120408	0.8																																★	★					
	SPGN150404	0.4																																★						

● = NEW

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

* MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

60° TC TYPE INSERTS WITHOUT HOLE

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

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

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

Shape	Order Number	RE (mm)	Coated																		Coated Cermet			Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	NEW MH515	MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
Flat Top	**TCGN060104**	0.4																														●					–
	TCGN090204	0.4																														★					

● = NEW

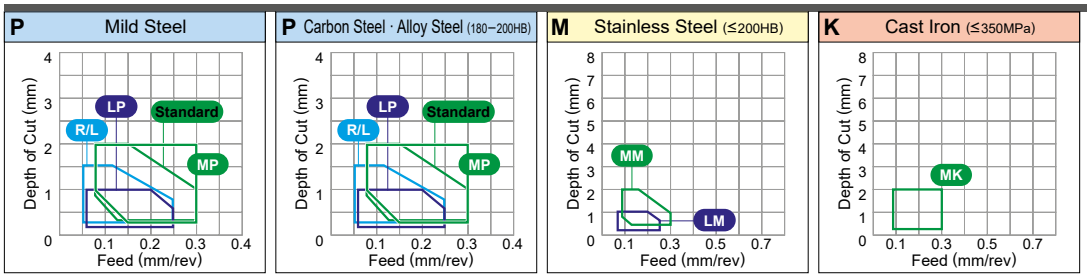
CHIPBREAKERS ➤ A072
GRADES ➤ A030
IDENTIFICATION ➤ A002

60° TP TYPE INSERTS WITHOUT HOLE

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

CHIP CONTROL RANGE FOR MATERIAL

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



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

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

Shape	Order Number	RE (mm)	Coated: MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	MH515	NEW MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	Coated Cermet: MP3025	AP25N	VP25N	VP45N	Cermet: NX2525	NX3035	Carbide: UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	Applicable Holder Page
R/L	TPGR110304R	0.4																													★		●							E029
	TPGR110304L	0.4																													●		●	●						
	TPGR160304R	0.4																													●		●	★						
	TPGR160304L	0.4																													●		●	●						
	TPGR160308R	0.8																													●									
Finish Cutting	TPGR160308L	0.8																													●		★	●						
80 Chipbreaker	TPMR110304-80	0.4																															●							E029
Finish Cutting																																							
FV NEW	TPMR160304-FV	0.4		●	●																																		E029
Finish Cutting																																							
LP NEW	TPMR110304-LP	0.4		●	●																																		E029
	TPMR110308-LP	0.8		●	●																																		
	TPMR160304-LP	0.4	●	●	●																																		
Light Cutting	TPMR160308-LP	0.8	●	●	●																																		
LM NEW	TPMR110304-LM	0.4							●																●															E029
	TPMR110308-LM	0.8							●																●															
	TPMR160304-LM	0.4							●																●															
Light Cutting	TPMR160308-LM	0.8							●																●															
MP NEW	TPMR110304-MP	0.4	●	●	●																																		E029
	TPMR110308-MP	0.8	●	●	●																																		
	TPMR160304-MP	0.4	●	●	●																																		
Medium Cutting	TPMR160308-MP	0.8	●	●	●																																		

● = NEW

● : Inventory maintained. ★ : Inventory maintained in Japan.
★ MC6035/MC7015/MC7025/MP7035 will be replaced by MC6135/MC7115/MC7125/MP7135

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

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

Shape	Order Number	RE (mm)	Coated																				Coated Cermet				Cermet		Carbide					Applicable Holder Page
			MC6115	MC6125	NEW MC6135	MC6035	MS6015	MC7015	MC7025	MP7035	US735	MS7025	NEW MC5105	MC5115	MC5125	NEW MH515	MV9005	MP9005	MP9015	MP9025	US905	MS9025	VP05RT	VP10RT	VP15TF	VP30RT	MP3025	AP25N	VP25N	VP45N	NX2525	NX3035	UTi20T	HTi10	RT9010	MT9005	MT9015	UP20M	
MM NEW Medium Cutting	TPMR110304-MM	0.4							●																●												E029
	TPMR110308-MM	0.8							●																●												
	TPMR160304-MM	0.4							●																●												
	TPMR160308-MM	0.8							●																●												
MK NEW Medium Cutting	TPMR110304-MK	0.4											●	●	●																						E029
	TPMR110308-MK	0.8											●	●	●																						
	TPMR160304-MK	0.4											●	●	●																						
	TPMR160308-MK	0.8											●	●	●																						
Standard Medium Cutting	TPMR090202	0.2																									★				★						E029
	TPMR090204	0.4																									●				●	★					
	TPMR090208	0.8																									★										
	TPMR110302	0.2																									★				●	★					
	TPMR110304	0.4	●	★	★																						●				●	●					
	TPMR110308	0.8	●	★	★																						●				●	●					
	TPMR160304	0.4	●	★	★																						●				●	●					
	TPMR160308	0.8	●	★	★																						●				●	★					
	TPMR160312	1.2	●	★																							●					★					
Flat Top	TPMN110304	0.4	●										★	●	★																●		●			●	E029
	TPMN110308	0.8	★										●	●	★																★		●	●			
	TPMN160304	0.4	●										●	●	★																●		●			★	
	TPMN160308	0.8	●										●	●	★																●					●	
	TPMN160312	1.2	★										★	●	★																		★			●	
	TPMN160320	2.0																														●					
	TPMN220404	0.4	★																													●					
	TPMN220408	0.8	★		★																															●	
	TPMN220408T	0.8																													●						
	TPMN220412	1.2	★																														●				
Flat Top	TPGN110302	0.2																															★				E029
	TPGN110304	0.4																													★	★	●				
	TPGN110308	0.8																															●			★	
	TPGN160302	0.2																															★				
	TPGN160304	0.4																													★	★				★	
	TPGN160308	0.8																													★	★	●			★	
	TPGN160312	1.2																															★				
	TPGN160316	1.6																															★				
	TPGN160408	0.8																														★					
	TPGN220404	0.4																															●			★	
	TPGN220408	0.8																															★			★	

● = NEW

CHIPBREAKERS ➤ A072
GRADES ➤ A030
IDENTIFICATION ➤ A002

HOW TO READ THE STANDARD OF PCBN&PCD TURNING INSERTS

●How this section page is organised

①Organised according to turning insert shape.
(Refer to the index on the next page.)

②Inserts are arranged in order of :

- Negative inserts (with hole→without hole)
- Positive inserts (with hole→without hole)

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

INDICATION OF NEGATIVE/POSITIVE TYPE

SHAPE & ANGLE MARK

PRODUCT SECTION

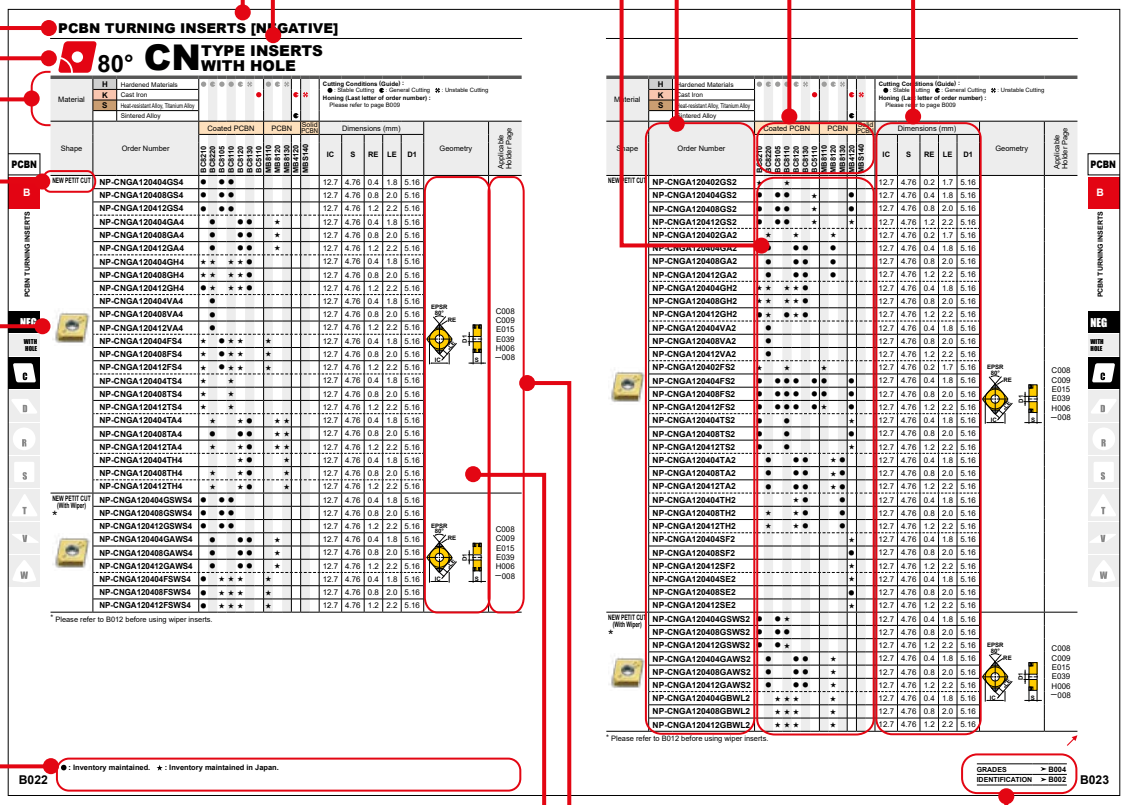
TITLE OF PRODUCT ACCORDING TO THE INSERT TYPE

STOCK STATUS

INSERT NUMBER

INSERT GRADES

INSERT DIMENSIONS



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

PHOTO OF INSERT

PRODUCT NAME

FIGURE SHOWING THE INSERT GEOMETRY
IC: Diameter of Inscribed Circle
S: Thickness
RE: Corner Radius
D1: Diameter of Hole
LE: Cutting Edge Effective Length
Dimensions are detailed in the "Dimensions" column.

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

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

TURNING TOOLS

PCBN & PCD INSERT STANDARDS
PCBN & PCD INSERT GRADES

IDENTIFICATION ····· B002
CLASSIFICATION OF PCBN & PCD GRADES ·· B004
CBN (CUBIC BORON NITRIDE) ····· B006
PCD (SINTERED DIAMOND) ····· B015
CLASSIFICATION OF PCBN & PCD INSERTS ···· B016

STANDARD OF PCBN TURNING INSERTS

NEGATIVE INSERTS WITH HOLE
CN○○TYPE···RHOMBIC 80° ····· B022
DN○○TYPE···RHOMBIC 55° ····· B025
SN○○TYPE···SQUARE 90° ····· B029
TN○○TYPE···TRIANGULAR 60°··· B030
VN○○TYPE···RHOMBIC 35° ····· B032
WN○○TYPE···TRIGON 80° ····· B034

NEGATIVE INSERTS WITHOUT HOLE
CN○○TYPE···RHOMBIC 80° ····· B035
DN○○TYPE···RHOMBIC 55° ····· B035
RN○○TYPE···ROUND ····· B035
SN○○TYPE···SQUARE 90° ····· B036
TN○○TYPE···TRIANGULAR 60°··· B036

POSITIVE INSERTS WITH HOLE
CC○○TYPE···RHOMBIC 80° ····· B037
CP○○TYPE···RHOMBIC 80° ····· B039
DC○○TYPE···RHOMBIC 55° ····· B040
TC○○TYPE···TRIANGULAR 60°··· B042
TP○○TYPE···TRIANGULAR 60°··· B043
VB○○TYPE···RHOMBIC 35° ····· B045
VC○○TYPE···RHOMBIC 35° ····· B046

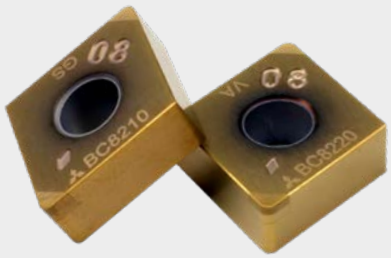
POSITIVE INSERTS WITHOUT HOLE
SP○○TYPE···SQUARE 90° ····· B047
GY TYPE ····· B048

STANDARD OF PCD TURNING INSERTS

NEGATIVE INSERTS WITH HOLE
CN○○TYPE···RHOMBIC 80° ····· B049
DN○○TYPE···RHOMBIC 55° ····· B050
SN○○TYPE···SQUARE 90° ····· B050
TN○○TYPE···TRIANGULAR 60°··· B051
VN○○TYPE···RHOMBIC 35° ····· B052

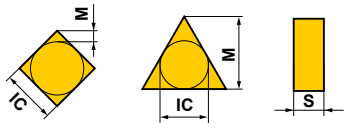
POSITIVE INSERTS WITH HOLE
CC○○TYPE···RHOMBIC 80° ····· B053
CP○○TYPE···RHOMBIC 80° ····· B053
DC○○TYPE···RHOMBIC 55° ····· B054
SP○○TYPE···SQUARE 90° ····· B054
TC○○TYPE···TRIANGULAR 60°··· B055
TP○○TYPE···TRIANGULAR 60°··· B056
VB○○TYPE···RHOMBIC 35° ····· B057
VC○○TYPE···RHOMBIC 35° ····· B057
WC○○TYPE···TRIGON 80° ····· B058
WP○○TYPE···TRIGON 80° ····· B058
DE○○TYPE···RHOMBIC 55° ····· B059
TE○○TYPE···TRIANGULAR 60°··· B059
VD○○TYPE···RHOMBIC 35° ····· B060

POSITIVE INSERTS WITHOUT HOLE
SP○○TYPE···SQUARE 90° ····· B061
TP○○TYPE···TRIANGULAR 60°··· B061



IDENTIFICATION

B



Symbol	Tolerance of Nose Height **M** (mm)	Tolerance of Inscribed Circle **IC** (mm)	Tolerance of Thickness **S** (mm)
G	±0.025	±0.025	±0.13
M*	±0.08–±0.18	±0.05–±0.15	±0.13

Inserts marked with * are sintered.

Detail of M Class Insert Tolerance

● Tolerance of Nose Height **M** (mm)

D.I.C.	Triangular	Square	Rhombic 80°	Rhombic 55°	Rhombic 35°	Round
6.35	±0.08	±0.08	±0.08	±0.11	±0.16	–
9.525	±0.08	±0.08	±0.08	±0.11	±0.16	–
12.70	±0.13	±0.13	±0.13	±0.15	–	–

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

D.I.C.	Triangular	Square	Rhombic 80°	Rhombic 55°	Rhombic 35°	Round
6.35	±0.05	±0.05	±0.05	±0.05	±0.05	–
9.525	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05
12.70	±0.08	±0.08	±0.08	±0.08	–	±0.08

④ Tolerance Class

BR	For Large Depth of Cut
BM	With Chipbreaker
BF	With Chipbreaker
NP	New Petit Cut
No mark	Standard Type

① Insert Geometry

NP - **D** **N** **G** **A**

① ② ③ ④ ⑤

② Insert Shape

Symbol	Insert Shape
C	Rhombic 80°
D	Rhombic 55°
R	Round
S	Square
T	Triangular
V	Rhombic 35°
W	Trigon

③ Normal Clearance

Symbol	Normal Clearance
B	5°
C	7°
D	15°
E	20°
N	0°
P	11°

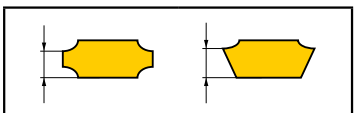
⑤ Fixing and/or for Chipbreaker

Metric

Symbol	Hole	Hole Configuration	Chipbreaker	Figure
W	With Hole	Cylindrical Hole + One Countersink (40–60°)	No	
T/V	With Hole		One Sided	
B	With Hole	Cylindrical Hole + One Countersink (70–90°)	No	
H	With Hole		One Sided	
A	With Hole	Cylindrical Hole	No	
M	With Hole	Cylindrical Hole	One Sided	
N	Without Hole	–	No	
X	–	–	–	Special Design

Diameter of Inscribed Circle (mm)	Symbol						
	R	W	V	D	C	S	T
3.97		02		04	03	03	06
4.76		L3	08	05	04	04	08
5.56		03	09	06	05	05	09
6.35		04	11	07	06	06	11
7.94		05	13	09	08	07	13
9.525	09	06	16	11	09	09	16
12.70	12	08	22	15	12	12	22

⑥ Insert Size



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

Symbol	Thickness (mm)
S1	1.39
01	1.59
T0	1.79
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76

⑦ Insert Thickness

Symbol	Corner Radius (mm)
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6

⑧ Insert Corner Configuration

⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬
15	04	04	GA	W	2	J	R

⑨ Application (Honing)

Symbol	Honing
GS GA GB GH	General Cutting
VA	For High Speed, High Feed Cutting
FS FA FB	Continuous Cutting
TS TA TH	Interrupted Cutting
SF SE	Sintered Alloys Cutting

Please refer to page B009 for further information.

⑩ Wiper

WS	For High Rigidity Material
WL	For Deflection and Vibration Prevention
No mark	Without Wiper

⑪ Number of Teeth

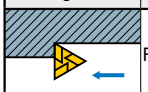
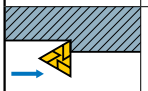
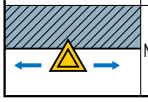
2	2
3	3
4	4
6	6
No mark	1

⑫ Cutting Edge Angle

F	91°
J	93°
No mark	Non Restriction

Please pay special attention when using wiper inserts.

⑬ Cutting Direction

Figure	Hand	Symbol
	Right	R
	Left	L
	Neutral	N

CLASSIFICATION OF PCBN & PCD GRADES

FEATURES

NON-COATED PCBN MATERIALS

PCBN sintered material base cutting tools are produced by binding CBN (cubic Boron Nitride) and ceramic having hardness next to diamond and sintering them under ultra-high pressure and at high temperature.
PCBN has lower affinity to iron than diamond. The low affinity and high hardness properties means that sintered PCBN delivers a superior cutting performance especially during high speed machining of materials such hardened steel, cast iron and sintered alloys.

B

COATED PCBN MATERIALS

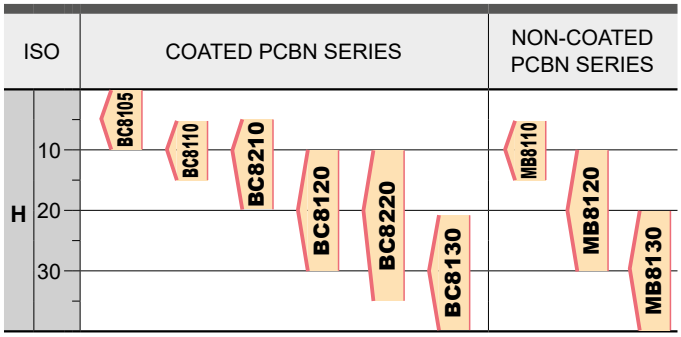
To achieve longer tool life, MITSUBISHI MATERIALS uses a unique "Particle-activated Sintering Method", combined with increased cutting edge strength. With high crater wear resistance PCBN grades, plus a wear resistant ceramic coating, longer tool life and improved machine efficiency are obtained.

PCD MATERIALS (Sintered Diamond)

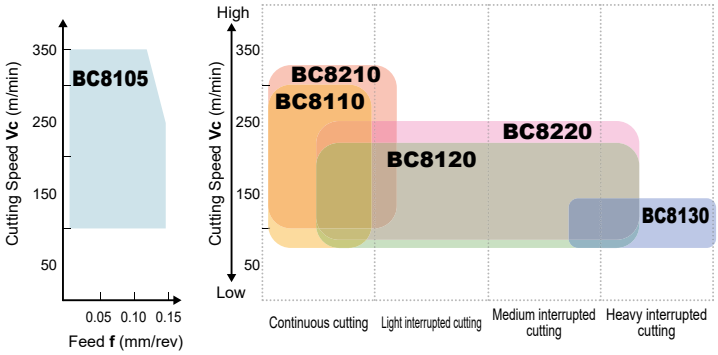
Suitable for cutting materials such as nonferrous metals and fibre reinforced plastics (FRP) including aluminium alloys.
It supports ultra high speed finish machining.

■ Materials for turning grades/application area

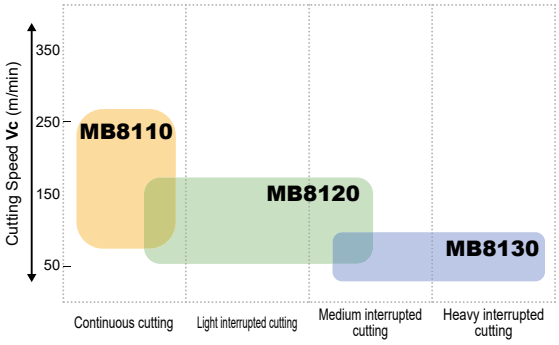
●Hardened Steel



COATED PCBN MATERIALS



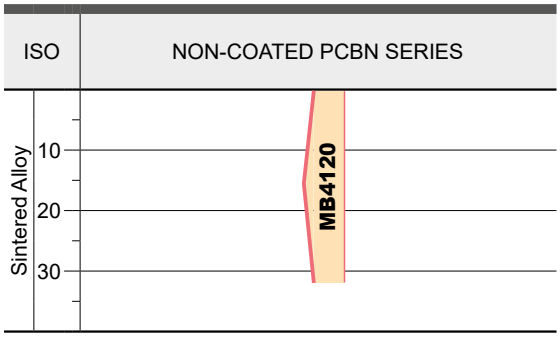
NON-COATED PCBN MATERIALS

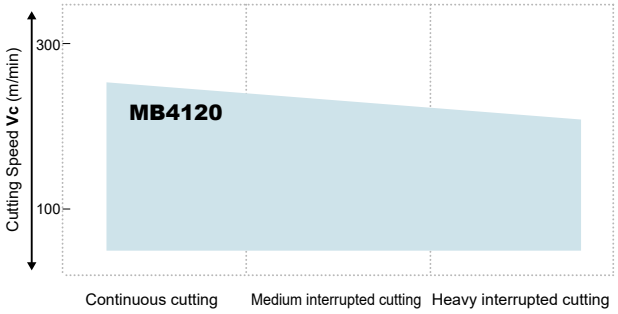


Suitable for finishing with surface roughness Ra 0.6 µm or Rz 2.4 µm or less.

Coated PCBN Grade BC8100/BC8200 and non-coated PCBN Grade MB8100 for high-hardness steel processing are available for a wide range of applications from finishing to continuous cutting of hardened steels and strongly interrupted machining.

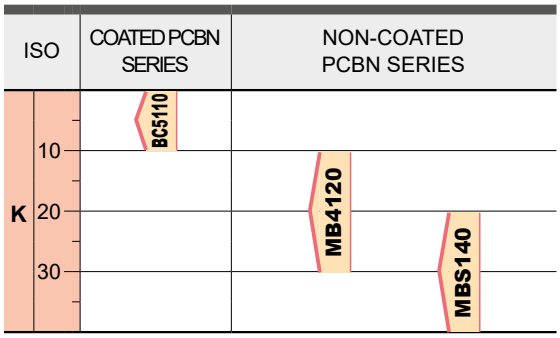
●Sintered Alloy



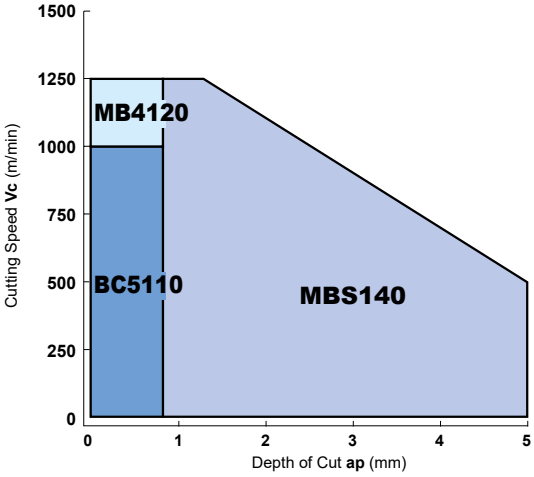


The PCBN grade "MB4120" for cutting sintered alloys and cast iron can be used over a wide range of applications from continuous cto interrupted machining of cast iron and sintered alloy components such as oil pumps and valve mechanisms.

●Cast Iron

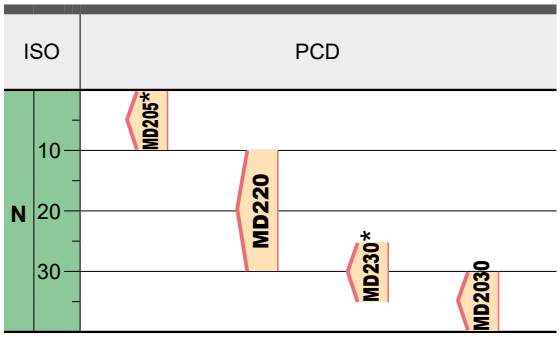


BC5110
Tough substrate with a high hardness coating provides excellent chipping and wear resistance.

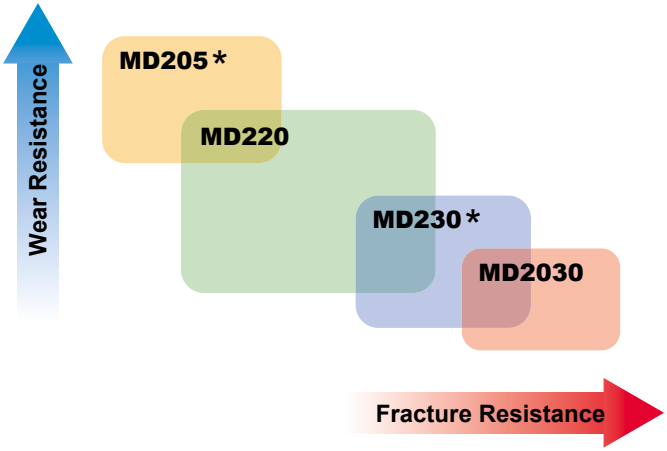


Range of grades available for general to larger depths of cut to enable high efficiency machining.

●Aluminium Alloy



* MD205, MD230 : Non-Standard



Suitable for cutting materials such as nonferrous metals and fiber reinforced plastics (FRP) including aluminium alloys.
It supports ultra high speed finish cutting.

B

COATED PCBN SERIES

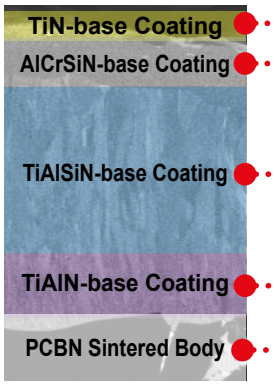
BC8200 series for machining of hardened steel

B

FEATURES

■ A Newly Developed Special Ceramic PVD Coating

BC8210



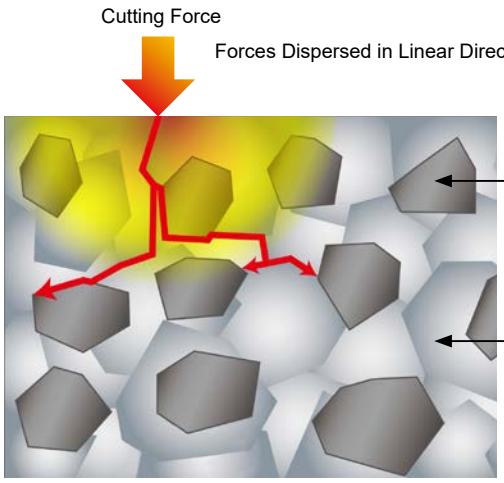
- TiN-base Coating: Gold colour aids easy identification of edge use.
- AlCrSiN-base Coating: Excellent chipping resistance. Absorbs impact forces.
- TiAlSiN-base Coating: Excellent wear resistance. Abrasion resistant layer.
- TiAlN-base Coating: Improved strength of adhesion to the PCBN substrate prevents peeling. High adhesion layer for BC8210.
- PCBN Sintered Body: Excellent crater wear and chipping resistance. Exclusive BC8210 sintered body.

BC8220

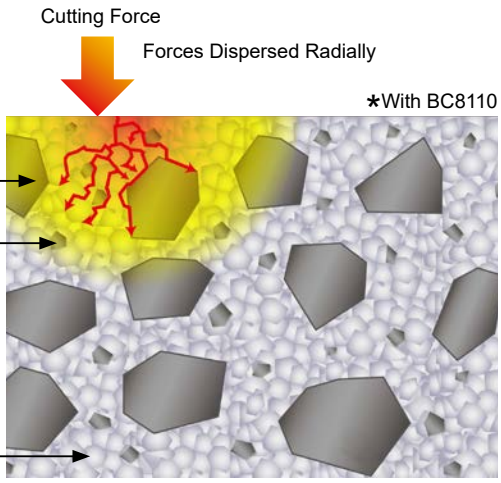
- TiN-base Coating: Gold colour aids easy identification of edge use.
- TiAlN-base Super Multi-layer Coating: High wear and chipping resistance. Super Multi-layer.
- TiAlN-base Coating: Improved strength of adhesion to the PCBN substrate prevents peeling. High adhesion layer.
- PCBN Sintered Body: Excellent crater wear and chipping resistance. Exclusive BC8220 sintered body.

■ Ultra Micro-Particle Binder Prevents Sudden Fractures

●Conventional



●BC8100 Series
BC8200 Series



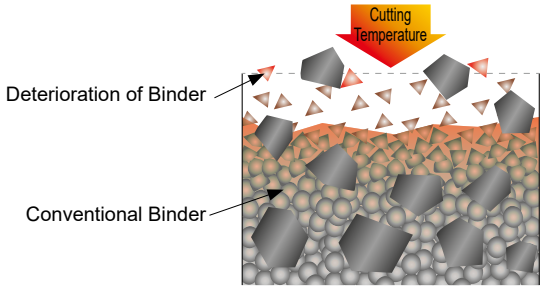
The ultra micro-particle binder prevents linear crack development to avoid sudden fracturing.

■ Ultra Micro-Particle and Heat Resistant Binder Technology

Positive Effect of the Newly Developed Heat Resistant Binder

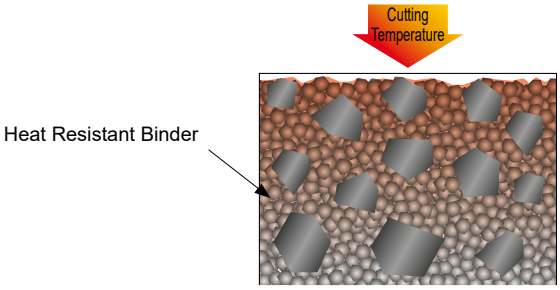
The progress of crater wear is greatly reduced due to the use of a heat resistant binder.
This suppresses chipping, crater wear and fracturing.

Conventional



As binder wear progresses, the CBN particles are exposed and lost.

BC8200 Series



Suppresses the binder wear caused by cutting heat.

Cast Iron Machining BC5110

FEATURES

BC5110 uses a tough substrate with a highly hard coating to provide excellent chipping and wear resistance.

Excellent Chipping Resistance

Compared to conventional grades, the fine grain and high CBN content greatly improves chipping resistance and provides stability and long tool life.

Excellent Wear Resistance Coating

The hard ceramic coating layer provides excellent surface finishes as well as wear and notch resistance during continuous cutting. Additionally, chipping and peeling of the coating layer is suppressed due to the improved bonding strength to the CBN substrate.

B

FOR CYLINDER LINER MB5015

***Produced to order only.**

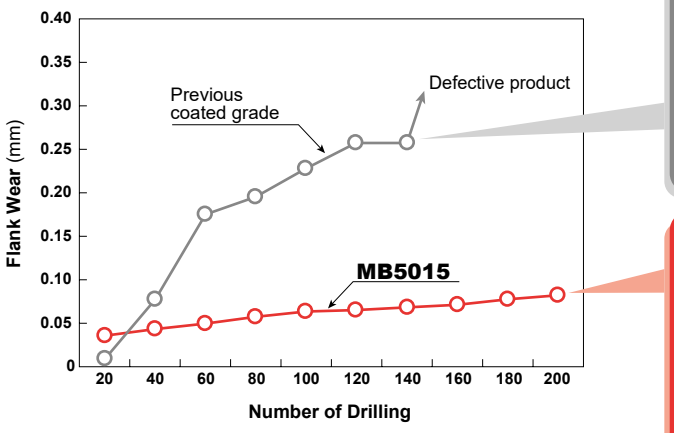
FEATURES

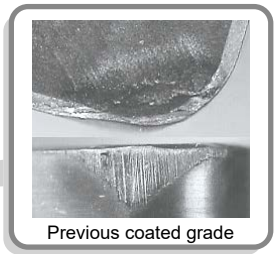
MB5015 is an exclusive grade with high wear resistance for boring of centrifugal casting cylinder liners in semi finishing or finishing applications.

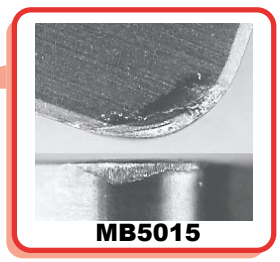
■ Recommended Cutting Conditions

Material		Cutting Mode	Cutting Speed **Vc** (m/min) 100 500 1000 1500	Feed f (mm/rev)	Depth of Cut ap (mm)	Cutting Mode
Centrifugal casting	Cast Iron	Continuous cutting		–0.3(Finishing) –0.8(Semi-finishing)	–0.05(Finishing) –0.2(Semi-finishing)	Wet Cutting

■ Cutting Performance




Previous coated grade


MB5015

<Cutting Conditions>

Material : GG25 (Centrifugal casting) Ø63.0
Cutting Speed : Vc=800 m/min
Feed : f=0.35 mm/rev
Depth of Cut : ap=0.03 mm
Work : Centrifugal casting Cylinder liner
Hole Depth : 100 mm

PCBN

- Suitable for high speed finishing of heat treated steel, sintered ferrous alloy and cast iron.
- Low affinity to iron, thus good surface finishes are possible.
- Grinding operations can be replaced by machining.

●Heat Treated Steel

Material		Type	Cutting Mode	Recommended Grade	Recommended Cutting Conditions			
					Cutting Speed Vc (m/min)	Feed f (mm/rev)	Depth of Cut ap (mm)	Cutting Mode
Structural Steel Esp. Carburized Steel High Alloy Steel	35—65 HRC	Coated	High speed finishing cutting	**BC8105**	250 (100—350)	≤0.15	≤0.2	Dry,Wet
			Continuous cutting for general purpose	**BC8210** **BC8110**	200 (100—300)	≤0.2	≤0.35	Dry,Wet
				BC8220 **BC8120**	200 (100—230)	≤0.3	≤0.8	Dry,Wet
			Medium interrupted cutting	**BC8220** **BC8120**	150 (60—200)	≤0.2	≤0.3	Dry,Wet
			Interrupted cutting	**BC8130**	120 (60—150)	≤0.2	≤0.3	Dry,Wet
		Non-coated	Continuous cutting for general purpose	**MB8110**	200 (100—250)	≤0.2	≤0.3	Dry,Wet
				MB8120	150 (80—220)	≤0.2	≤0.5	Dry,Wet
			Medium interrupted cutting	**MB8120**	130 (85—180)	≤0.2	≤0.3	Dry,Wet
			Interrupted cutting	**MB8130**	100 (60—150)	≤0.2	≤0.3	Dry,Wet

●Cast Iron

Material		Material Structure	Cutting Speed Vc (m/min)					Feed f (mm/rev)	Depth of Cut ap (mm)	Cutting Mode
			250	500	750	1000	1250			
Gray Cast Iron	**GG25**	Ferritic + Pearlitic			**MBS140**			—0.5	—1.0 MBS140/BC5110 —5.0	Dry,Wet
	GG30	Pearlitic		**BC5110**		**MB4120**				
Alloy Cast Iron		Pearlitic						—0.4	—0.5	Dry,Wet

●Sintered Alloy

Material	Recommended Grade	Recommended Cutting Conditions		
		Cutting Speed Vc (m/min)	Feed f (mm/rev)	Depth of Cut ap (mm)
General Sintered Alloy	**MB4120**	180 (80—300)	—0.2	—0.3
High Density Sintered Alloy	**MB4120**	150 (80—230)	—0.2	—0.3
Sintered Alloy	**MB4120**	130 (80—180)	—0.2	—0.3

●Valve Seat

Amount of Hard Particles	**None or Small** ◄——————————► **Large**			
Hardness of Material (HV)	150	250	300	350
Plunge Cut	**MB4120**			
Traverse Cut	**MB4120**			

●Roll

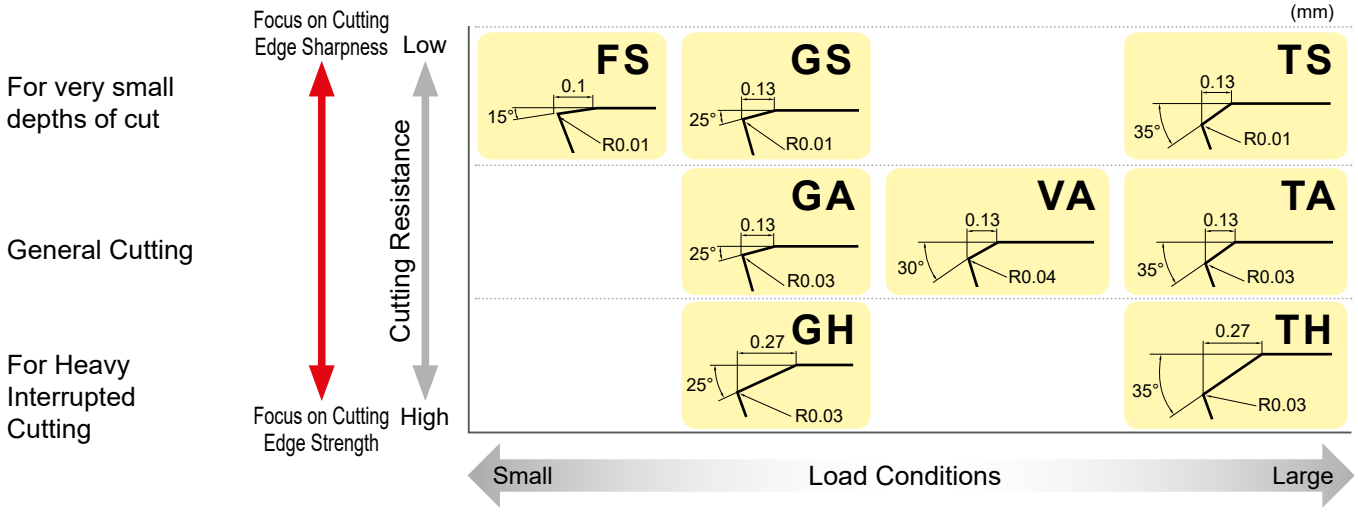
Material	Grade	Recommended Cutting Conditions		
		Cutting Speed Vc (m/min)	Feed f (mm/rev)	Depth of Cut ap (mm)
Cemented Carbide	**MB4120, MBS140**	20 (10—30)	—0.2	—0.2
	MD220 (PCD)	20 (10—30)	—0.2	—0.2

●Heat Resistant Alloy

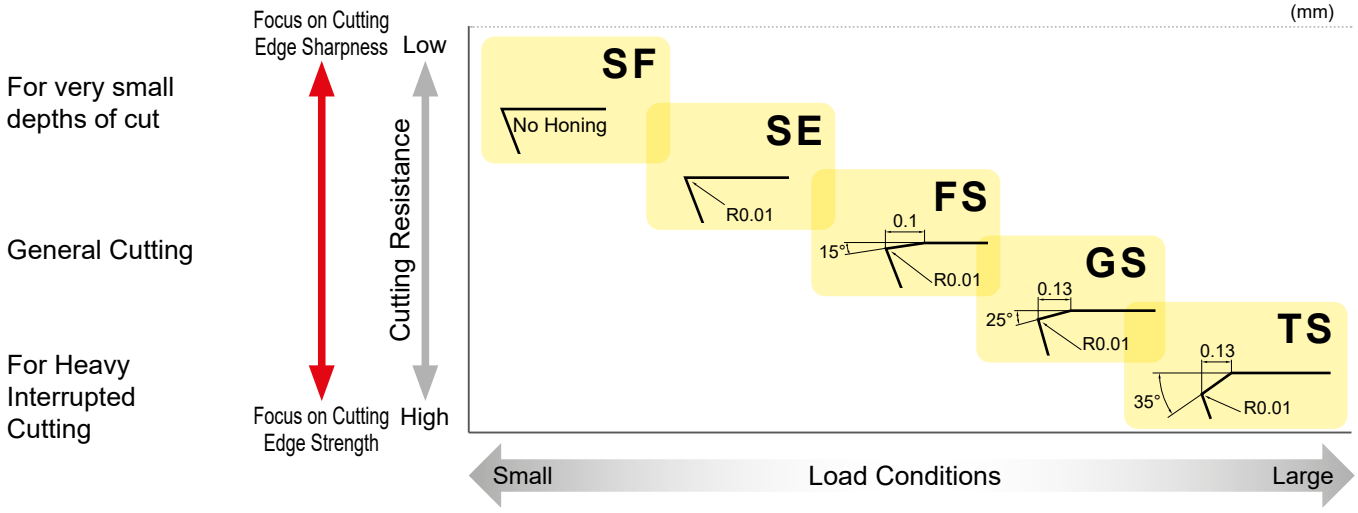
Material	Grade	Recommended Cutting Conditions		
		Cutting Speed Vc (m/min)	Feed f (mm/rev)	Depth of Cut ap (mm)
Ni Base Heat Resistant Alloy (e.g. Inconel)	**MB4120**	120 (100—150)	—0.2	—0.5
Co Base Heat Resistant Alloy (e.g. Stellite)	**MB4120**	70 (50—100)	—0.2	—0.5

HONING

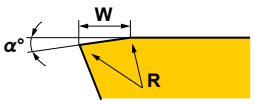
■ Honing for machining hardened steel



■ Honing for machining sintered alloys



NP-CNGA120408-GA2



Main Application — Edge Honing Type

(mm)

	A General			S Vibration and burr control			H High efficiency			F High accuracy			E Chipping control		
	α	W	R	α	W	R	α	W	R	α	W	R	α	W	R
F Continuous cutting	15°	0.1	0	15°	0.1	0.01	—	—	—	—	—	—	—	—	—
G General cutting	25°	0.13	0.03	25°	0.13	0.01	25°	0.27	0.03	—	—	—	—	—	—
V For High Speed, High Feed Cutting	30°	0.13	0.04	—	—	—	—	—	—	—	—	—	—	—	—
T Interrupted cutting	35°	0.13	0.03	35°	0.13	0.01	35°	0.27	0.03	—	—	—	—	—	—
S High precision cutting	—	—	—	—	—	—	—	—	—	0°	0	0	0°	0	0.01

Conventional honing shapes
F honing : 0.1mm×15°+R0 **G** honing : 0.13mm×25°+R0.03 **T** honing : 0.13mm×35°+R0.03

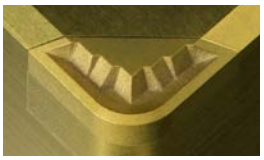
PETIT CUT INSERT SERIES

The surface area of the CBN sintered body has been optimised to allow for a lower price. In adition, tool management is easier because repolishing is not required.

PCBN CHIPBREAKER INSERT

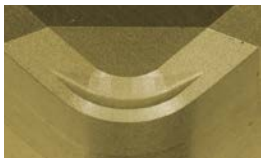
■Application Area

A BR Chipbreaker has been added to achieve better chip control at higher depths of cut.
A versatile range of chipbreakers is available for a wide range of applications.

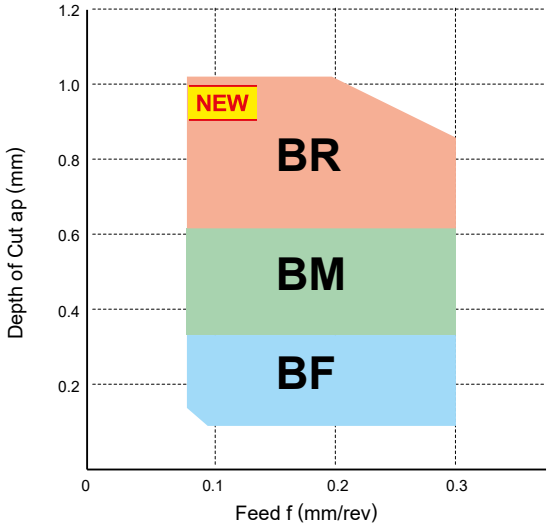


BR Chipbreaker

BM Chipbreaker



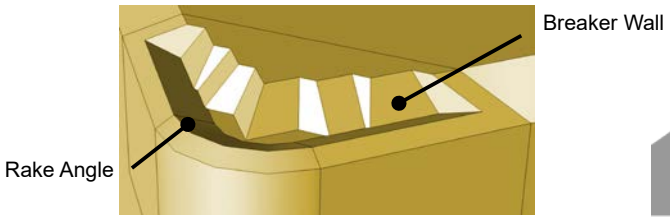
BF Chipbreaker

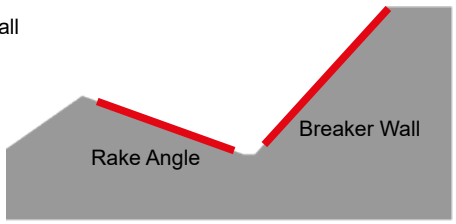


NEW BR Chipbreaker (BC8220)

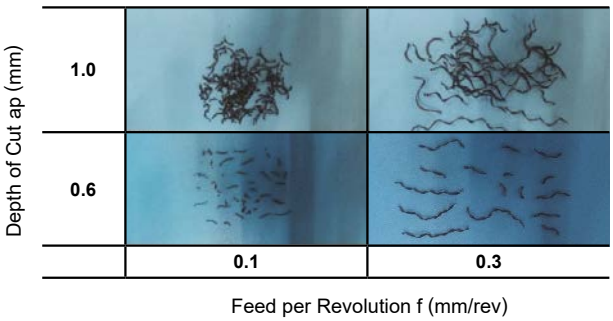
The number of passes needed is reduced and chip control during high depths of cut is also improved.
Chips are formed with the effect from the rake angle, and the multi stage breaker wall supports a wide range of cuts.

Recommended Cutting Conditions : Vc=80－200 m/min, f ≤0.3 mm/rev, ap=0.6－1.0 mm





Achieves ideal chip control even at high depths of cut.

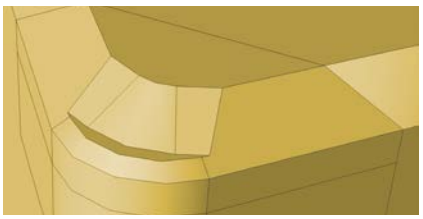


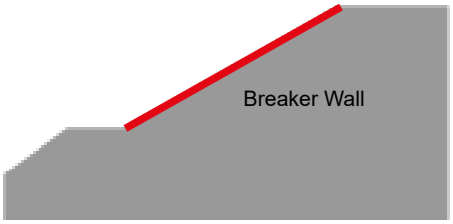
<Cutting Conditions>
Material : JIS SCr420 (60 HRC)
Inserts : BR-CNGM120408TA2
Cutting Speed : Vc=200 m/min
Feed per Rev. : f=0.1 mm/rev
0.3 mm/rev
Depth of Cut : ap=0.6 mm
1.0 mm
Cutting Mode : Wet Cutting

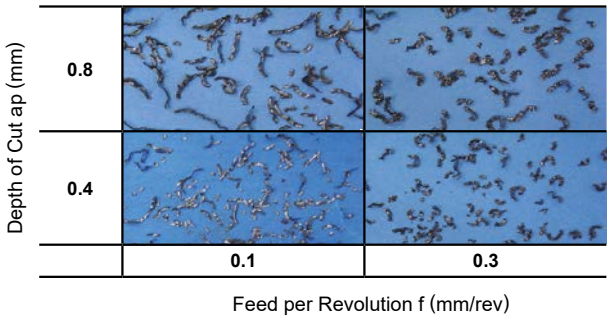
BM Chipbreaker (BC8220)

Great chip control when machining at medium depths of cut. (0.3－0.8 mm)

Recommended Cutting Conditions : Vc=80－200 m/min, f ≤0.3 mm/rev, ap=0.3－0.8 mm





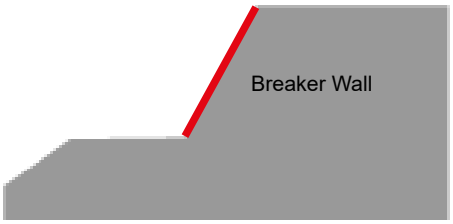


<Cutting Conditions>
Material : JIS SCM415 (60 HRC)
Inserts : BM-CNGM120408TA2
Cutting Speed : Vc=160 m/min
Feed per Rev. : f=0.1 mm/rev
0.3 mm/rev
Depth of Cut : ap=0.4 mm
0.8 mm
Cutting Mode : Wet Cutting

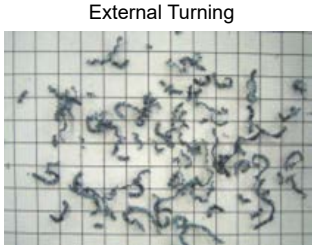
BF Chipbreaker (BC8210, BC8220)

Achieves excellent chip control while finish cutting at depths of 0.3 mm or less.

Recommended Cutting Conditions : Vc=80－200 m/min, f ≤0.3 mm/rev, ap=0.1－0.3 mm

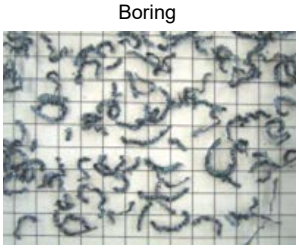


External Turning



Cutting Speed : Vc=100 m/min
Feed per Rev. : f=0.2 mm/rev
Depth of Cut : ap=0.3 mm

Boring

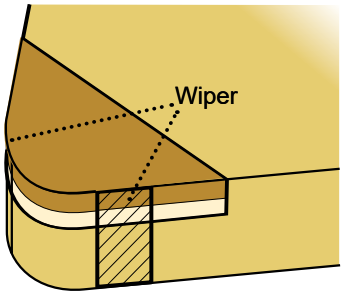


Cutting Speed : Vc=120 m/min
Feed per Rev. : f=0.2 mm/rev
Depth of Cut : ap=0.3 mm

<Cutting Conditions>
Material : JIS SCM415 (60 HRC)
Inserts : BF-CNGM120408TS2
Cutting Mode : Wet Cutting

WIPER INSERT

FEATURES



Improving Surface Finish
Under the same machining conditions as conventional chipbreakers, but with the feed rate increased, the surface finish of the material can be improved.

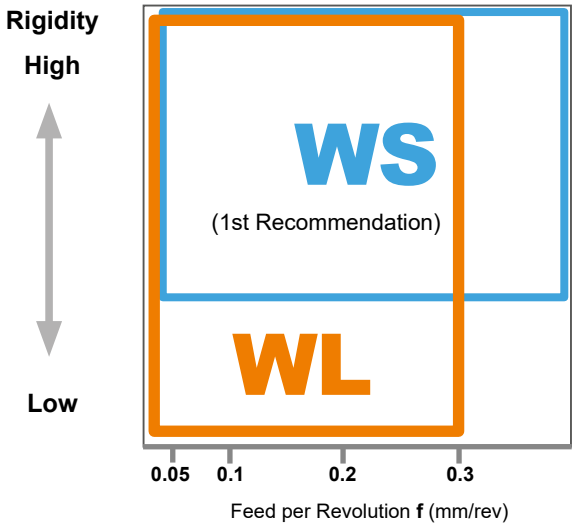
Improving Efficiency
High feed rates not only shorten machining times but also make it possible to combine roughing and finishing operations.

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

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

■ Application of Wiper Inserts

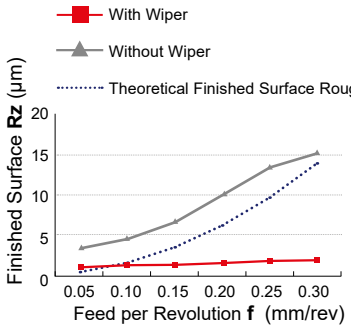
The most recommended wiper shape is the WS Wiper. If deflection or chatter occur, use the WL Wiper.



Examples of Low Rigidity:
- When overhang length is long due to boring
- When the material has a small diameter

■ Cutting Performance

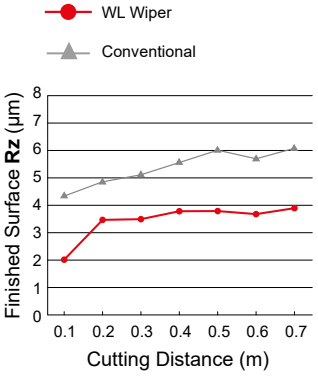
WL Wiper (External Turning)



<Cutting Conditions>

Material	: Hardened Steel (60HRC)
Insert	: NP-CNGA120408
Machining Methods	: Continuous
Cutting Speed	: Vc=120m/min
Depth of Cut	: ap=0.1mm
Cutting Mode	: Dry Cutting

WL Wiper (Boring)



<Cutting Conditions>

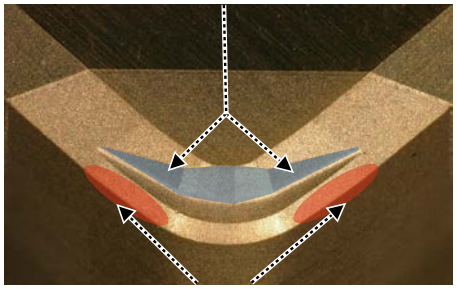
Material	: JIS SCr415 (60HRC)
Insert	: NP-CNGA120408FBWL2
Machining Methods	: Continuous
Cutting Speed	: Vc=160m/min
Feed	: f=0.3mm/rev
Depth of Cut	: ap=0.1mm
Cutting Mode	: Dry Cutting

Stable surface finish is maintained even during unstable cutting.

Combination of BF Chipbreaker and WS Wiper Insert

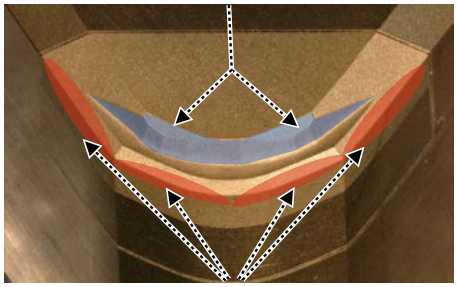
CNGM and DNGM types are now available with new inserts that combine a BF Chipbreaker with a WS wiper Insert. (BC8210 : BF-○NGM○○○○○○TSWS2, BC8220 : BF-○NGM○○○○○○TAWS2)
It is effective for chip control and improvement of finished surface roughness without worrying about the hand of the tool even when continuous external or internal turning and facing.

BF Chipbreaker



WL Wiper (No hand)
BF-CNGM120408TSWS2

BF Chipbreaker



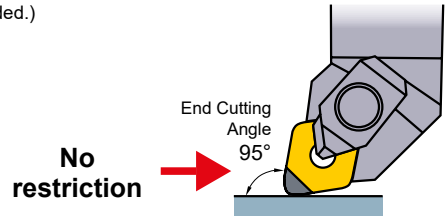
WL Wiper (No hand)
BF-DNGM150412TAWS2

■ Notes for Use

When using CNGM type

No Restriction for Holders

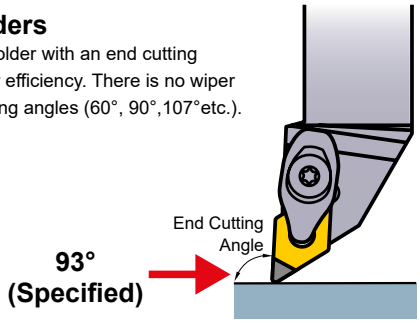
A standard holder can be used.
(A double clamp, high rigidity tool is recommended.)



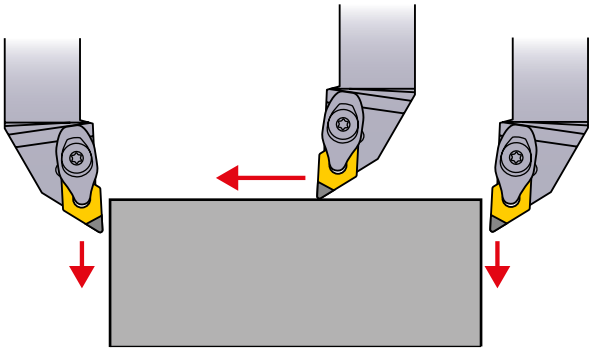
When using DNGM type

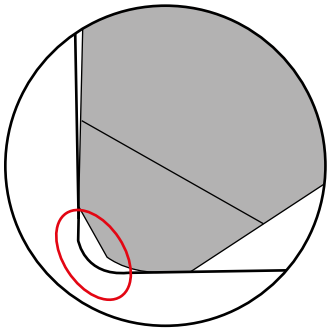
Restriction for Holders

Use PDJN holder or DDJN holder with an end cutting angle 93° for improving wiper efficiency. There is no wiper efficiency with other end cutting angles (60°, 90°,107°etc.).



Displays great wiper efficiency when machining the end face and outer diameter in both right-hand and left-hand machining.





The DNGM type is not suitable for machining the R that connects the end face and the outer diameter because it will leave uncut parts.

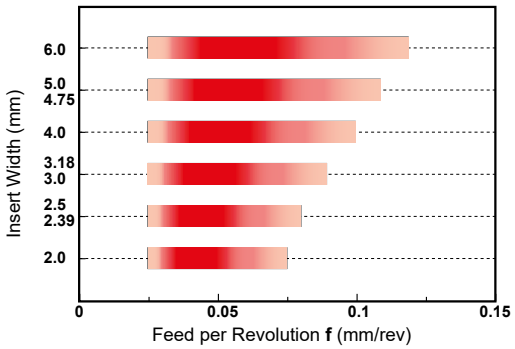
PCBN GROOVING SERIES
(GY)

BC8110 coated materials for continuous machining of hardened steel have been added to GY inserts.

GY is a grooving tool series that achieves high rigidity with the "Tri-Lock System".
(See page F004 for more details.)
BC8110 materials with excellent wear resistance have been added. Compared to conventional materials, they display excellent wear resistance to achieve long tool life. A blade width of 6 mm has also been added to the lineup of BC8110.

B

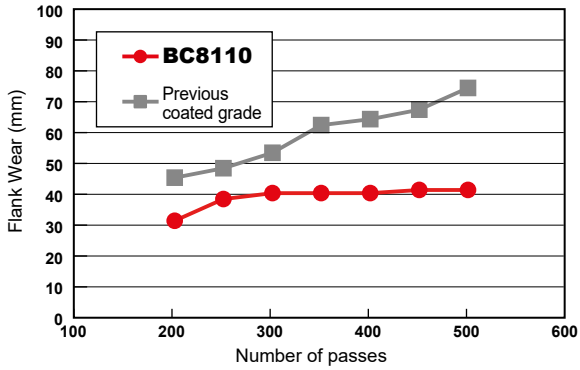
■ Recommended Cutting Conditions



Material		Hardness	Grade	Cutting Speed Vc (m/min)	Cutting Mode
H	Hardened Steel	35—65HRC	**BC8110**	100 (60—120)	Dry,Wet

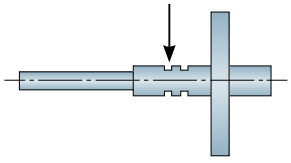
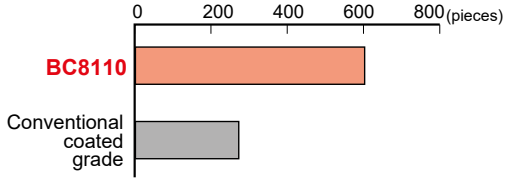
■ Cutting Performance

Tool life evaluation for the GY holder



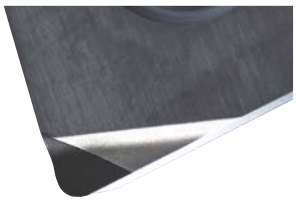
<Cutting Conditions>
Insert : GY1G0200D020N-GFGS
Material : JIS SG420 (60HRC)
Cutting Speed : Vc=120 m/min
Feed : f=0.1 mm/rev
Depth of Cut : ap=0.3 mm
Cutting Mode : Dry Cutting

■ Application Example

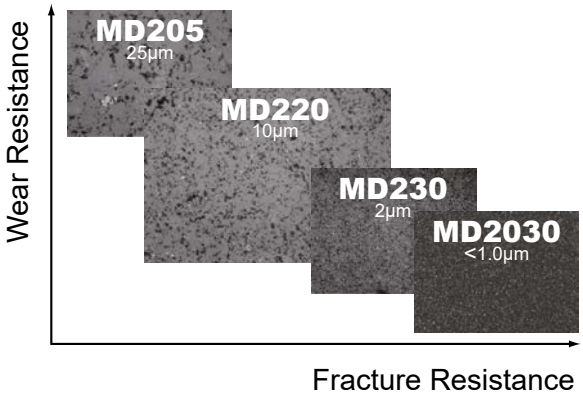
Insert		**GY1G0300F020N-GFGS** (Grade : **BC8110**)
Material		 Alloy steel (58—62HRC)
Component		Input shaft
Cutting Conditions	Cutting Speed Vc (m/min)	130
	Feed f (mm/rev)	0.1
Result		 Tool life over twice as long as conventional products

PCD (SINTERED DIAMOND)

- Suitable for materials such as aluminium alloy, non-ferrous metals and fibre strengthened plastic.
- Suitable for extremely high speed finishing.



FEATURES



Grade	Features
MD205*	**For Continuous Cutting** Coarse grain diamond particles are sintered and wear resistance is excellent. Use when wear resistance with MD220 is insufficient.
MD220	**Materials for general machining** Sintered medium grain diamond particles. Wear resistance and fracture resistance are superbly balanced. Applicable to general finishing of non-ferrous metals, non-metal cutting, and similar machining.
MD230*	**For Interrupted Cutting** Fine grain diamond particles are used. Fracture resistance and cutting edge sharpness are excellent. Use when fracture resistance and a high quality finished surface is demanded with MD220.
MD2030	**For Heavy Interrupted Cutting** Strong sintering of ultra micro-grain PCD particles provides exceptional fracture resistance.Chipping during high-speed finish milling can be controlled.

* MD205, MD230 : Non-Standard

■ SELECTION STANDARD

TURNING

Material	Recommended Grade		Recommended Cutting Conditions		
	MD205	MD220	Cutting Speed Vc (m/min)	Feed f (mm/rev)	Depth of Cut ap (mm)
Aluminium Alloy (Si ≤ 12%)		◎	800 (200—1200)	—0.2	—1.0
Aluminium Alloy (Si > 13%)	◎	○	600 (200—1000)	—0.2	—1.0
Copper Alloy		◎	700 (200—1200)	—0.2	—1.0
Strengthened Plastic		◎	600 (100—1000)	—0.4	—1.0
Glass Fibre Reinforced Plastic		◎	500 (100—800)	—0.25	—1.0
Carbon	○	◎	400 (100—600)	—0.3	—1.0
Ceramics		○	50 (30—80)	—0.1	—1.0
Hard Rubber		◎	600 (300—800)	—0.15	—1.0
Wood Inorganic Board		◎	1300 (300—4000)	—0.4	—
Cemented Carbide	◎	○	15 (5—20)	—0.2	—0.5

Note 1) ◎ : 1st recommendation. ○ : 2nd recommendation
Note 2) Not suitable for steel.

PETIT CUT INSERT SERIES

●Economical The small PCD tip delivers long tool life.

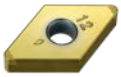
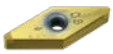
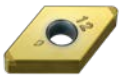
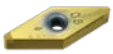
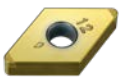
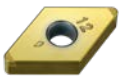
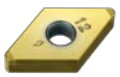
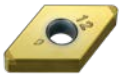
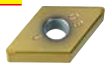
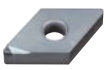
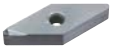
Eliminates the need for regrinding, making tool management easier and economical.

●With Chipbreaker Chipbreaker formed directly on the PCD portion delivers superior chip control.

●Corner R0.05 mm inserts are available, making it suitable for the machining of small work corner radii.

CLASSIFICATION

NEGATIVE INSERTS WITH HOLE

Product Name	Type	Tolerance	Chipbreaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°
NEW PETIT CUT	Multi-corner Type Double Sided	G	Flat Top	NP-CNGA_○4 B022	NP-DNGA_○4  B025		NP-TNGA_○6 B030	NP-VNGA_○4  B032	NP-WNGA_○6 B034
	Multi-corner Type Double Sided With Wiper		Flat Top	NP-CNGA_○W○4 B022					
	Multi-corner Type Single Sided		Flat Top	NP-CNGA_○2 B023	NP-DNGA_○2  B026	NP-SNGA_○2 B029	NP-TNGA_○3 B030	NP-VNGA_○2  B032	NP-WNGA_○3 B034
	Multi-corner Type Single Sided With Wiper		Flat Top	NP-CNGA_○W○2 B023	NP-DNGA_G○WS2J_R/L  B028				NP-WNGA_G○WS3 B034
	Multi-corner Type Single Sided With Chipbreaker		BF	BF-CNGM_○2 B024	BF-DNGM_○2  B028				
	Multi-corner Type Single Sided With Chipbreaker With Wiper		BF	BF-CNGM_○WS2 B024	BF-DNGM_○WS2  B028				
	Multi-corner Type Single Sided With Chipbreaker		BM	BM-CNGM_○2 B024	BM-DNGM_○2  B028		BM-TNGM_○3 B031		
	Multi-corner Type Single Sided With Chipbreaker		BR	BR-CNGM_○2 NEW B024	BR-DNGM_○2 NEW  B028				
	One-corner Type Single Sided With Chipbreaker	M	R-F	NP-CNMM_R-F B049	NP-DNMM_R-F  B050	NP-SNMM_R-F B050	NP-TNMM_R-F B051	NP-VNMM_R-F  B052	

NEGATIVE INSERTS WITH HOLE

Product Name	Type	Tolerance	Chipbreaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°
STANDARD	Multi-corner Type Double Sided (Solid PCBN)	G	Flat Top	CNGA B024		SNGA B029	TNGA B031		
	One-corner Type Single Sided	M	Flat Top	CNMA B049					
	One-corner Type Single Sided	G	Flat Top		DNGA B050		TNGA B051	VNGA B052	

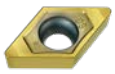
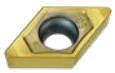
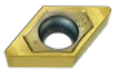
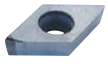
5° POSITIVE INSERTS WITH HOLE

Product Name	Type	Tolerance	Chipbreaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°
NEW PETIT CUT	Multi-corner Type	G	Flat Top					NP-VBGW_○2 B045	
	One-corner Type With Chipbreaker		R-F					NP-VBGT_R-F B057	

B

CLASSIFICATION

7° POSITIVE INSERTS WITH HOLE

Product Name	Type	Tolerance	Chipbreaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°
NEW PETIT CUT	Multi-corner Type	G	Flat Top	NP-CCGW/B_○2 B037	NP-DCGW_○2  B040		NP-TCGW_○3 B042	NP-VCGW_○2 B046	
	Multi-corner Type With Wiper		Flat Top	NP-CCGW_○W○2 B038					
	Multi-corner Type With Chipbreaker		BF	BF-CCGT_○2 B038	BF-DCGT_○2  B041				
	Multi-corner Type With Chipbreaker		BM	BM-CCGT_○2 B038	BM-DCGT_○2  B041				
	One-corner Type With Chipbreaker	M	Breaker	NP-CCMH B053					
	One-corner Type	G	Flat Top	NP-CCGW_○ B038					
	One-corner Type	M	Flat Top	NP-CCMW B053					
	One-corner Type With Chipbreaker		R/L-F		NP-DCMT_R/L-F  B054				
	One-corner Type With Chipbreaker	G	R-F					NP-VCGT_R-F B057	
STANDARD	One-corner Type	M G	Flat Top	CCMW B053	DCMW B054		TCMW TCGW B055	VCGW B057	WCMW B058

11° POSITIVE INSERTS WITH HOLE

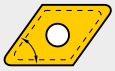
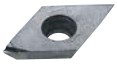
Product Name	Type	Tolerance	Chipbreaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Rhombic 35°	Trigon 80°
NEW PETIT CUT	Multi-corner Type	G	Flat Top	NP-CPGB_○2 B039			NP-TPGB_○3 B043		
NEW PETIT CUT	One-corner Type With Chipbreaker	M	Breaker	NP-CPMH B053					
NEW PETIT CUT	One-corner Type With Chipbreaker	M	R/L-F				NP-TPMX_R/L-F B056		
NEW PETIT CUT	One-corner Type With Chipbreaker	M	R/L-F				NP-TPMH_R/L-F B056		
STANDARD	One-corner Type With Chipbreaker	G	Breaker	CPGT B053					WPGT B058
STANDARD	One-corner Type	G	Flat Top			SPGX B054	TPGX B056		

CLASSIFICATION

15° POSITIVE INSERTS WITH HOLE

Type	Tolerance	Chipbreaker Name and Cross Section	Rhombic 35°	
One-corner Type (For Aluminium With Chipbreaker)	G	**R-F**	**VDGX_R-F** ➔ B060	

20° POSITIVE INSERTS WITH HOLE

Type	Tolerance	Chipbreaker Name and Cross Section	Rhombic 55° 	Triangular 60°
One-corner Type (For Aluminium With Chipbreaker)	G	**R/L**		**TEGX_R/L** ➔ B059
One-corner Type (For Aluminium With Chipbreaker)		**R/L-F**	**DEGX_R/L-F**  ➔ B059	
One-corner Type (For Aluminium)		**Flat Top**		**TEGX** ➔ B059

NEGATIVE INSERTS WITHOUT HOLE

Type	Tolerance	Chipbreaker Name and Cross Section	Rhombic 80°	Rhombic 55°	Square 90°	Triangular 60°	Round
Multi-corner Type Double Sided (Solid PCBN)	G	**Flat Top**	**CNGN** **B035**	**DNGN** **B035**	**SNGN** **B036**	**TNGN** **B036**	**RNGN** **B035**

SPECIAL PURPOSE INSERTS

Tool Holder Type	Tolerance	Inserts
GY Type	G	**GY_GFGS** **B048**

11° POSITIVE INSERTS WITHOUT HOLE

Type	Tolerance	Chipbreaker Name and Cross Section	Square 90°	Triangular 60°
Multi-corner Type	G	**Flat Top**	**NP-SPGN_○2** **B047**	
One-corner Type	G	**Flat Top**	**SPGN** **B061**	**TPGN** **B061**

B

80° CN TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN				Solid PCBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-CNGA120404GS4	●		●	●									12.7	4.76	0.4	1.8	5.16	EPSR 80° RE LE D1 IC S	C008 C009 E015 E039 H006 −008
	NP-CNGA120408GS4	●		●	●									12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412GS4	●		●	●									12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404GA4		●			●	●		★					12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408GA4		●			●	●		★					12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412GA4		●			●	●		★					12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404GH4	★	★		★	★	●							12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408GH4	★	★		★	★	●							12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412GH4	●	★		★	★	●							12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404VA4		●											12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408VA4		●											12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412VA4		●											12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404FS4	★		●	★	★			★					12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408FS4	★		●	★	★			★					12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412FS4	★		●	★	★			★					12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404TS4	★			★									12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408TS4	★			★									12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412TS4	★			★									12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404TA4		★			★	●		★	★				12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408TA4		●			●	●		★	★				12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412TA4		★			★	●		★	★				12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404TH4					★	●			★				12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408TH4		★			★	●			★				12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412TH4		★			★	●			★				12.7	4.76	1.2	2.2	5.16		
NEW PETIT CUT (With Wiper*)	NP-CNGA120404GSWS4	●		●	●									12.7	4.76	0.4	1.8	5.16	EPSR 80° RE LE D1 IC S	C008 C009 E015 E039 H006 −008
	NP-CNGA120408GSWS4	●		●	●									12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412GSWS4	●		●	●									12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404GAWS4		●			●	●		★					12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408GAWS4		●			●	●		★					12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412GAWS4		●			●	●		★					12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404FSWS4	●		★	★	★			★					12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408FSWS4	●		★	★	★			★					12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412FSWS4	●		★	★	★			★					12.7	4.76	1.2	2.2	5.16		

* Please refer to B012 before using wiper inserts.

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

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN				Solid PCBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-CNGA120402GS2	★			★									12.7	4.76	0.2	1.7	5.16	EPSR 80° RE LE D1 IC S	C008 C009 E015 E039 H006 −008
	NP-CNGA120404GS2	●		●	●			★				●		12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408GS2	●		●	●			★				●		12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412GS2	●		●	●			★				★		12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120402GA2		★			★				★				12.7	4.76	0.2	1.7	5.16		
	NP-CNGA120404GA2		●			●	●			●				12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408GA2		●			●	●			●				12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412GA2		●			●	●			●				12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404GH2	★	★		★	★	●							12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408GH2	★	★		★	★	●							12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412GH2	●	★		●	★	●							12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404VA2		●											12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408VA2		●											12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412VA2		●											12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120402FS2	★			★				★					12.7	4.76	0.2	1.7	5.16		
	NP-CNGA120404FS2	●		●	●	●		●	●			●		12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408FS2	●		●	●	●		●	●			●		12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412FS2	●		●	●	●		●	★			●		12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404TS2	●			●							★		12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408TS2	●			●							●		12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412TS2	●			●							★		12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404TA2		●			●	●			★	●			12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408TA2		●			●	●			★	●			12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412TA2		●			●	●			★	●			12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404TH2					★	●				●			12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408TH2		★			★	●				●			12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412TH2		★			★	●				●			12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404SF2											★		12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408SF2											●		12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412SF2											★		12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404SE2											★		12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408SE2											●		12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412SE2											★		12.7	4.76	1.2	2.2	5.16		
NEW PETIT CUT (With Wiper*)	NP-CNGA120404GSWS2	●		●	★									12.7	4.76	0.4	1.8	5.16	EPSR 80° RE LE D1 IC S	C008 C009 E015 E039 H006 −008
	NP-CNGA120408GSWS2	●		●	●									12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412GSWS2	●		●	★									12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404GAWS2		●			●	●			★				12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408GAWS2		●			●	●			★				12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412GAWS2		●			●	●			★				12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404GBWL2			★	★	★				★				12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408GBWL2			★	★	★				★				12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412GBWL2			★	★	★				★				12.7	4.76	1.2	2.2	5.16		

* Please refer to B012 before using wiper inserts.

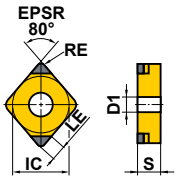
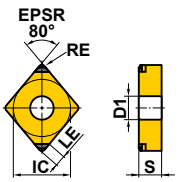
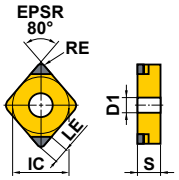
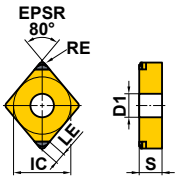
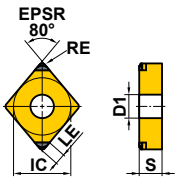
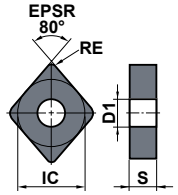
PCBN
B
PCBN TURNING INSERTS
NEG
WITH HOLE
C
D
R
S
T
V
W

GRADES ➤ B004
IDENTIFICATION ➤ B002

80° CN TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN				Solid PCBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT (With Wiper*)	NP-CNGA120404FSWS2	●		★	★	★			★					12.7	4.76	0.4	1.8	5.16		C008 C009 E015 E039 H006 −008
	NP-CNGA120408FSWS2	●		●	●	★			★					12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412FSWS2	●		★	★	★			★					12.7	4.76	1.2	2.2	5.16		
	NP-CNGA120404FBWL2			★	★	★			★					12.7	4.76	0.4	1.8	5.16		
	NP-CNGA120408FBWL2			●	★	★			★					12.7	4.76	0.8	2.0	5.16		
	NP-CNGA120412FBWL2			★	★	★			★					12.7	4.76	1.2	2.2	5.16		
NEW PETIT CUT (With Chipbreaker)	BF-CNGM120404TS2	●			●									12.7	4.76	0.4	1.8	5.16		C008 C009 E015 E039 H006 −008
	BF-CNGM120408TS2	●			●									12.7	4.76	0.8	2.0	5.16		
	BF-CNGM120412TS2	●			●									12.7	4.76	1.2	2.2	5.16		
NEW PETIT CUT (With Wiper*)	BF-CNGM120408TSWS2	●												12.7	4.76	0.8	2.0	5.16		C008 C009 E015 E039 H006 −008
	BF-CNGM120412TSWS2	●												12.7	4.76	1.2	2.2	5.16		
	BF-CNGM120408TAWS2		●											12.7	4.76	0.8	2.0	5.16		
	BF-CNGM120412TAWS2		●											12.7	4.76	1.2	2.2	5.16		
NEW PETIT CUT (With Chipbreaker)	BM-CNGM120404TA2		●			●								12.7	4.76	0.4	1.8	5.16		C008 C009 E015 E039 H006 −008
	BM-CNGM120408TA2		●			●								12.7	4.76	0.8	2.0	5.16		
	BM-CNGM120412TA2		●			●								12.7	4.76	1.2	2.2	5.16		
NEW PETIT CUT NEW (With Chipbreaker)	BR-CNGM120404TA2		●											12.7	4.76	0.4	1.8	5.16		C008 C009 E015 E039 H006 −008
	BR-CNGM120408TA2		●											12.7	4.76	0.8	2.0	5.16		
	BR-CNGM120412TA2		●											12.7	4.76	1.2	2.2	5.16		
	CNGA120408												★	12.7	4.76	0.8	—	5.16		C008 C009 E015 E039 H006 −008
	CNGA120412												★	12.7	4.76	1.2	—	5.16		

* Please refer to B012 before using wiper inserts.

● = NEW

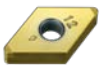
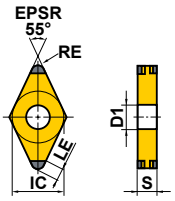
● : Inventory maintained. ★ : Inventory maintained in Japan.

55° DN TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

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

Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN						PCBN				Solid PCBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-DNGA150404GS4	★		★	★									12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408GS4	★		★	★									12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412GS4	★		★	★									12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604GS4	●		●	●									12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608GS4	●		●	●									12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612GS4	●		●	●									12.7	6.35	1.2	1.8	5.16		
	NP-DNGA150404GA4		★			★	★			★				12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408GA4		★			★	★			★				12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412GA4		★			★	★			★				12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604GA4		●			●	●			★				12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608GA4		●			●	●			★				12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612GA4		●			●	●			★				12.7	6.35	1.2	1.8	5.16		
	NP-DNGA150404GH4	★	★		★	★	★							12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408GH4	★	★		★	★	★							12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412GH4	★	★		★	★	★							12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604GH4	★	★		★	★	●							12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608GH4	★	★		★	★	●							12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612GH4	★	★		★	★	●							12.7	6.35	1.2	1.8	5.16		C010 C011 E015 E039 –041 H009 –011
	NP-DNGA150404VA4		★											12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408VA4		★											12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412VA4		★											12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604VA4		★											12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608VA4		★											12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612VA4		★											12.7	6.35	1.2	1.8	5.16		
	NP-DNGA150404FS4	★		★	★	★			★					12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408FS4	★		★	★	★			★					12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412FS4	★		★	★	★			★					12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604FS4	★		●	★				★					12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608FS4	★		●	★				★					12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612FS4	★		●	★				★					12.7	6.35	1.2	1.8	5.16		
	NP-DNGA150404TS4	★			★									12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408TS4	★			★									12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412TS4	★			★									12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604TS4	★			★									12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608TS4	★			★									12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612TS4	★			★									12.7	6.35	1.2	1.8	5.16		

GRADES ➤ B004
IDENTIFICATION ➤ B002

55° DN TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

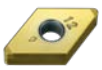
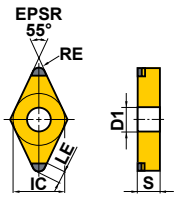
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN					Solid PCBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140		IC	S	RE	LE	D1		
NEW PETIT CUT	NP-DNGA150404TA4		★			★	★			★	★				12.7	4.76	0.4	2.1	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E015 E039 −041 H009 −011
	NP-DNGA150408TA4		★			★	★			★	★				12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412TA4		★			★	★			★	★				12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604TA4		★			★	●			★					12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608TA4		★			★	●			★					12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612TA4		★			★	●			★					12.7	6.35	1.2	1.8	5.16		
	NP-DNGA150404TH4					★	★				★				12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408TH4		★			★	★				★				12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412TH4		★			★	★				★				12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604TH4					★	★								12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608TH4		★			★	★								12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612TH4		★			★	★								12.7	6.35	1.2	1.8	5.16		
NEW PETIT CUT	NP-DNGA150402GS2	★			★										12.7	4.76	0.2	2.2	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E015 E039 −041 H009 −011
	NP-DNGA150404GS2	★		★	★			★				★			12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408GS2	★		★	★			★				★			12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412GS2	★		★	★							★			12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604GS2	●		●	●							★			12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608GS2	●		●	●			★				●			12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612GS2	●		●	●							★			12.7	6.35	1.2	1.8	5.16		
	NP-DNGA110408GA2		●			●	●			●					9.525	4.76	0.8	2.0	3.81		
	NP-DNGA150402GA2		★			★									12.7	4.76	0.2	2.2	5.16		
	NP-DNGA150404GA2		★			★	★			★					12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408GA2		★			★	★			★					12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412GA2		★			★	★			★					12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150602GA2					★									12.7	6.35	0.2	2.2	5.16		
	NP-DNGA150604GA2		●			●	●			●					12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608GA2		●			●	●			●					12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612GA2		●			●	●			●					12.7	6.35	1.2	1.8	5.16		
	NP-DNGA150404GH2	★	★		★	★	★								12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408GH2	★	★		★	★	★								12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412GH2	★	★		★	★	★								12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604GH2	★	★		★	★	●								12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608GH2	★	★		★	★	●								12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612GH2	★	★		★	★	●								12.7	6.35	1.2	1.8	5.16		

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

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN						PCBN				Solid PCBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-DNGA150404VA2		★											12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408VA2		★											12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412VA2		★											12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604VA2		●											12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608VA2		●											12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612VA2		●											12.7	6.35	1.2	1.8	5.16		
	NP-DNGA150402FS2	★			★				★					12.7	4.76	0.2	2.2	5.16		
	NP-DNGA150404FS2	★		★	★	★		★	★			★		12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408FS2	★		★	★	★		★	★			★		12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412FS2	★		★	★	★			★			★		12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604FS2	●		●	●	●		★	★			●		12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608FS2	●		●	●	●		★	★			●		12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612FS2	●		●	●	●			●			●		12.7	6.35	1.2	1.8	5.16		
	NP-DNGA150404TS2	★			★							★		12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408TS2	★			★							★		12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412TS2	★			★							★		12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604TS2	●			●							★		12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608TS2	●			●							★		12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612TS2	●			●							★		12.7	6.35	1.2	1.8	5.16		
	NP-DNGA150404TA2		★			★	★			★	●			12.7	4.76	0.4	2.1	5.16		C010 C011 E015 E039 −041 H009 −011
	NP-DNGA150408TA2		★			★	★			★	●			12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412TA2		★			★	★			★	★			12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604TA2		●			●	●			★				12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608TA2		●			●	●			●				12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612TA2		●			●	●			★				12.7	6.35	1.2	1.8	5.16		
	NP-DNGA150404TH2					★	★				★			12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408TH2		★			★	★				★			12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412TH2		★			★	★				★			12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604TH2					★	★							12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608TH2		★			★	★							12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612TH2		★			★	★							12.7	6.35	1.2	1.8	5.16		
	NP-DNGA150404SF2											★		12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408SF2											★		12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412SF2											★		12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604SF2											★		12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608SF2											★		12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612SF2											★		12.7	6.35	1.2	1.8	5.16		
	NP-DNGA150404SE2											★		12.7	4.76	0.4	2.1	5.16		
	NP-DNGA150408SE2											★		12.7	4.76	0.8	2.0	5.16		
	NP-DNGA150412SE2											★		12.7	4.76	1.2	1.8	5.16		
	NP-DNGA150604SE2											★		12.7	6.35	0.4	2.1	5.16		
	NP-DNGA150608SE2											★		12.7	6.35	0.8	2.0	5.16		
	NP-DNGA150612SE2											★		12.7	6.35	1.2	1.8	5.16		

GRADES ➤ B004
IDENTIFICATION ➤ B002

55° DN TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN					Solid PCBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MB4130	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT (With Wiper✶)	NP-DNGA150404GSWS2JR	★													12.7	4.76	0.4	1.8	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E015 E039 −041 H009 −011
	NP-DNGA150404GSWS2JL	★													12.7	4.76	0.4	1.8	5.16		
	NP-DNGA150408GSWS2JR	★													12.7	4.76	0.8	1.7	5.16		
	NP-DNGA150408GSWS2JL	★													12.7	4.76	0.8	1.7	5.16		
	NP-DNGA150604GSWS2JR	●													12.7	6.35	0.4	1.8	5.16		
	NP-DNGA150604GSWS2JL	●													12.7	6.35	0.4	1.8	5.16		
	NP-DNGA150608GSWS2JR	●													12.7	6.35	0.8	1.7	5.16		
	NP-DNGA150608GSWS2JL	●													12.7	6.35	0.8	1.7	5.16		
	NP-DNGA150404GAWS2JR		★		★					★					12.7	4.76	0.4	1.8	5.16		
	NP-DNGA150404GAWS2JL		★		★					★					12.7	4.76	0.4	1.8	5.16		
	NP-DNGA150408GAWS2JR		★		★					★					12.7	4.76	0.8	1.7	5.16		
	NP-DNGA150408GAWS2JL		★		★					★					12.7	4.76	0.8	1.7	5.16		
	NP-DNGA150604GAWS2JR		●		●					★					12.7	6.35	0.4	1.8	5.16		
	NP-DNGA150604GAWS2JL		●		●					★					12.7	6.35	0.4	1.8	5.16		
	NP-DNGA150608GAWS2JR		●		●					★					12.7	6.35	0.8	1.7	5.16		
	NP-DNGA150608GAWS2JL		●		●					★					12.7	6.35	0.8	1.7	5.16	Right hand insert shown.	
NEW PETIT CUT (With Chipbreaker)	BF-DNGM150404TS2	★			●										12.7	4.76	0.4	2.1	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E015 E039 −041 H009 −011
	BF-DNGM150408TS2	★			●										12.7	4.76	0.8	2.0	5.16		
	BF-DNGM150412TS2	★			●										12.7	4.76	1.2	1.8	5.16		
NEW PETIT CUT (With Wiper✶) (With Chipbreaker)	BF-DNGM150408TSWS2	★													12.7	4.76	0.8	2.4	5.16	55° EPSR RE LE IC D1 S	C010 C011 E015 E039 −041 H009 −011
	BF-DNGM150412TSWS2	★													12.7	4.76	1.2	2.6	5.16		
	BF-DNGM150408TAWS2		●												12.7	4.76	0.8	2.4	5.16		
	BF-DNGM150412TAWS2		●												12.7	4.76	1.2	2.6	5.16		
NEW PETIT CUT (With Chipbreaker)	BM-DNGM150404TA2		★		★										12.7	4.76	0.4	2.1	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E015 E039 −041 H009 −011
	BM-DNGM150408TA2		★		★										12.7	4.76	0.8	2.0	5.16		
	BM-DNGM150412TA2		★		★										12.7	4.76	1.2	1.8	5.16		
	BM-DNGM150604TA2				●										12.7	6.35	0.4	2.1	5.16		
	BM-DNGM150608TA2				●										12.7	6.35	0.8	2.0	5.16		
	BM-DNGM150612TA2				●										12.7	6.35	1.2	1.8	5.16		
NEW PETIT CUT NEW (With Chipbreaker)	BR-DNGM150404TA2		★												12.7	4.76	0.4	2.1	5.16	EPSR 55° RE LE IC D1 S	C010 C011 E015 E039 −041 H009 −011
	BR-DNGM150408TA2		★												12.7	4.76	0.8	2.0	5.16		
	BR-DNGM150412TA2		●												12.7	4.76	1.2	1.8	5.16		
	BR-DNGM150604TA2		●												12.7	6.35	0.4	2.1	5.16		
	BR-DNGM150608TA2		●												12.7	6.35	0.8	2.0	5.16		
	BR-DNGM150612TA2		●												12.7	6.35	1.2	1.8	5.16		

* Please refer to B012 before using wiper inserts.

● = NEW

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

90° SN TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN				Solid PCBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-SNGA120404GS2											★		12.7	4.76	0.4	2.0	5.16	EPSR 90° RE LE D1 IC S	C012 −015 E016 E038
	NP-SNGA120408GS2							★				●		12.7	4.76	0.8	2.2	5.16		
	NP-SNGA120412GS2											★		12.7	4.76	1.2	2.5	5.16		
	NP-SNGA120408GA2		●			●	★			★				12.7	4.76	0.8	2.2	5.16		
	NP-SNGA120412GA2		★			★	★			★				12.7	4.76	1.2	2.5	5.16		
	NP-SNGA120404FS2											★		12.7	4.76	0.4	2.0	5.16		
	NP-SNGA120408FS2											●		12.7	4.76	0.8	2.2	5.16		
	NP-SNGA120412FS2											●		12.7	4.76	1.2	2.5	5.16		
	NP-SNGA120404TS2											★		12.7	4.76	0.4	2.0	5.16		
	NP-SNGA120408TS2											★		12.7	4.76	0.8	2.2	5.16		
	NP-SNGA120412TS2											★		12.7	4.76	1.2	2.5	5.16		
	NP-SNGA120404SF2											★		12.7	4.76	0.4	2.0	5.16		
	NP-SNGA120408SF2											★		12.7	4.76	0.8	2.2	5.16		
	NP-SNGA120412SF2											★		12.7	4.76	1.2	2.5	5.16		
	NP-SNGA120404SE2											★		12.7	4.76	0.4	2.0	5.16		
	NP-SNGA120408SE2											★		12.7	4.76	0.8	2.2	5.16		
	NP-SNGA120412SE2											★		12.7	4.76	1.2	2.5	5.16		
	SNGA120408												★	12.7	4.76	0.8	—	5.16	EPSR 90° RE D1 IC S	C012 −015 E016 E038
	SNGA120412												★	12.7	4.76	1.2	—	5.16		

GRADES ➤ B004
IDENTIFICATION ➤ B002

60° TN TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

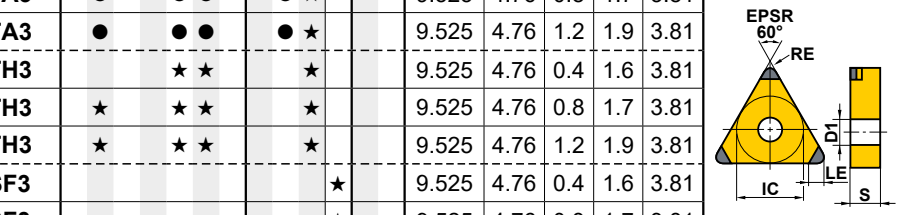
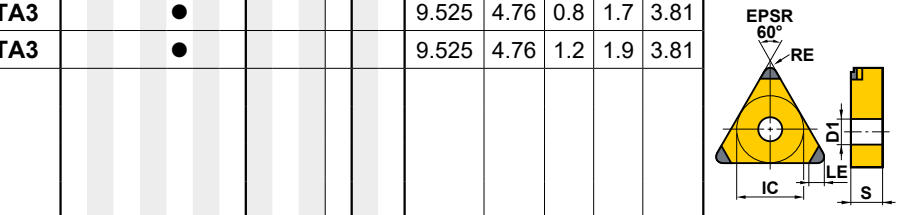
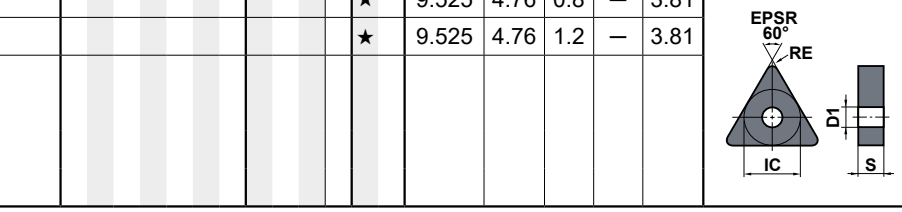
Cutting Conditions (Guide) :
●: Stable Cutting ◐: General Cutting ✣: Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN						PCBN				Solid PCBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-TNGA160404GS6	●		●	●									9.525	4.76	0.4	1.6	3.81	EPSR 60° RE D1 LE IC S	C016 −018 E016 E038
	NP-TNGA160408GS6	●		●	●									9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412GS6	●		●	●									9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404GA6		●			●	●		★					9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408GA6		●			●	●		★					9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412GA6		●			●	●		★					9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404GH6		★		★	★	★							9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408GH6		★		★	★	★							9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412GH6		★		★	★	★							9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404VA6		★											9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408VA6		★											9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412VA6		★											9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404FS6	★		●	★	★			★					9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408FS6	★		●	★	★			★					9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412FS6	★		●	★	★			★					9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404TS6	★			★									9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408TS6	★			★									9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412TS6	★			★									9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404TA6		★			★	●			★	★			9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408TA6		★			★	●			★	★			9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412TA6		★			★	●			★	★			9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404TH6					★	★				★			9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408TH6		★			★	●				★			9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412TH6		★			★	●				★			9.525	4.76	1.2	1.9	3.81		
NEW PETIT CUT	NP-TNGA160402GS3	★			★									9.525	4.76	0.2	1.5	3.81	EPSR 60° RE D1 LE IC S	C016 −018 E016 E038
	NP-TNGA160404GS3	★		●	★			★				★		9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408GS3	★		●	★			★				●		9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412GS3	★		●	★			★				★		9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160402GA3		★			★				★				9.525	4.76	0.2	1.5	3.81		
	NP-TNGA160404GA3		●			●	●			★				9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408GA3		●			●	●			●				9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412GA3		★			★	●			★				9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404GH3		★		★	★	●							9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408GH3		★		★	★	●							9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412GH3		★		★	★	●							9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404VA3		★											9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408VA3		●											9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412VA3		★											9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160402FS3	★			★				★					9.525	4.76	0.2	1.5	3.81		
	NP-TNGA160404FS3	●		●	●	●		★	★			●		9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408FS3	●		●	●	●		★	★			★		9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412FS3	●		●	●	●		★	★			★		9.525	4.76	1.2	1.9	3.81		

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

Material			Coated PCBN						PCBN				Solid PCBN	Dimensions (mm)					Geometry	Applicable Holder Page
			BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE	D1		
	H	Hardened Materials	●	◐	●	●	◐	✣		●	◐	✣									
	K	Cast Iron							●				◐	✣							
	S	Heat-resistant Alloy, Titanium Alloy																			
		Sintered Alloy											◐								

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number																			
NEW PETIT CUT	NP-TNGA160404TS3	●		●								★		9.525	4.76	0.4	1.6	3.81		C016 –018 E016 E038
	NP-TNGA160408TS3	●		●								★		9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412TS3	●		●								★		9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404TA3		●			●	●			●	●			9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408TA3		●			●	●			●	★			9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412TA3		●			●	●			●	★			9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404TH3					★	★				★			9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408TH3		★			★	★				★			9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412TH3		★			★	★				★			9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404SF3											★		9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408SF3											★		9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412SF3											★		9.525	4.76	1.2	1.9	3.81		
	NP-TNGA160404SE3											★		9.525	4.76	0.4	1.6	3.81		
	NP-TNGA160408SE3											★		9.525	4.76	0.8	1.7	3.81		
	NP-TNGA160412SE3											★		9.525	4.76	1.2	1.9	3.81		
NEW PETIT CUT	BM-TNGM160408TA3						●							9.525	4.76	0.8	1.7	3.81		C016 –018 E016 E038
(With Chipbreaker)	BM-TNGM160412TA3						●							9.525	4.76	1.2	1.9	3.81		
	TNGA160408												★	9.525	4.76	0.8	—	3.81		C016 –018 E016 E038
	TNGA160412												★	9.525	4.76	1.2	—	3.81		

35° VN TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN				Solid PCBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-VNGA160404GS4	★		●	★									9.525	4.76	0.4	2.5	3.81	EPSR 35° RE LE IC D1 S	C019 −021 E017
	NP-VNGA160408GS4	●		●	●									9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412GS4	★			★									9.525	4.76	1.2	1.5	3.81		
	NP-VNGA160404GA4		●			●	●			★				9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408GA4		●			●	●			★				9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412GA4		●			●	●			★				9.525	4.76	1.2	1.5	3.81		
	NP-VNGA160404GH4		★		★	★	★							9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408GH4		★		★	★	★							9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412GH4				★	★	★							9.525	4.76	1.2	1.5	3.81		
	NP-VNGA160404VA4		★											9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408VA4		★											9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412VA4		★											9.525	4.76	1.2	1.5	3.81		
	NP-VNGA160404FS4	★		●	★	★			★					9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408FS4	★		●	★	★			★					9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412FS4					★								9.525	4.76	1.2	1.5	3.81		
	NP-VNGA160404TS4	★			★									9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408TS4	★			★									9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160404TA4		★			★	●			★				9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408TA4		★			★	●			★				9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412TA4					★	●			★				9.525	4.76	1.2	1.5	3.81		
	NP-VNGA160404TH4		★			★	★							9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408TH4		★			★	★							9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412TH4					★	★							9.525	4.76	1.2	1.5	3.81		
NEW PETIT CUT	NP-VNGA160402GS2	★			★									9.525	4.76	0.2	2.5	3.81	EPSR 35° RE LE IC D1 S	C019 −021 E017
	NP-VNGA160404GS2	●		●	●			★				★		9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408GS2	●		●	●			★				★		9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412GS2	★			★									9.525	4.76	1.2	1.5	3.81		
	NP-VNGA160402GA2		●			●				★				9.525	4.76	0.2	2.5	3.81		
	NP-VNGA160404GA2		●			●	●			●				9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408GA2		●			●	●			●				9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412GA2		★			★	★			★				9.525	4.76	1.2	1.5	3.81		
	NP-VNGA160404GH2		★		★	★	★							9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408GH2		★		★	★	★							9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412GH2				★	★	★							9.525	4.76	1.2	1.5	3.81		
	NP-VNGA160404VA2		●											9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408VA2		●											9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412VA2		★											9.525	4.76	1.2	1.5	3.81		
	NP-VNGA160402FS2	★			★				★					9.525	4.76	0.2	2.5	3.81		
	NP-VNGA160404FS2	★		●	★	●		★	★			★		9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408FS2	★		●	★	●		★	★			●		9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412FS2					★								9.525	4.76	1.2	1.5	3.81		

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

Material			Coated PCBN							PCBN				Solid PCBN	Dimensions (mm)					Geometry	Applicable Holder Page
			BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE	D1		
	H	Hardened Materials	●	◐	●	●	◐	✣	●	●	◐	✣	◐	✣							
	K	Cast Iron																			
	S	Heat-resistant Alloy, Titanium Alloy																			
		Sintered Alloy											◐								

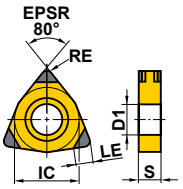
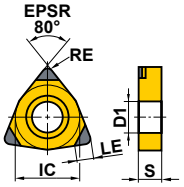
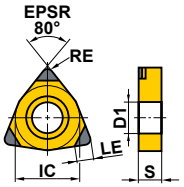
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number																				
NEW PETIT CUT	NP-VNGA160404TS2	★			★							★		9.525	4.76	0.4	2.5	3.81	EPSR 35° RE D1 LE IC S	C019 −021 E017
	NP-VNGA160408TS2	★			★							★		9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160404TA2		●			●	●			●				9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408TA2		●			●	●			★				9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412TA2					★	★			★				9.525	4.76	1.2	1.5	3.81		
	NP-VNGA160404TH2		★			★	★							9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408TH2		★			★	★							9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160412TH2					★	★							9.525	4.76	1.2	1.5	3.81		
	NP-VNGA160404SF2												★	9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408SF2												★	9.525	4.76	0.8	2.0	3.81		
	NP-VNGA160404SE2												★	9.525	4.76	0.4	2.5	3.81		
	NP-VNGA160408SE2												★	9.525	4.76	0.8	2.0	3.81		

80° WN TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN				Solid PCBN	Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-WNGA080408GS6	●		★	●									12.7	4.76	0.8	2.0	5.16		C022 C023 E017
	NP-WNGA080408FS6	★		★	★									12.7	4.76	0.8	2.0	5.16		
	NP-WNGA080408TS6	★			★									12.7	4.76	0.8	2.0	5.16		
NEW PETIT CUT	NP-WNGA080408GS3	★		★	★							★		12.7	4.76	0.8	2.0	5.16		C022 C023 E017
	NP-WNGA080408GA3		★			★	★							12.7	4.76	0.8	2.0	5.16		
	NP-WNGA080408GH3				★	★	★							12.7	4.76	0.8	2.0	5.16		
	NP-WNGA080408FS3	★		★	★	★						★		12.7	4.76	0.8	2.0	5.16		
	NP-WNGA080408TS3	★			★							★		12.7	4.76	0.8	2.0	5.16		
	NP-WNGA080408TA3		★			★	★							12.7	4.76	0.8	2.0	5.16		
	NP-WNGA080408TH3					★	★							12.7	4.76	0.8	2.0	5.16		
	NP-WNGA080408SF3											★		12.7	4.76	0.8	2.0	5.16		
	NP-WNGA080408SE3											★		12.7	4.76	0.8	2.0	5.16		
NEW PETIT CUT (With Wiper*)	NP-WNGA080408GSWS3	●			●									12.7	4.76	0.8	2.0	5.16		C022 C023 E017

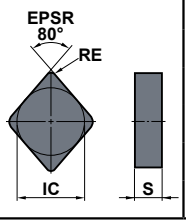
* Please refer to B012 before using wiper inserts.

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

80° CN TYPE INSERTS WITHOUT HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

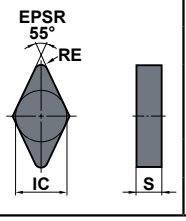
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	Coated PCBN							PCBN				Solid PCBN	Dimensions (mm)				Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE		
	CNGN120404												●	12.7	4.76	0.4	—		—
	CNGN120408												●	12.7	4.76	0.8	—		
	CNGN120412												●	12.7	4.76	1.2	—		

55° DN TYPE INSERTS WITHOUT HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

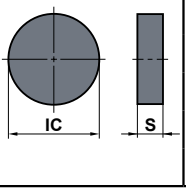
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	Coated PCBN							PCBN				Solid PCBN	Dimensions (mm)				Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE		
	DNGN110308												★	9.525	3.18	0.8	—		—
	DNGN110312												★	9.525	3.18	1.2	—		

RN TYPE INSERTS WITHOUT HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

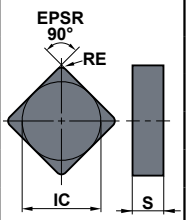
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting

Shape	Order Number	Coated PCBN							PCBN				Solid PCBN	Dimensions (mm)				Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE		
	RNGN090300												●	9.525	3.18	—	—		—
	RNGN120300												●	12.7	3.18	—	—		
	RNGN120400												●	12.7	4.76	—	—		

GRADES ➤ B004
IDENTIFICATION ➤ B002

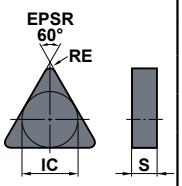
PCBN TURNING INSERTS [NEGATIVE]

90° SN TYPE INSERTS WITHOUT HOLE

Material			Coated PCBN							PCBN				Solid PCBN	Dimensions (mm)				Geometry	Applicable Holder Page
			BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE		
	H	Hardened Materials	●	◐	●	●	◐	✣		●	◐	✣	◐	✣						
	K	Cast Iron							●											
	S	Heat-resistant Alloy, Titanium Alloy											◐							
		Sintered Alloy																		
		SNGN090308												●	9.525	3.18	0.8	—		—
		SNGN090312												●	9.525	3.18	1.2	—		
		SNGN090316												●	9.525	3.18	1.6	—		
		SNGN090408												★	9.525	4.76	0.8	—		
		SNGN090412												★	9.525	4.76	1.2	—		
		SNGN120408												●	12.7	4.76	0.8	—		
		SNGN120412												●	12.7	4.76	1.2	—		
		SNGN120416												●	12.7	4.76	1.6	—		

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

60° TN TYPE INSERTS WITHOUT HOLE

Material			Coated PCBN							PCBN				Solid PCBN	Dimensions (mm)				Geometry	Applicable Holder Page
			BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	MBS140	IC	S	RE	LE		
	H	Hardened Materials	●	◐	●	●	◐	✣		●	◐	✣	◐	✣						
	K	Cast Iron							●											
	S	Heat-resistant Alloy, Titanium Alloy											◐							
		Sintered Alloy																		
		TNGN160408												●	9.525	4.76	0.8	—		—
		TNGN160412												●	9.525	4.76	1.2	—		
		TNGN160416												●	9.525	4.76	1.6	—		

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

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

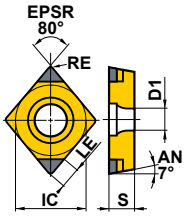
80° CC TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

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

Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN				Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-CCGW060202GS2	★		★	★			●				★	6.35	2.38	0.2	1.7	2.8		
	NP-CCGW060204GS2	●		●	●							●	6.35	2.38	0.4	1.8	2.8		
	NP-CCGW060208GS2	●		●	●							★	6.35	2.38	0.8	2.0	2.8		
	NP-CCGW09T302GS2	★		★	★							★	9.525	3.97	0.2	1.7	4.4		
	NP-CCGW09T304GS2	●		●	●			★				★	9.525	3.97	0.4	1.8	4.4		
	NP-CCGW09T308GS2	●		●	●			★				★	9.525	3.97	0.8	2.0	4.4		
	NP-CCGW060202GA2		●			●				●			6.35	2.38	0.2	1.7	2.8		
	NP-CCGW060204GA2		●			●	●			●			6.35	2.38	0.4	1.8	2.8		
	NP-CCGW060208GA2		●			●	●			●			6.35	2.38	0.8	2.0	2.8		
	NP-CCGW09T302GA2		●			●				●			9.525	3.97	0.2	1.7	4.4		
	NP-CCGW09T304GA2		●			●	●			●			9.525	3.97	0.4	1.8	4.4		
	NP-CCGW09T308GA2		●			●	●			●			9.525	3.97	0.8	2.0	4.4		
	NP-CCGW09T304GH2				★	★	●						9.525	3.97	0.4	1.8	4.4		
	NP-CCGW09T308GH2				★	★	●						9.525	3.97	0.8	2.0	4.4		
	NP-CCGW09T304VA2		●										9.525	3.97	0.4	1.8	4.4		
	NP-CCGW09T308VA2		●										9.525	3.97	0.8	2.0	4.4		
	NP-CCGW060202FS2	●			●			●	●			●	6.35	2.38	0.2	1.7	2.8		
	NP-CCGW060204FS2	●			●			●	●			●	6.35	2.38	0.4	1.8	2.8		
	NP-CCGW060208FS2	●			●				●			●	6.35	2.38	0.8	2.0	2.8		
	NP-CCGW09T302FS2	●		★	●				●			★	9.525	3.97	0.2	1.7	4.4		
	NP-CCGW09T304FS2	●		●	●	●		●	●			●	9.525	3.97	0.4	1.8	4.4		
	NP-CCGW09T308FS2	●		●	●	●		●	●			●	9.525	3.97	0.8	2.0	4.4		
	NP-CCGW060208TS2											★	6.35	2.38	0.8	2.0	2.8		
	NP-CCGW09T308TS2											★	9.525	3.97	0.8	2.0	4.4		
	NP-CCGW060204TA2						●				★		6.35	2.38	0.4	1.8	2.8		
	NP-CCGW060208TA2						●				★		6.35	2.38	0.8	2.0	2.8		
	NP-CCGW09T304TA2		●			●	●			★	★		9.525	3.97	0.4	1.8	4.4		
	NP-CCGW09T308TA2		●			●	●			★	★		9.525	3.97	0.8	2.0	4.4		
	NP-CCGW09T304TH2					★	●				★		9.525	3.97	0.4	1.8	4.4		
	NP-CCGW09T308TH2					★	●				★		9.525	3.97	0.8	2.0	4.4		
	NP-CCGW060202SF2											★	6.35	2.38	0.2	1.7	2.8		
	NP-CCGW060204SF2											●	6.35	2.38	0.4	1.8	2.8		
	NP-CCGW060208SF2											★	6.35	2.38	0.8	2.0	2.8		
	NP-CCGW09T302SF2											★	9.525	3.97	0.2	1.7	4.4		
	NP-CCGW09T304SF2											●	9.525	3.97	0.4	1.8	4.4		
	NP-CCGW09T308SF2											●	9.525	3.97	0.8	2.0	4.4		
	NP-CCGW060202SE2											★	6.35	2.38	0.2	1.7	2.8		
	NP-CCGW060204SE2											●	6.35	2.38	0.4	1.8	2.8		
	NP-CCGW060208SE2											★	6.35	2.38	0.8	2.0	2.8		
	NP-CCGW09T302SE2											★	9.525	3.97	0.2	1.7	4.4		
	NP-CCGW09T304SE2											★	9.525	3.97	0.4	1.8	4.4		
	NP-CCGW09T308SE2											●	9.525	3.97	0.8	2.0	4.4		



C024
D010
E007
E008
E033
E037

GRADES ➤ B004
IDENTIFICATION ➤ B002

80° CC TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN				Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	IC	S	RE	LE	D1		
NEW PETIT CUT (With Wiper✱1)	NP-CCGW09T304GSWS2	●		●	●								9.525	3.97	0.4	1.8	4.4	EPSR 80° RE LE D1 AN 7° IC S	C024 D010 E033 E037
	NP-CCGW09T308GSWS2	●		●	●								9.525	3.97	0.8	2.0	4.4		
	NP-CCGW09T304GAWS2		●			●	●			★			9.525	3.97	0.4	1.8	4.4		
	NP-CCGW09T308GAWS2		●			●	●			★			9.525	3.97	0.8	2.0	4.4		
	NP-CCGW09T304GBWL2			★	★	★				★			9.525	3.97	0.4	1.8	4.4		
	NP-CCGW09T308GBWL2			★	★	★				★			9.525	3.97	0.8	2.0	4.4		
	NP-CCGW09T304FSWS2	●		●	★	★			★				9.525	3.97	0.4	1.8	4.4		
	NP-CCGW09T308FSWS2	●		●	★	★			★				9.525	3.97	0.8	2.0	4.4		
	NP-CCGW09T304FBWL2			★	★	★			★				9.525	3.97	0.4	1.8	4.4		
	NP-CCGW09T308FBWL2			★	★	★			★				9.525	3.97	0.8	2.0	4.4		
NEW PETIT CUT (With Chipbreaker)	BF-CCGT09T304TS2	●			●								9.525	3.97	0.4	1.8	4.4	EPSR 80° RE LE D1 AN 7° IC S	C024 D010 E033 E037
	BF-CCGT09T308TS2	●			●								9.525	3.97	0.8	2.0	4.4		
NEW PETIT CUT (With Chipbreaker)	BM-CCGT09T304TA2		●			●							9.525	3.97	0.4	1.8	4.4	EPSR 80° RE LE D1 AN 7° IC S	C024 D010 E033 E037
	BM-CCGT09T308TA2		●			●							9.525	3.97	0.8	2.0	4.4		
NEW PETIT CUT	* NP-CCGW03S102GS			●									3.57	1.39	0.2	1.1	2.0	EPSR 80° LE RE D1 AN 7° IC S	E018
	* NP-CCGW03S104GS			●									3.57	1.39	0.4	1.0	2.0		
	* NP-CCGW04T002GS			●									4.37	1.79	0.2	1.5	2.4		
	* NP-CCGW04T004GS			●									4.37	1.79	0.4	1.4	2.4		
	* NP-CCGW03S102FS	●			●				★				3.57	1.39	0.2	1.1	2.0		
	* NP-CCGW03S104FS	●			●				●				3.57	1.39	0.4	1.0	2.0		
	* NP-CCGW04T002FS	●			●				●				4.37	1.79	0.2	1.5	2.4		
	* NP-CCGW04T004FS	●			●				●				4.37	1.79	0.4	1.4	2.4		

*1 Please refer to B012 before using wiper inserts.
* Diameter of inscribed circle is non-ISO standard. (For SCLC type)

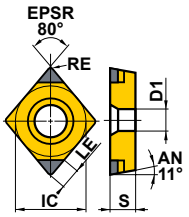
● : Inventory maintained. ★ : Inventory maintained in Japan.

80° CP TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

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

Honing (Last letter of order number) :
Please refer to page B009

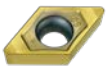
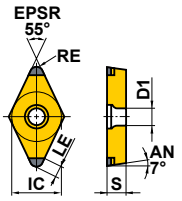
Shape	Order Number	Coated PCBN							PCBN				Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-CPGB080204GS2	★		●	★								7.94	2.38	0.4	1.8	3.5		
	NP-CPGB080208GS2	★		●	★								7.94	2.38	0.8	2.0	3.5		
	NP-CPGB090302GS2	★		★	★								9.525	3.18	0.2	1.7	4.5		
	NP-CPGB090304GS2	★		●	★								9.525	3.18	0.4	1.8	4.5		
	NP-CPGB090308GS2	★		●	★								9.525	3.18	0.8	2.0	4.5		
	NP-CPGB080204GA2		●			●	●						7.94	2.38	0.4	1.8	3.5		
	NP-CPGB080208GA2		●			●	●						7.94	2.38	0.8	2.0	3.5		
	NP-CPGB080212GA2		★			★	★						7.94	2.38	1.2	2.2	3.5		
	NP-CPGB090302GA2		★			★							9.525	3.18	0.2	1.7	4.5		
	NP-CPGB090304GA2		●			●	●						9.525	3.18	0.4	1.8	4.5		
	NP-CPGB090308GA2		●			●	●						9.525	3.18	0.8	2.0	4.5		
	NP-CPGB090312GA2		★			★	★						9.525	3.18	1.2	2.2	4.5		
	NP-CPGB090304VA2		●										9.525	3.18	0.4	1.8	4.5		
	NP-CPGB090308VA2		●										9.525	3.18	0.8	2.0	4.5		
	NP-CPGB090312VA2		★										9.525	3.18	1.2	2.2	4.5		
	NP-CPGB080202FS2											★	7.94	2.38	0.2	1.7	3.5		E007 E008
	NP-CPGB080204FS2				★							●	7.94	2.38	0.4	1.8	3.5		
	NP-CPGB080208FS2				★								7.94	2.38	0.8	2.0	3.5		
	NP-CPGB090302FS2			★	★							★	9.525	3.18	0.2	1.7	4.5		
	NP-CPGB090304FS2			●		★						★	9.525	3.18	0.4	1.8	4.5		
	NP-CPGB090308FS2			●		★						★	9.525	3.18	0.8	2.0	4.5		
	NP-CPGB090312FS2					★							9.525	3.18	1.2	2.2	4.5		
	NP-CPGB080204TA2						★						7.94	2.38	0.4	1.8	3.5		
	NP-CPGB080208TA2						★						7.94	2.38	0.8	2.0	3.5		
	NP-CPGB080212TA2						★						7.94	2.38	1.2	2.2	3.5		
	NP-CPGB090304TA2		★			★	★						9.525	3.18	0.4	1.8	4.5		
	NP-CPGB090308TA2		★			★	★						9.525	3.18	0.8	2.0	4.5		
	NP-CPGB090312TA2		★			★	★						9.525	3.18	1.2	2.2	4.5		
	NP-CPGB080202SE2											★	7.94	2.38	0.2	1.7	3.5		
	NP-CPGB080204SE2											★	7.94	2.38	0.4	1.8	3.5		
	NP-CPGB090302SE2											★	9.525	3.18	0.2	1.7	4.5		
	NP-CPGB090304SE2											★	9.525	3.18	0.4	1.8	4.5		
	NP-CPGB090308SE2											★	9.525	3.18	0.8	2.0	4.5		

GRADES ➤ B004
IDENTIFICATION ➤ B002

55° DC TYPE INSERTS WITH HOLE

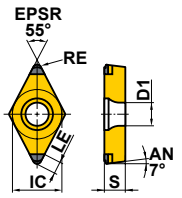
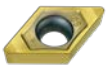
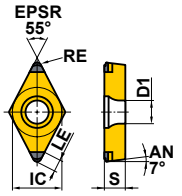
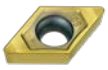
Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN				Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-DCGW070202GS2	●		●	●								6.35	2.38	0.2	2.2	2.8		
	NP-DCGW070204GS2	●		●	●			★				●	6.35	2.38	0.4	2.1	2.8		
	NP-DCGW070208GS2	●		●	●							★	6.35	2.38	0.8	2.0	2.8		
	NP-DCGW11T302GS2	●		●	●							★	9.525	3.97	0.2	2.2	4.4		
	NP-DCGW11T304GS2	●		●	●			●				●	9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308GS2	●		●	●			●				●	9.525	3.97	0.8	2.0	4.4		
	NP-DCGW070202GA2		●			●				●			6.35	2.38	0.2	2.2	2.8		
	NP-DCGW070204GA2		●			●	●			●			6.35	2.38	0.4	2.1	2.8		
	NP-DCGW070208GA2		★				●						6.35	2.38	0.8	2.0	2.8		
	NP-DCGW11T302GA2		●			●				●			9.525	3.97	0.2	2.2	4.4		
	NP-DCGW11T304GA2		●			●	●			●			9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308GA2		●			●	●			●			9.525	3.97	0.8	2.0	4.4		
	NP-DCGW11T304GH2				★	★	●						9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308GH2				★	★	●						9.525	3.97	0.8	2.0	4.4		
	NP-DCGW11T304VA2		●										9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308VA2		●										9.525	3.97	0.8	2.0	4.4		
	NP-DCGW070202FS2	●			●				●				6.35	2.38	0.2	2.2	2.8		C025 D011 D026 E010 E011 E032 E034
	NP-DCGW070204FS2	●			●	●		●	●			●	6.35	2.38	0.4	2.1	2.8		
	NP-DCGW070208FS2	★			★				★			●	6.35	2.38	0.8	2.0	2.8		
	NP-DCGW11T302FS2	●		●	●				●			●	9.525	3.97	0.2	2.2	4.4		
	NP-DCGW11T304FS2	●		●	●	●			●			●	9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308FS2	●		●	●	●		★	●			●	9.525	3.97	0.8	2.0	4.4		
	NP-DCGW070204TA2					●	●			●	●		6.35	2.38	0.4	2.1	2.8		
	NP-DCGW070208TA2						●				★		6.35	2.38	0.8	2.0	2.8		
	NP-DCGW11T304TA2		★			★	●			★	●		9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308TA2		★			★	●			★	●		9.525	3.97	0.8	2.0	4.4		
	NP-DCGW11T304TH2					★	●				●		9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308TH2					★	●				●		9.525	3.97	0.8	2.0	4.4		
	NP-DCGW070204SF2											●	6.35	2.38	0.4	2.1	2.8		
	NP-DCGW070208SF2											●	6.35	2.38	0.8	2.0	2.8		
	NP-DCGW11T302SF2											★	9.525	3.97	0.2	2.2	4.4		
	NP-DCGW11T304SF2											●	9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308SF2											●	9.525	3.97	0.8	2.0	4.4		
	NP-DCGW070204SE2											●	6.35	2.38	0.4	2.1	2.8		
	NP-DCGW070208SE2											★	6.35	2.38	0.8	2.0	2.8		
	NP-DCGW11T302SE2											●	9.525	3.97	0.2	2.2	4.4		
	NP-DCGW11T304SE2											●	9.525	3.97	0.4	2.1	4.4		
	NP-DCGW11T308SE2											●	9.525	3.97	0.8	2.0	4.4		

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

Material			Coated PCBN							PCBN				Cutting Conditions (Guide) : ● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting Honing (Last letter of order number) : Please refer to page B009
	H	Hardened Materials	●	◐	●	●	◐	✱		●	◐	✱	◐	
	K	Cast Iron							●				◐	
	S	Heat-resistant Alloy, Titanium Alloy												
		Sintered Alloy											◐	

Shape	Order Number	Coated PCBN							PCBN				Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	IC	S	RE	LE	D1		
NEW PETIT CUT	**BF-DCGT11T304TS2**	●			●								9.525	3.97	0.4	2.1	4.4		C025 D011 D026 E010 E011 E032 E034
	BF-DCGT11T308TS2	●			●								9.525	3.97	0.8	2.0	4.4		
 (With Chipbreaker)																			
NEW PETIT CUT	**BM-DCGT11T304TA2**		●		●								9.525	3.97	0.4	2.1	4.4		C025 D011 D026 E010 E011 E032 E034
	BM-DCGT11T308TA2		●		●								9.525	3.97	0.8	2.0	4.4		
 (With Chipbreaker)																			

60° TC TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN				Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-TCGW090204GS3				★			★					5.56	2.38	0.4	1.6	2.5	EPSR 60° RE D1 AN 7° IC LE S	C029 E031
	NP-TCGW090208GS3				★								5.56	2.38	0.8	1.7	2.5		
	NP-TCGW110202GS3				★								6.35	2.38	0.2	1.5	2.8		
	NP-TCGW110204GS3				★							★	6.35	2.38	0.4	1.6	2.8		
	NP-TCGW110208GS3				★			★				★	6.35	2.38	0.8	1.7	2.8		
	NP-TCGW130304GS3				★								7.94	3.18	0.4	1.6	3.4		
	NP-TCGW130308GS3				★								7.94	3.18	0.8	1.7	3.4		
	NP-TCGW16T304GS3				★								9.525	3.97	0.4	1.6	4.4		
	NP-TCGW16T308GS3				★								9.525	3.97	0.8	1.7	4.4		
	NP-TCGW110204FS3							★				●	6.35	2.38	0.4	1.6	2.8		
	NP-TCGW110208FS3							★				●	6.35	2.38	0.8	1.7	2.8		
	NP-TCGW110204SF3											★	6.35	2.38	0.4	1.6	2.8		
	NP-TCGW110208SF3											★	6.35	2.38	0.8	1.7	2.8		
	NP-TCGW110204SE3											★	6.35	2.38	0.4	1.6	2.8		
	NP-TCGW110208SE3											★	6.35	2.38	0.8	1.7	2.8		

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

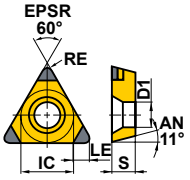
60° TP TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

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

Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN				Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-TPGB080204GS3	★		★	★			★					4.76	2.38	0.4	1.6	2.4		
	NP-TPGB080208GS3	★		★	★								4.76	2.38	0.8	1.7	2.4		
	NP-TPGB090202GS3											★	5.56	2.38	0.2	1.5	2.9		
	NP-TPGB090204GS3	★		★	★							★	5.56	2.38	0.4	1.6	2.9		
	NP-TPGB090208GS3	★		★	★								5.56	2.38	0.8	1.7	2.9		
	NP-TPGB110302GS3	★		★	★							★	6.35	3.18	0.2	1.5	3.4		
	NP-TPGB110304GS3	★		★	★			★				★	6.35	3.18	0.4	1.6	3.4		
	NP-TPGB110308GS3	★		★	★			★				★	6.35	3.18	0.8	1.7	3.4		
	NP-TPGB160304GS3	★		★	★								9.525	3.18	0.4	1.6	4.4		
	NP-TPGB160308GS3	★		★	★								9.525	3.18	0.8	1.7	4.4		
	NP-TPGB080204GA3						●						4.76	2.38	0.4	1.6	2.4		
	NP-TPGB080208GA3						●						4.76	2.38	0.8	1.7	2.4		
	NP-TPGB090204GA3		★			★	●			●			5.56	2.38	0.4	1.6	2.9		
	NP-TPGB090208GA3		★			★	●			★			5.56	2.38	0.8	1.7	2.9		
	NP-TPGB110302GA3		★			★				★			6.35	3.18	0.2	1.5	3.4		
	NP-TPGB110304GA3		●			●	●			●			6.35	3.18	0.4	1.6	3.4		
	NP-TPGB110308GA3		●			●	●			●			6.35	3.18	0.8	1.7	3.4		
	NP-TPGB160304GA3		●			●	★			★			9.525	3.18	0.4	1.6	4.4		
	NP-TPGB160308GA3		●			●	★			★			9.525	3.18	0.8	1.7	4.4		
	NP-TPGB160304GH3				★	★	★						9.525	3.18	0.4	1.6	4.4		
	NP-TPGB160308GH3				★	★	★						9.525	3.18	0.8	1.7	4.4		
	NP-TPGB110304VA3		●										6.35	3.18	0.4	1.6	3.4		
	NP-TPGB110308VA3		●										6.35	3.18	0.8	1.7	3.4		
	NP-TPGB090202FS3											★	5.56	2.38	0.2	1.5	2.9		
	NP-TPGB090204FS3							★				★	5.56	2.38	0.4	1.6	2.9		
	NP-TPGB110302FS3	★		★	★				★			★	6.35	3.18	0.2	1.5	3.4		
	NP-TPGB110304FS3	★		★	★	●		★	●			★	6.35	3.18	0.4	1.6	3.4		
	NP-TPGB110308FS3	★		★	★	●		★	●			★	6.35	3.18	0.8	1.7	3.4		
	NP-TPGB160304FS3					●							9.525	3.18	0.4	1.6	4.4		
	NP-TPGB160308FS3					●							9.525	3.18	0.8	1.7	4.4		
	NP-TPGB080204TA3						★				●		4.76	2.38	0.4	1.6	2.4		
	NP-TPGB080208TA3						★				★		4.76	2.38	0.8	1.7	2.4		
	NP-TPGB090204TA3						★				●		5.56	2.38	0.4	1.6	2.9		
	NP-TPGB090208TA3						★				★		5.56	2.38	0.8	1.7	2.9		
	NP-TPGB110304TA3		★			★	●			●	●		6.35	3.18	0.4	1.6	3.4		
	NP-TPGB110308TA3		★			★	★			★	★		6.35	3.18	0.8	1.7	3.4		
	NP-TPGB160304TA3					★	●			★	★		9.525	3.18	0.4	1.6	4.4		
	NP-TPGB160308TA3					★	●			★	★		9.525	3.18	0.8	1.7	4.4		
	NP-TPGB160304TH3					★	★				★		9.525	3.18	0.4	1.6	4.4		
	NP-TPGB160308TH3					★	★				★		9.525	3.18	0.8	1.7	4.4		



E009

PCBN
B
PCBN TURNING INSERTS
POSI 11°
WITH HOLE
C
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T
V
W

GRADES ➤ B004
IDENTIFICATION ➤ B002

60° TP TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN				Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-TPGB090202SF3											★	5.56	2.38	0.2	1.5	2.9	EPSR 60° RE D1 AN 11° LE IC S	E009
	NP-TPGB090204SF3											★	5.56	2.38	0.4	1.6	2.9		
	NP-TPGB110302SF3											★	6.35	3.18	0.2	1.5	3.4		
	NP-TPGB110304SF3											★	6.35	3.18	0.4	1.6	3.4		
	NP-TPGB110308SF3											★	6.35	3.18	0.8	1.7	3.4		
	NP-TPGB090202SE3											★	5.56	2.38	0.2	1.5	2.9		
	NP-TPGB090204SE3											★	5.56	2.38	0.4	1.6	2.9		
	NP-TPGB110302SE3											★	6.35	3.18	0.2	1.5	3.4		
	NP-TPGB110304SE3											★	6.35	3.18	0.4	1.6	3.4		
	NP-TPGB110308SE3											★	6.35	3.18	0.8	1.7	3.4		

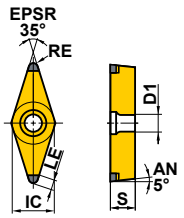
● : Inventory maintained. ★ : Inventory maintained in Japan.

35° VB TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

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

Honing (Last letter of order number) :
Please refer to page B009

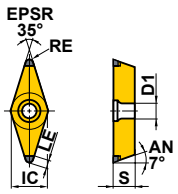
Shape	Order Number	Coated PCBN							PCBN				Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-VBGW110302GS2	★		★	★								6.35	3.18	0.2	2.5	2.85		
	NP-VBGW110304GS2	★		★	★							★	6.35	3.18	0.4	2.5	2.85		
	NP-VBGW110308GS2	★		★	★							★	6.35	3.18	0.8	2.0	2.85		
	NP-VBGW160402GS2	●		★	●								9.525	4.76	0.2	2.5	4.43		
	NP-VBGW160404GS2	●		●	●			★				●	9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408GS2	●		●	●			★				●	9.525	4.76	0.8	2.0	4.43		
	NP-VBGW110302GA2		●			●				★			6.35	3.18	0.2	2.5	2.85		
	NP-VBGW110304GA2		●			●	●			★			6.35	3.18	0.4	2.5	2.85		
	NP-VBGW110308GA2		★			★	★			★			6.35	3.18	0.8	2.0	2.85		
	NP-VBGW160402GA2		★			★				★			9.525	4.76	0.2	2.5	4.43		
	NP-VBGW160404GA2		●			●	●			★			9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408GA2		●			●	●			★			9.525	4.76	0.8	2.0	4.43		
	NP-VBGW160404GH2				★	★	★						9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408GH2				★	★	●						9.525	4.76	0.8	2.0	4.43		
	NP-VBGW160404VA2		●										9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408VA2		●										9.525	4.76	0.8	2.0	4.43		
	NP-VBGW110302FS2	●			●				★				6.35	3.18	0.2	2.5	2.85		D012 D013 E013 E014 H013
	NP-VBGW110304FS2	★			★				★			★	6.35	3.18	0.4	2.5	2.85		
	NP-VBGW110308FS2	★			★				★			★	6.35	3.18	0.8	2.0	2.85		
	NP-VBGW160402FS2	★			★				★				9.525	4.76	0.2	2.5	4.43		
	NP-VBGW160404FS2					●						●	9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408FS2					●						●	9.525	4.76	0.8	2.0	4.43		
	NP-VBGW110304TA2						★						6.35	3.18	0.4	2.5	2.85		
	NP-VBGW110308TA2						★						6.35	3.18	0.8	2.0	2.85		
	NP-VBGW160404TA2		●			●	★			★			9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408TA2		★			★	★			★			9.525	4.76	0.8	2.0	4.43		
	NP-VBGW160404TH2					★	★						9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408TH2					★	★						9.525	4.76	0.8	2.0	4.43		
	NP-VBGW110304SF2											★	6.35	3.18	0.4	2.5	2.85		
	NP-VBGW110308SF2											★	6.35	3.18	0.8	2.0	2.85		
	NP-VBGW160404SF2											●	9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408SF2											★	9.525	4.76	0.8	2.0	4.43		
	NP-VBGW110304SE2											★	6.35	3.18	0.4	2.5	2.85		
	NP-VBGW110308SE2											★	6.35	3.18	0.8	2.0	2.85		
	NP-VBGW160404SE2											●	9.525	4.76	0.4	2.5	4.43		
	NP-VBGW160408SE2											★	9.525	4.76	0.8	2.0	4.43		

GRADES ➤ B004
IDENTIFICATION ➤ B002

35° VC TYPE INSERTS WITH HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✲ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

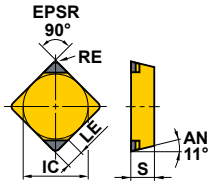
Shape	Order Number	Coated PCBN							PCBN				Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	IC	S	RE	LE	D1		
NEW PETIT CUT	NP-VCGW160404GS2	●		●	●								9.525	4.76	0.4	2.5	4.4		C030 C031 E035 E036
	NP-VCGW160408GS2	●		●	●								9.525	4.76	0.8	2.0	4.4		
	NP-VCGW160404GA2		●			●	●						9.525	4.76	0.4	2.5	4.4		
	NP-VCGW160408GA2		●			●	●						9.525	4.76	0.8	2.0	4.4		
	NP-VCGW160404GH2				★	★	★						9.525	4.76	0.4	2.5	4.4		
	NP-VCGW160408GH2				★	★	★						9.525	4.76	0.8	2.0	4.4		
	NP-VCGW160404VA2		●										9.525	4.76	0.4	2.5	4.4		
	NP-VCGW160408VA2		●										9.525	4.76	0.8	2.0	4.4		
	NP-VCGW160404FS2				●	●			★				9.525	4.76	0.4	2.5	4.4		
	NP-VCGW160408FS2				●	●			★				9.525	4.76	0.8	2.0	4.4		
	NP-VCGW160404TS2				★								9.525	4.76	0.4	2.5	4.4		
	NP-VCGW160408TS2				★								9.525	4.76	0.8	2.0	4.4		
	NP-VCGW160404TA2		★			★	★						9.525	4.76	0.4	2.5	4.4		
	NP-VCGW160408TA2		★			★	★						9.525	4.76	0.8	2.0	4.4		
	NP-VCGW160404TH2					★	★						9.525	4.76	0.4	2.5	4.4		
	NP-VCGW160408TH2					★	★						9.525	4.76	0.8	2.0	4.4		

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

90° SP TYPE INSERTS WITHOUT HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

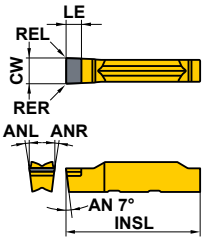
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✣ : Unstable Cutting
Honing (Last letter of order number) :
Please refer to page B009

Shape	Order Number	Coated PCBN							PCBN				Dimensions (mm)				Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	IC	S	RE	LE		
NEW PETIT CUT	NP-SPGN120412GS2							★					12.7	4.76	1.2	2.5		–

GY TYPE INSERTS WITHOUT HOLE

Material		
	H	Hardened Materials
	K	Cast Iron
	S	Heat-resistant Alloy, Titanium Alloy
		Sintered Alloy

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

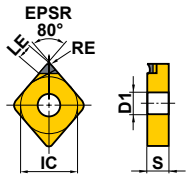
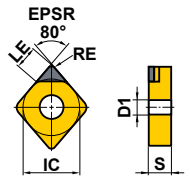
Shape	Order Number	Coated PCBN							PCBN				Dimensions (mm)					Geometry	Applicable Holder Page
		BC8210	BC8220	BC8105	BC8110	BC8120	BC8130	BC5110	MB8110	MB8120	MB8130	MB4120	CW	RER REL	INSL	LE	ANR ANL		
	GY1G0200D020N-GFGS				●								2.00	0.2	20.7	2.7	3°		F022 —097
	GY1G0239E020N-GFGS				●								2.39	0.2	20.7	2.7	7°		
	GY1G0250E020N-GFGS				●								2.5	0.2	20.7	2.7	7°		
	GY1G0300F020N-GFGS				●								3.00	0.2	20.7	2.7	7°		
	GY1G0318F020N-GFGS				●								3.18	0.2	20.7	2.7	7°		
	GY1G0400G020N-GFGS				●								4.00	0.2	25.65	2.7	7°		
	GY1G0475H020N-GFGS				●								4.75	0.2	25.65	2.7	7°		
	GY1G0500H020N-GFGS				●								5.00	0.2	25.65	2.7	7°		
	GY1G0600J020N-GFGS				●								6.00	0.2	25.65	2.7	7°		

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

80° CN TYPE INSERTS WITH HOLE

Material	N	Non-ferrous Metal	●

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

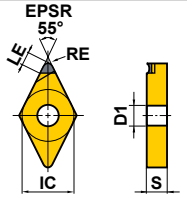
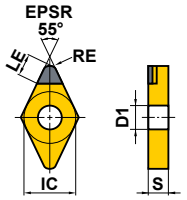
Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT (With Chipbreaker)	**NP-CNMM120402R-F**	★	12.7	4.76	0.2	1.7	5.16	 Right hand insert shown.	C008 C009 E015 E039 H006 −008
	NP-CNMM120404R-F	★	12.7	4.76	0.4	1.8	5.16		
	NP-CNMM120408R-F	★	12.7	4.76	0.8	2.0	5.16		
	CNMA120404	★	12.7	4.76	0.4	3.6	5.16		C008 C009 E015 E039 H006 −008
	CNMA120408	★	12.7	4.76	0.8	3.6	5.16		

GRADES ➤ B015
IDENTIFICATION ➤ B002

55° DN TYPE INSERTS WITH HOLE

Material			
	N	Non-ferrous Metal	●

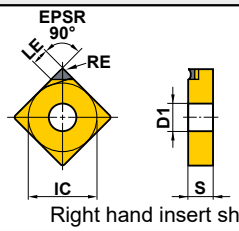
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	**NP-DNMM150402R-F**	★	12.7	4.76	0.2	2.2	5.16	 Right hand insert shown.	C010 C011 E015 E039 −041 H009 H010
	NP-DNMM150404R-F	★	12.7	4.76	0.4	2.1	5.16		
	NP-DNMM150408R-F	★	12.7	4.76	0.8	2.0	5.16		
(With Chipbreaker)									
	DNGA150404	★	12.7	4.76	0.4	2.9	5.16		C010 C011 E015 E039 −041 H009 H010
	DNGA150408	★	12.7	4.76	0.8	2.4	5.16		

90° SN TYPE INSERTS WITH HOLE

Material			
	N	Non-ferrous Metal	●

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

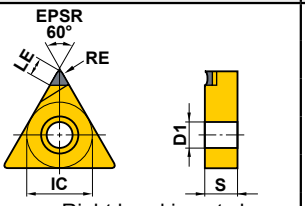
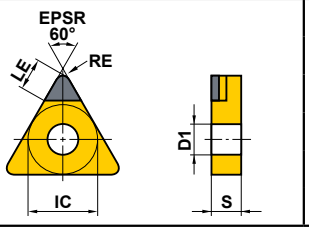
Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	**NP-SNMM120404R-F**	★	12.7	4.76	0.4	2.0	5.16	 Right hand insert shown.	C012 −015 E016 E038
	NP-SNMM120408R-F	★	12.7	4.76	0.8	2.2	5.16		
(With Chipbreaker)									

★ : Inventory maintained in Japan.

60° TN TYPE INSERTS WITH HOLE

Material	N	Non-ferrous Metal	●

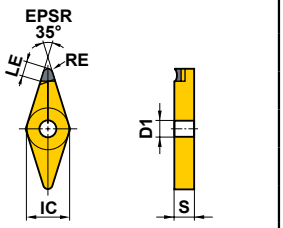
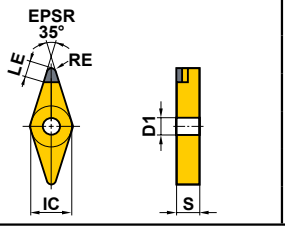
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT (With Chipbreaker)	**NP-TNMM160402R-F**	★	9.525	4.76	0.2	1.5	3.81	 Right hand insert shown.	C016 −018 E016 E038
	NP-TNMM160404R-F	★	9.525	4.76	0.4	1.6	3.81		
	NP-TNMM160408R-F	★	9.525	4.76	0.8	1.7	3.81		
	TNGA160402	★	9.525	4.76	0.2	3.1	3.81		C016 −018 E016 E038
	TNGA160404	★	9.525	4.76	0.4	2.9	3.81		
	TNGA160408	★	9.525	4.76	0.8	2.8	3.81		

35° VN TYPE INSERTS WITH HOLE

Material		
	N	Non-ferrous Metal

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

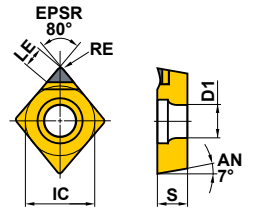
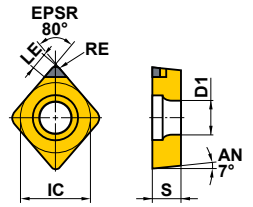
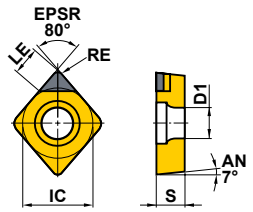
Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT (With Chipbreaker)	**NP-VNMM160402R-F**	★	9.525	4.76	0.2	2.5	3.81	 Right hand insert shown.	C019 −021 E017
	NP-VNMM160404R-F	★	9.525	4.76	0.4	2.5	3.81		
	NP-VNMM160408R-F	★	9.525	4.76	0.8	2.0	3.81		
	VNGA160404	★	9.525	4.76	0.4	2.6	3.81		C019 −021 E017
	VNGA160408	★	9.525	4.76	0.8	1.8	3.81		

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

80° CC TYPE INSERTS WITH HOLE

Material	N	Non-ferrous Metal	●

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

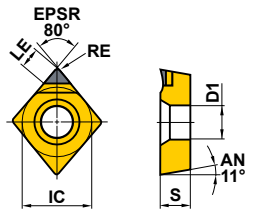
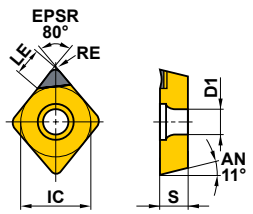
Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	NP-CCMH060202	★	6.35	2.38	0.2	1.7	2.8		C024 D010 E007 E008 E033 E037
	NP-CCMH060204	★	6.35	2.38	0.4	1.8	2.8		
(With Chipbreaker)									
NEW PETIT CUT	* NP-CCMW03S102	●	3.57	1.39	0.2	1.1	2.0		E018
	* NP-CCMW03S104	★	3.57	1.39	0.4	1.0	2.0		
	* NP-CCMW04T002	●	4.37	1.79	0.2	1.5	2.4		
	* NP-CCMW04T004	★	4.37	1.79	0.4	1.4	2.4		
	CCMW060202	★	6.35	2.38	0.2	2.9	2.8		C024 D010 E007 E008 E033 E037
	CCMW060204	★	6.35	2.38	0.4	2.9	2.8		
	CCMW09T302	★	9.525	3.97	0.2	3.3	4.4		
	CCMW09T304	★	9.525	3.97	0.4	3.3	4.4		

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

80° CP TYPE INSERTS WITH HOLE

Material	N	Non-ferrous Metal	●

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

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	NP-CPMH080202	★	7.94	2.38	0.2	1.7	3.5		E007 E008
	NP-CPMH080204	★	7.94	2.38	0.4	1.8	3.5		
	NP-CPMH090302	★	9.525	3.18	0.2	1.7	4.5		
(With Chipbreaker)	NP-CPMH090304	★	9.525	3.18	0.4	1.8	4.5		
	CPGT080202	★	7.94	2.38	0.2	3.7	3.4		–
	CPGT080204	★	7.94	2.38	0.4	3.6	3.4		
	CPGT090302	★	9.525	3.18	0.2	3.3	4.4		
(With Chipbreaker)	CPGT090304	★	9.525	3.18	0.4	3.3	4.4		

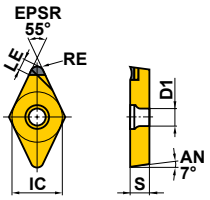
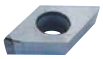
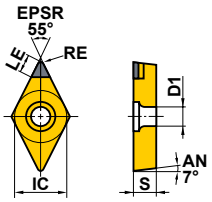
GRADES ➤ B015
IDENTIFICATION ➤ B002

PCD TURNING INSERTS [POSITIVE]

55° DC TYPE INSERTS WITH HOLE

Material	N	Non-ferrous Metal	●

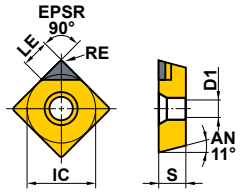
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	NP-DCMT070202R-F	★	6.35	2.38	0.2	1.4	2.8		C025 D011 D026 E010 E011 E032 E034
	NP-DCMT070202L-F	★	6.35	2.38	0.2	1.4	2.8		
	NP-DCMT070204R-F	★	6.35	2.38	0.4	1.5	2.8		
	NP-DCMT070204L-F	★	6.35	2.38	0.4	1.5	2.8		
	NP-DCMT11T302R-F	★	9.525	3.97	0.2	1.4	4.4		
	NP-DCMT11T302L-F	★	9.525	3.97	0.2	1.4	4.4		
	NP-DCMT11T304R-F	★	9.525	3.97	0.4	1.5	4.4		
(With Chipbreaker)	NP-DCMT11T304L-F	★	9.525	3.97	0.4	1.5	4.4	Left hand insert shown.	
	DCMW070202	★	6.35	2.38	0.2	2.7	2.8		C025 D011 D026 E010 E011 E032 E034
	DCMW070204	★	6.35	2.38	0.4	2.5	2.8		
	DCMW11T302	★	9.525	3.97	0.2	3.0	4.4		
	DCMW11T304	★	9.525	3.97	0.4	2.9	4.4		

90° SP TYPE INSERTS WITH HOLE

Material	N	Non-ferrous Metal	●

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

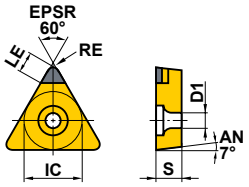
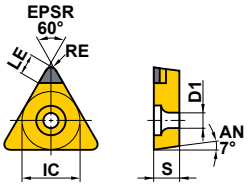
Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
	SPGX090304	★	9.525	3.18	0.4	3.7	4.8		–
	SPGX090308	★	9.525	3.18	0.8	3.8	4.8		

★ : Inventory maintained in Japan.

60° TC TYPE INSERTS WITH HOLE

Material	N	Non-ferrous Metal	●

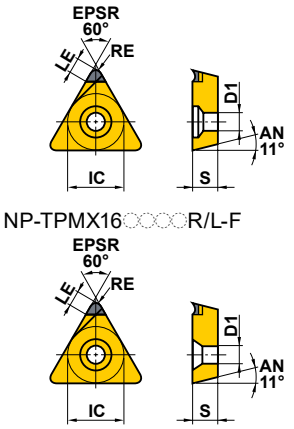
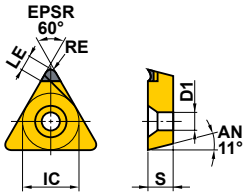
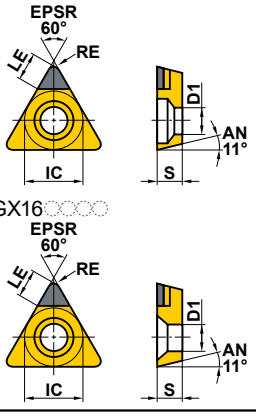
Cutting Conditions (Guide) :
● : Stable Cutting ◕ : General Cutting ✠ : Unstable Cutting

Shape	Order Number	PCD	Dimensions (mm)					Geometry	Applicable Holder Page
		MD220	IC	S	RE	LE	D1		
	TCMW110202	★	6.35	2.38	0.2	2.7	2.8		C029 E031
	TCMW110204	★	6.35	2.38	0.4	2.6	2.8		
	TCGW060102	★	3.97	1.59	0.2	1.5	2.3		–
	TCGW060104	★	3.97	1.59	0.4	1.6	2.3		
	TCGW060108	★	3.97	1.59	0.8	1.4	2.3		

60° TP TYPE INSERTS WITH HOLE

Material	N	Non-ferrous Metal	●

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

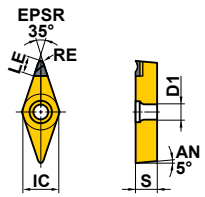
Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	NP-TPMX090202R-F	★	5.56	2.38	0.2	1.5	3.0	 NP-TPMX16□□□□R/L-F	E009 E028
	NP-TPMX090202L-F	★	5.56	2.38	0.2	1.5	3.0		
	NP-TPMX090204L-F	★	5.56	2.38	0.4	1.6	3.0		
	NP-TPMX090208L-F	★	5.56	2.38	0.8	1.7	3.0		
	NP-TPMX110302L-F	★	6.35	3.18	0.2	1.5	3.5		
	NP-TPMX110304L-F	★	6.35	3.18	0.4	1.6	3.5		
	NP-TPMX110308L-F	★	6.35	3.18	0.8	1.7	3.5		
	NP-TPMX160302L-F	★	9.525	3.18	0.2	1.5	4.8		
	NP-TPMX160304L-F	★	9.525	3.18	0.4	1.6	4.8		
	NP-TPMX160308L-F	★	9.525	3.18	0.8	1.7	4.8		
(With Chipbreaker)								Right hand insert shown.	
NEW PETIT CUT	NP-TPMH080202R-F	★	4.76	2.38	0.2	1.5	2.4		E009
	NP-TPMH080202L-F	★	4.76	2.38	0.2	1.5	2.4		
	NP-TPMH080204R-F	★	4.76	2.38	0.4	1.6	2.4		
	NP-TPMH080204L-F	★	4.76	2.38	0.4	1.6	2.4		
	NP-TPMH090202R-F	★	5.56	2.38	0.2	1.5	2.9		
	NP-TPMH090202L-F	★	5.56	2.38	0.2	1.5	2.9		
	NP-TPMH090204R-F	★	5.56	2.38	0.4	1.6	2.9		
	NP-TPMH090204L-F	★	5.56	2.38	0.4	1.6	2.9		
	NP-TPMH110302R-F	★	6.35	3.18	0.2	1.5	3.4		
	NP-TPMH110302L-F	★	6.35	3.18	0.2	1.5	3.4		
	NP-TPMH110304R-F	★	6.35	3.18	0.4	1.6	3.4		
	NP-TPMH110304L-F	★	6.35	3.18	0.4	1.6	3.4		
	NP-TPMH160302R-F	★	9.525	3.18	0.2	1.5	4.4		
	NP-TPMH160302L-F	★	9.525	3.18	0.2	1.5	4.4		
	NP-TPMH160304R-F	★	9.525	3.18	0.4	1.6	4.4		
(With Chipbreaker)	NP-TPMH160304L-F	★	9.525	3.18	0.4	1.6	4.4	Left hand insert shown.	
	TPGX080202	★	4.76	2.38	0.2	1.8	2.5	 TPGX16□□□□	E009 E028
	TPGX080204	★	4.76	2.38	0.4	1.7	2.5		
	TPGX080208	★	4.76	2.38	0.8	1.4	2.5		
	TPGX090202	★	5.56	2.38	0.2	2.7	3.0		
	TPGX090204	★	5.56	2.38	0.4	2.6	3.0		
	TPGX090208	★	5.56	2.38	0.8	2.3	3.0		
	TPGX110302	★	6.35	3.18	0.2	2.7	3.5		
	TPGX110304	★	6.35	3.18	0.4	2.6	3.5		
	TPGX110308	★	6.35	3.18	0.8	2.3	3.5		
	TPGX160304	★	9.525	3.18	0.4	2.9	4.8		
	TPGX160308	★	9.525	3.18	0.8	2.6	4.8		

★ : Inventory maintained in Japan.

35° VB TYPE INSERTS WITH HOLE

Material			
	N	Non-ferrous Metal	●

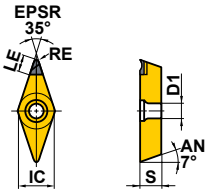
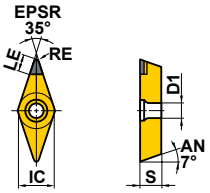
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✱ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	NP-VBGT110301R-F	★	6.35	3.18	0.1	2.5	2.85		D012 D013 E013 E014
	NP-VBGT110302R-F	★	6.35	3.18	0.2	2.5	2.85		
	NP-VBGT110304R-F	★	6.35	3.18	0.4	2.5	2.85		
	NP-VBGT1103V5R-F	★	6.35	3.18	0.05	2.5	2.85		
(With Chipbreaker)									

35° VC TYPE INSERTS WITH HOLE

Material			
	N	Non-ferrous Metal	●

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

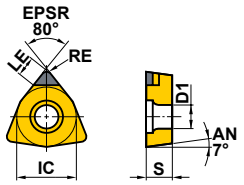
Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
NEW PETIT CUT	NP-VCGT080201R-F	★	4.76	2.38	0.1	2.5	2.4		C030 C031 D013 E014 E035
	NP-VCGT080202R-F	★	4.76	2.38	0.2	2.5	2.4		
	NP-VCGT080204R-F	★	4.76	2.38	0.4	2.5	2.4		
	NP-VCGT0802V5R-F	★	4.76	2.38	0.05	2.5	2.4		
	NP-VCGT110301R-F	★	6.35	3.18	0.1	2.5	2.8		
	NP-VCGT110302R-F	★	6.35	3.18	0.2	2.5	2.8		
	NP-VCGT110304R-F	★	6.35	3.18	0.4	2.5	2.8		
(With Chipbreaker)	NP-VCGT1103V5R-F	★	6.35	3.18	0.05	2.5	2.8		
	VCGW110301	★	6.35	3.18	0.1	3.1	2.8		C030 D013 E035
	VCGW110302	★	6.35	3.18	0.2	3.0	2.8		
	VCGW110304	★	6.35	3.18	0.4	2.6	2.8		

GRADES ➤ B015
IDENTIFICATION ➤ B002

80° WC TYPE INSERTS WITH HOLE

Material			
	N	Non-ferrous Metal	●

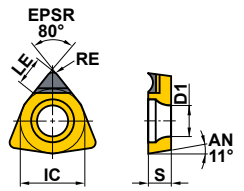
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

Shape	Order Number	PCD	Dimensions (mm)					Geometry	Applicable Holder Page
		MD220	IC	S	RE	LE	D1		
	WCMW06T304	★	9.525	3.97	0.4	3.0	4.4		E030

80° WP TYPE INSERTS WITH HOLE

Material			
	N	Non-ferrous Metal	●

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

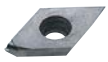
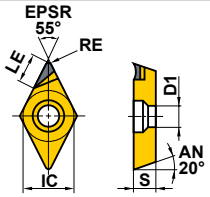
Shape	Order Number	PCD	Dimensions (mm)					Geometry	Applicable Holder Page
		MD220	IC	S	RE	LE	D1		
(With Chipbreaker)	**WPGT040202**	★	6.35	2.38	0.2	2.9	2.8		E012
	WPGT040204	★	6.35	2.38	0.4	2.9	2.8		
	WPGT060302	★	9.525	3.18	0.2	3.3	4.4		
	WPGT060304	★	9.525	3.18	0.4	3.3	4.4		

★ : Inventory maintained in Japan.

55° DE TYPE INSERTS WITH HOLE

Material			
	N	Non-ferrous Metal	●

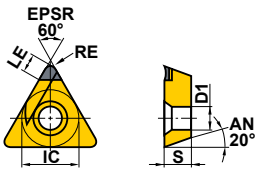
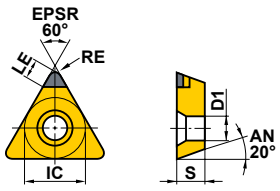
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
 (With Chipbreaker)	**DEGX150404R-F**	★	12.7	4.76	0.4	2.9	5.1	 Right hand insert shown.	C034
	DEGX150404L-F	★	12.7	4.76	0.4	2.9	5.1		

60° TE TYPE INSERTS WITH HOLE

Material			
	N	Non-ferrous Metal	●

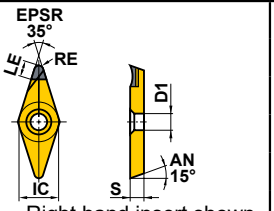
Cutting Conditions (Guide) :
● : Stable Cutting ◐ : General Cutting ✠ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
(With Chipbreaker)	**TEGX160302R**	★	9.525	3.18	0.2	3.8	4.4	 Right hand insert shown.	C035 E043
	TEGX160302L	★	9.525	3.18	0.2	3.8	4.4		
	TEGX160304R	★	9.525	3.18	0.4	3.6	4.4		
	TEGX160304L	★	9.525	3.18	0.4	3.6	4.4		
	TEGX160302	★	9.525	3.18	0.2	3.1	4.4		C035 E043
	TEGX160304	★	9.525	3.18	0.4	2.9	4.4		

35° VD TYPE INSERTS WITH HOLE

Material	N	Non-ferrous Metal	●

Cutting Conditions (Guide) :
● : Stable Cutting ◕ : General Cutting ✠ : Unstable Cutting

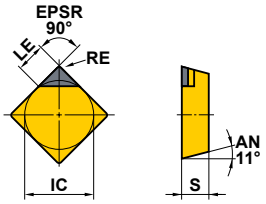
Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	D1	Geometry	Applicable Holder Page
(With Chipbreaker)	**VDGX160302R-F**	●	9.525	3.18	0.2	3.1	4.5	 Right hand insert shown.	C036
	VDGX160304R-F	●	9.525	3.18	0.4	2.7	4.5		

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

90° SP TYPE INSERTS WITHOUT HOLE

Material			
	N	Non-ferrous Metal	●

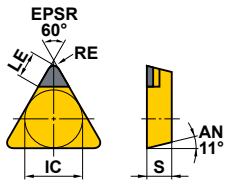
Cutting Conditions (Guide) :
● : Stable Cutting ◕ : General Cutting ✠ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	Geometry	Applicable Holder Page
	SPGN090302	★	9.525	3.18	0.2	3.7		–
	SPGN090304	★	9.525	3.18	0.4	3.7		
	SPGN090308	★	9.525	3.18	0.8	3.8		
	SPGN120304	★	12.7	3.18	0.4	3.7		
	SPGN120308	★	12.7	3.18	0.8	3.8		
	SPGN120312	★	12.7	3.18	1.2	3.7		

60° TP TYPE INSERTS WITHOUT HOLE

Material			
	N	Non-ferrous Metal	●

Cutting Conditions (Guide) :
● : Stable Cutting ◕ : General Cutting ✠ : Unstable Cutting

Shape	Order Number	PCD MD220	Dimensions (mm) IC	S	RE	LE	Geometry	Applicable Holder Page
	TPGN110302	★	6.35	3.18	0.2	2.7		E029
	TPGN110304	★	6.35	3.18	0.4	2.6		
	TPGN110308	★	6.35	3.18	0.8	2.3		
	TPGN160302	★	9.525	3.18	0.2	3.1		
	TPGN160304	★	9.525	3.18	0.4	2.9		
	TPGN160308	★	9.525	3.18	0.8	2.6		

GRADES ➤ B015
IDENTIFICATION ➤ B002

HOW TO READ THE STANDARD OF EXTERNAL TURNING TOOLS

●How this section page is organised

①Organised according to turning insert shape.
(Refer to the index on the next page.)

TYPE OF TOOL HOLDER
Indicates the first four letters of the order number, as well as cutting applications.

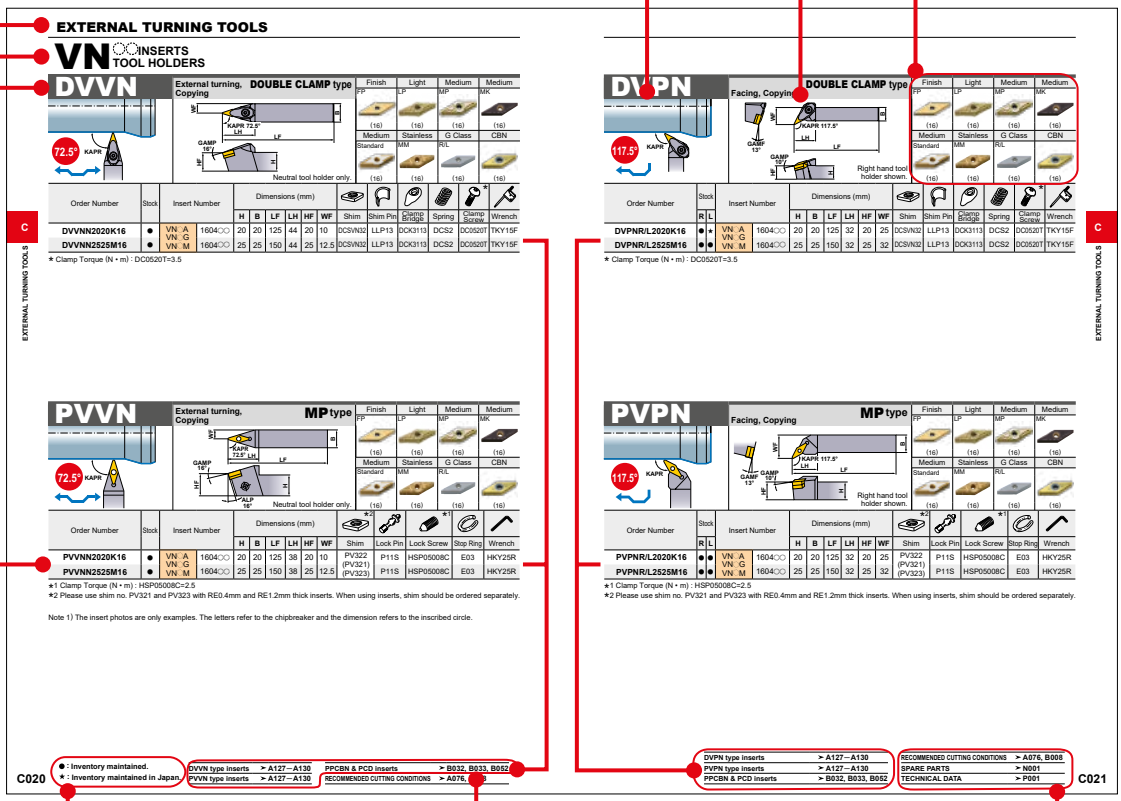
TITLE OF PRODUCT BY INSERT TYPE

PRODUCT SECTION

FIGURE SHOWING THE TOOLING APPLICATION
Uses illustrations and arrows to depict the available machining applications such as external turning, copying, facing, and chamfering together with cutting edge lead angles.

GEOMETRY

CHIPBREAKER BY CUTTING APPLICATION



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

REFERENCE PAGE FOR APPLICABLE INSERTS
Indicates reference pages giving details of inserts that are applicable to the product.

PRODUCT STANDARDS
Indicates order numbers, stock status (per right/left hand), applicable inserts, dimensions, and spare parts.

PAGE REFERENCE
·SPARE PARTS
·TECHNICAL DATA
Indicates reference pages, including the above, on the right hand page of each double-page spread.

TURNING

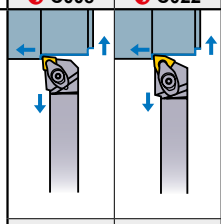
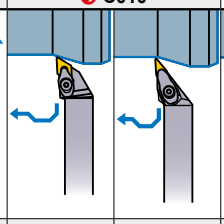
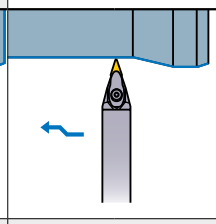
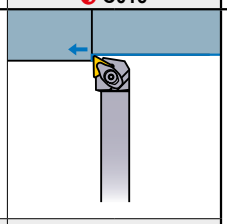
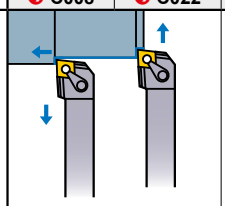
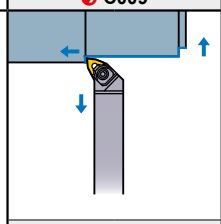
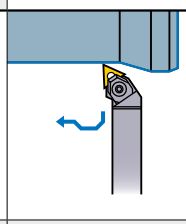
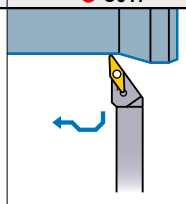
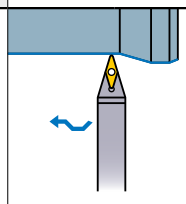
EXTERNAL TURNING TOOLS

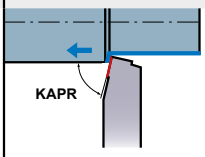
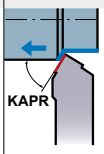
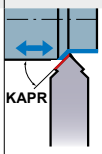
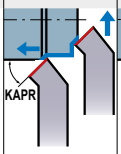
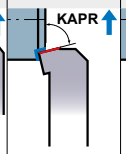
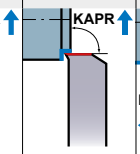
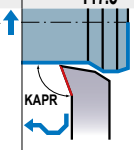
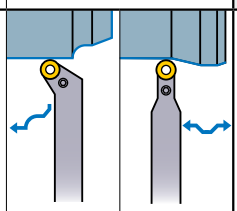
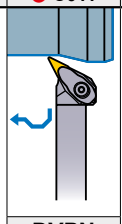
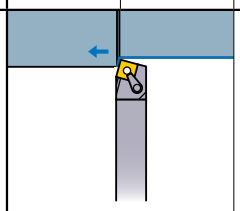
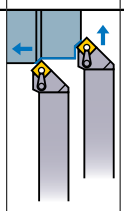
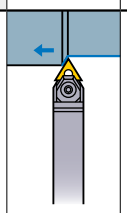
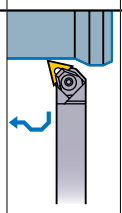
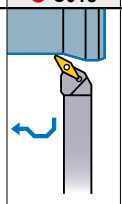
CLASSIFICATION ····· C002
IDENTIFICATION ····· C006
METHOD OF HOLDING ····· C007
STANDARD HOLDERS
CN○○ INSERTS TOOL HOLDERS ····· C008
DN○○ INSERTS TOOL HOLDERS ····· C010
SN○○ INSERTS TOOL HOLDERS ····· C012
TN○○ INSERTS TOOL HOLDERS ····· C016
VN○○ INSERTS TOOL HOLDERS ····· C019
WN○○ INSERTS TOOL HOLDERS ····· C022
CC○○ INSERTS TOOL HOLDERS ····· C024
DC○○ INSERTS TOOL HOLDERS ····· C025
RC○○ INSERTS TOOL HOLDERS ····· C026
SC○○ INSERTS TOOL HOLDERS ····· C028
TC○○ INSERTS TOOL HOLDERS ····· C029
VC○○ INSERTS TOOL HOLDERS ····· C030
XC○○ INSERTS TOOL HOLDERS ····· C032
TL HOLDER ····· C037
AL HOLDER
DE○○ INSERTS TOOL HOLDERS ····· C034
TE○○ INSERTS TOOL HOLDERS ····· C035
VD○○ INSERTS TOOL HOLDERS ····· C036

*Alphabetical order index

C008 **DCLN**
C010 **DDJN**
C016 **DTGN**
C019 **DVJN**
C021 **DVPN**
C020 **DVVN**
C022 **DWLN**
C009 **MCLN**
C012 **MSBN**
C014 **MSSN**
C018 **MTEN**
C017 **MTJN**
C018 **MTQN**
C023 **MWLN**
C009 **PCBN**
C008 **PCLN**
C011 **PDHN**
C010 **PDJN**
C026 **PRDC**
C026 **PRGC**
C012 **PSBN**
C014 **PSDN**
C015 **PSKN**
C013 **PSSN**
C013 **PSTN**
C017 **PTFN**
C016 **PTGN**
C019 **PVJN**
C021 **PVPN**
C020 **PVVN**
C022 **PWLN**
C024 **SCLC**
C025 **SDJC**
C034 **SDJE**
C025 **SDNC**
C034 **SDNE**
C027 **SRDC**
C027 **SRGC**
C028 **SSSC**
C035 **STFE**
C029 **STGC**
C035 **STGE**
C030 **SVJC**
C036 **SVJD**
C031 **SVPC**
C030 **SVVC**
C032 **SXZC**
C037 **TLHR**

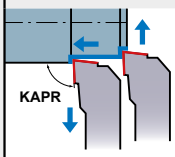
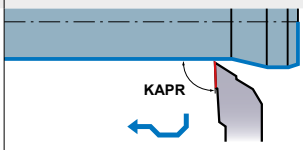
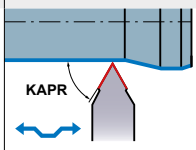
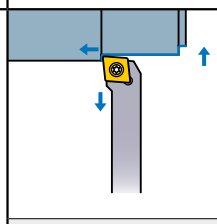
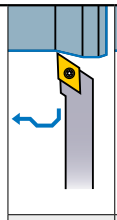
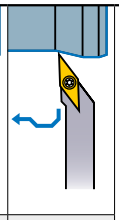
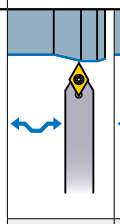
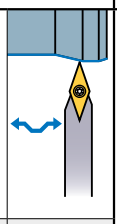
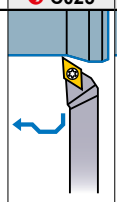
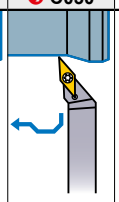
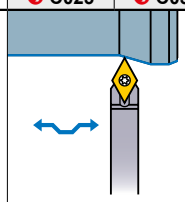
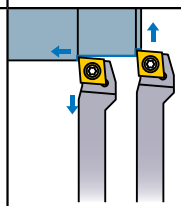
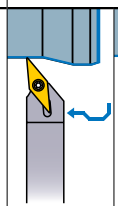
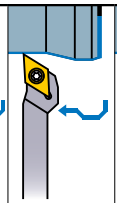
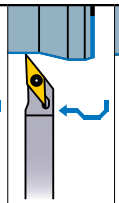
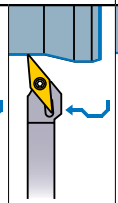
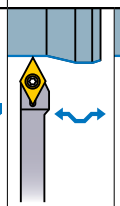
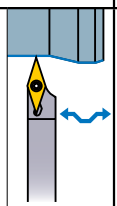
CLASSIFICATION (Negative insert)

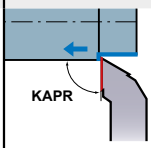
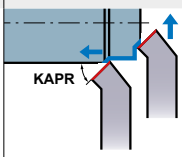
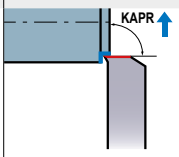
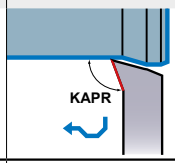
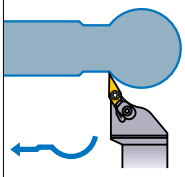
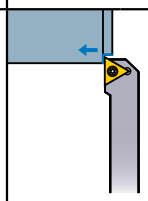
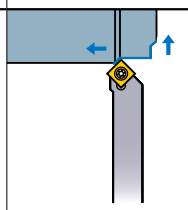
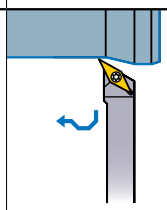
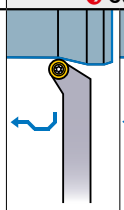
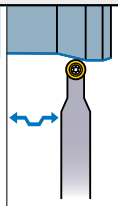
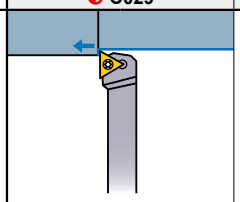
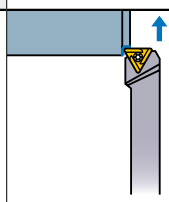
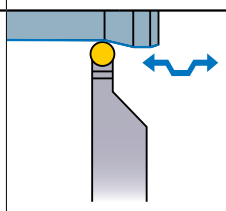
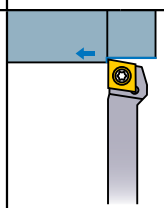
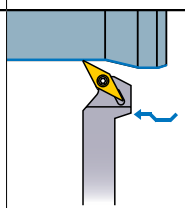
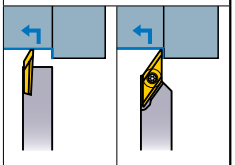
Tool Holder	Features Shank Size (H x W x L)	External Turning Facing KAPR=95°	External Turning Copying KAPR=93°	External Turning Copying KAPR=72.5°	External Turning KAPR=91°
LL Holder	● Lever lock type. ● ISO standard. ● Various holder shapes. ● Suitable for light to heavy cutting. ● Economical negative insert. 10 x 10 x 70 25 x 25 x 150 12 x 12 x 80 32 x 25 x 170 16 x 16 x 100 32 x 32 x 170 20 x 20 x 125	 **PCLN** ➲ C008 **PWLN** ➲ C022	 **PDJN** ➲ C010		 **PTGN** ➲ C016
DOUBLE CLAMP Holder	● Double clamp type. ● Holds inserts securely. ● Excellent cutting edge tolerance. ● Economical negative insert. ● Small insert series. 16 x 16 x 100 25 x 25 x 150 20 x 20 x 125 32 x 25 x 170	 **DCLN** ➲ C008 **DWLN** ➲ C022	 **DDJN** ➲ C010 **DVJN** ➲ C019	 **DVVN** ➲ C020	 **DTGN** ➲ C016
DOUBLE CLAMP Holder (For heavy cutting)	● Double clamp holder type. ● Holds inserts securely. ● Suitable for heavy cutting. ● Negative insert. 32 x 32 x 170 40 x 40 x 200	 **MCLN** ➲ C009			
WP Holder	● Double clamp holder type. ● Simple insert exchange. ● Economical negative insert. 20 x 20 x 125 25 x 25 x 150 32 x 25 x 170	 **MWLN** ➲ C023	 **MTJN** ➲ C017		
MP Holder	● Pin lock type. ● 35°rhombic shape insert. ● Suitable for recessing. 20 x 20 x 125 25 x 25 x 150		 **PVJN** ➲ C019	 **PVVN** ➲ C020	

	External Turning		External Turning, Chamfering		External Turning, Facing, Chamfering	Facing		Facing Copying	External Turning, Copying		Selection Standard				
	KAPR=75°		KAPR=60°	KAPR=45°	KAPR=45°	KAPR=75°	KAPR=91°	KAPR=105° 107.5° 117.5°	Special Design (Positive inserts)		Economical	Low Cutting Resistance (Sharpness)	Clamp Rigidity	Operation Efficiency	Specialised
											◎		○	◎	
	PCBN ➲ C009	PSBN ➲ C012	PSTN ➲ C013	PSDN ➲ C014	PSSN ➲ C013	PSKN ➲ C015	PTFN ➲ C017	PDHN ➲ C011	PRGC ➲ C026	PRDC ➲ C026					
											◎		◎	◎	
								DVPN ➲ C021							
													◎		
	MSBN ➲ C012				MSSN ➲ C014										
											◎		◎	◎	
			MTEN ➲ C018					MTQN ➲ C018							
											◎			◎	
								PVPN ➲ C021							

Note 1) ◎ : 1st recommendation. ○ : 2nd recommendation.

CLASSIFICATION (Positive insert)

Tool Holder	Features Shank Size (H x W x L)	External Turning, Facing KAPR=95°	External Turning, Copying KAPR=93° 95°		KAPR=62.5° 72.5°	
						
Profile Holder 	● Double clamp holder type. ● 25° rhombic shape insert. ● Possible to machine a face relief with up to 60° inclination. 16 x 16 x 100 20 x 20 x 125 25 x 25 x 150					
SP Holder 	● Screw-on type. ● Miniature holder with 7°positive insert. 8 x 8 x 60 10 x 10 x 70 12 x 12 x 80 16 x 16 x 100 20 x 20 x 125 25 x 25 x 150	 **SCLC** ➲ C024	 **SDJC** ➲ C025	 **SVJC** ➲ C030	 **SDNC** ➲ C025	 **SVVC** ➲ C030
AL Holder (For Aluminium) 	● Screw-on type. ● 20°positive insert. (35°rhombic shape insert is 15°) ● High rake and good sharpness. 16 x 16 x 100 20 x 20 x 125 25 x 25 x 150		 **SDJE** ➲ C034	 **SVJD** ➲ C036	 **SDNE** ➲ C034	
TL Holder 	● Taper lock type ● Excellent finished surface with round shape insert. 20 x 20 x 125 25 x 25 x 150 32 x 25 x 170					
SMALL TOOLS (Tools for front turning) 	● Screw-on type. ● Tools to be equipped on gang type tool posts. ● Miniature holder with 7°positive insert. 8 x 8 x 125 10 x 10 x 125 12 x 12 x 150 16 x 16 x 150	 **SCLC-SM** ➲ D010	 **SVLP-SM** ➲ D012	 **SDJC-SM** ➲ D011	 **SVJB-SM** ➲ D012	 **SVJC-SM** ➲ D013	 **SDNC-SM** ➲ D011	 **SVVB-SM** ➲ D013
SMALL TOOLS (Tools for back turning) 	● Screw-on type. ● Tools to be equipped on gang type tool posts. ● High rigidity due to designing of vertical insert. (BTA/CTB type) ● Back machining. (BTA/CTB type) 8 x 10 x 120 10 x 10 x 120 12 x 12 x 120 16 x 16 x 120					

	External Turning	External Turning, Facing, Chamfering	Facing	Facing, Copying	External Turning, Copying	Selection Standard				
	KAPR=90° 91°	KAPR=45°	KAPR=91°	KAPR=117.5°	Special Design	Economical	Low Cutting Resistance (Sharpness)	Clamp Rigidity	Operation Efficiency	Specialised
										
					 **SXZC** ➲ C032		◎	◎		
	 **STGC** ➲ C029	 **SSSC** ➲ C028		 **SVPC** ➲ C031	 **SRGC** ➲ C027  **SRDC** ➲ C027		○			
	 **STGE** ➲ C035		 **STFE** ➲ C035				◎			◎
					 **TLHR** ➲ C037		○			◎
	 **SCAC-SM** ➲ D010			 **SVPP-SM** ➲ D013			○			
					Special Design  **BTAH/CTBH** ➲ D014, D015 **BTVH** ➲ D016		○			

Note 1) ◎ : 1st recommendation. ○ : 2nd recommendation.

IDENTIFICATION

■ LL Holder / Double Clamp Holder / SP Holder / Profile Holder / AL Holder

P	C	L	N	R	25	25	M	12
①	②	③	④	⑤	⑥	⑥	⑦	⑧

①Clamp Structure	
D	Double Clamp Type
M	Wedge Lock Type Multiple Clamp Type
P	Lever Lock Type
S	Screw-on Type

②Insert Shape	
C	Rhombic 80°
D	Rhombic 55°
R	Round
S	Square
T	Triangular
V	Rhombic 35°
W	Trigon
X	Special Design

③Cutting Angle KAPR	
A	90°Without Offset
B	75°
D	45°Neutral
E	60°
F	90°
G	90°With Offset
H	107.5°
J	93°
K	75°
L	95°
N	62.5°
P	117.5°
Q	105°
S	45°
T	60°
V	72.5°
Z	Special

④Insert Clearance	
C	7°Positive
N	Negative
E	20°Positive

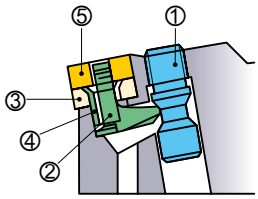
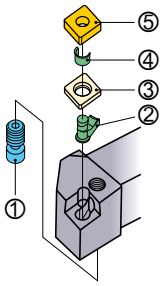
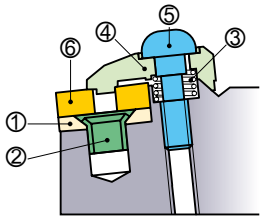
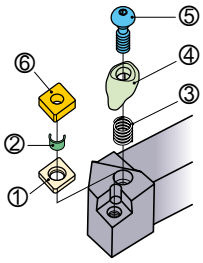
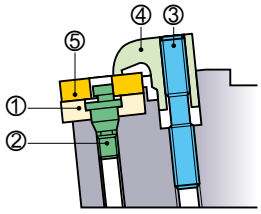
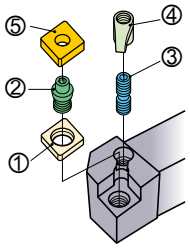
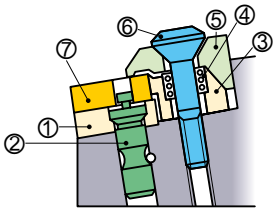
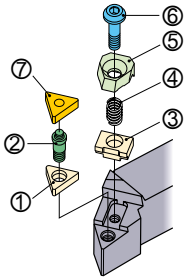
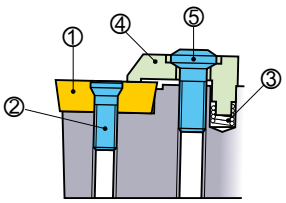
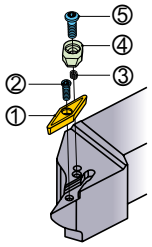
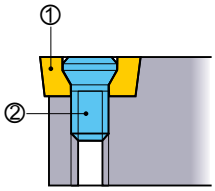
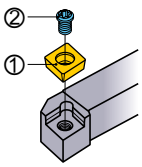
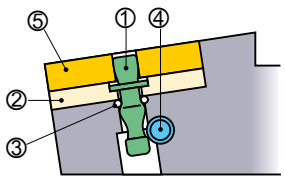
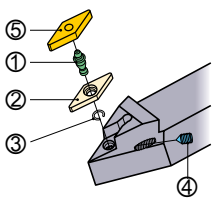
⑤Hand of Tool	
R	Right Hand
L	Left Hand
N	Neutral

⑥Tool Size H/B (mm) (Height and Width)	
8	08
10	10
12	12
16	16
20	20
25	25
32	32

⑦Tool Length LF (mm)	
D	60
E	70
F	80
H	100
K	125
M	150
P	170
Q	180
R	200

⑧Cutting Edge Length (mm)						
Inscribed Circle	Insert Shape					
	Square	Triangular	Round	Rhombic 80°	Rhombic 55°	Rhombic 35°
6.00	–	–	06	–	–	–
6.35	–	11	–	06	07	11
7.94	–	13	–	–	–	–
8.00	–	–	08	–	–	–
9.525	09	16	–	09	11	16
10.00	–	–	10	–	–	–
12.00	–	–	12	–	–	–
12.70	12	22	–	12	15	–
15.875	15	27	–	16	–	–
16.00	–	–	16	–	–	–
19.05	19	–	–	19	–	–
20.00	–	–	20	–	–	–
25.00	–	–	25	–	–	–
25.40	25	–	–	–	–	–
32.00	–	–	32	–	–	–

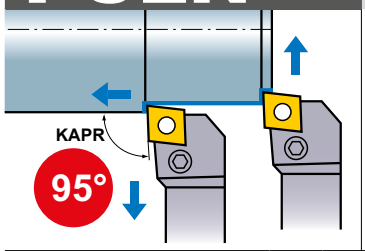
METHOD OF HOLDING

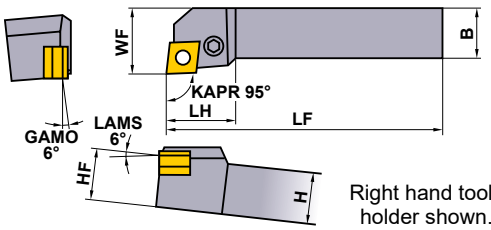
Type (Holder)	Structure
Lever Lock (LL HOLDER)	 ①Clamp Screw ②Lever ③Shim ④Shim Pin ⑤Insert 
Double Clamp (DOUBLE CLAMP HOLDER)	 ①Shim ②Shim Pin ③Spring ④Clamp Bridge ⑤Clamp Screw ⑥Insert 
Multiple Clamp (DOUBLE CLAMP HOLDER) (For heavy cutting)	 ①Shim ②Shim Pin ③Clamp Screw ④Clamp Bridge ⑤Insert 
Wedge Lock (WP HOLDER)	 ①Shim ②Shim Pin ③Plate ④Spring ⑤Clamp Bridge ⑥Clamp Screw ⑦Insert 
Two Action Double Clamp (PROFILE HOLDER)	 ①Insert ②Clamp Screw (1) ③Spring ④Clamp Bridge ⑤Clamp Screw (2) 
Screw-on (SP HOLDER AL HOLDER)	 ①Insert ②Clamp Screw 
Pin Lock (MP HOLDER)	 ①Lock Pin ②Shim ③Stop Ring ④Lock Screw ⑤Insert 

CN INSERTS TOOL HOLDERS

PCLN

External turning, Facing — **LL type**





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(12)	(12)	(12,16)	(12,16,19)
Medium	**Medium to Rough**	**Stainless**	**CBN**
Standard	RP	MM	
(09,12,16,19)	(12,16,19)	(12,16,19)	(12)

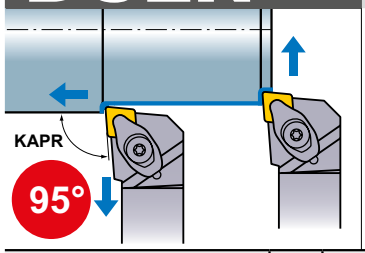
Order Number	Stock		Insert Number		Dimensions (mm)						Shim	Shim Pin	Clamp Lever	* Clamp Screw	Wrench
	R	L			H	B	LF	LH	HF	WF					
PCLNR/L1616H09	●	●	CNMG	09T3○○	16	16	100	22	16	20	LLSCN3T3	LLP13	LLCL13	LLCS106	HKY25R
PCLNR/L2020K09	●	●		09T3○○	20	20	125	22	20	25	LLSCN3T3	LLP13	LLCL13	LLCS106	HKY25R
PCLNR/L2525M09	●	●		09T3○○	25	25	150	22	25	32	LLSCN3T3	LLP13	LLCL13	LLCS106	HKY25R
PCLNR/L2020K12	●	●	CNMA CNMG CNMM CNGA CNGG CNGM	1204○○	20	20	125	28	20	25	LLSCN42	LLP14	LLCL14	LLCS108	HKY30R
PCLNR/L2525M12	●	●		1204○○	25	25	150	28	25	32	LLSCN42	LLP14	LLCL14	LLCS108	HKY30R
PCLNR/L3225P12	●	●		1204○○	32	25	170	28	32	32	LLSCN42	LLP14	LLCL14	LLCS108	HKY30R
PCLNR/L3232P16	●	●		1606○○	32	32	170	32	32	40	LLSCN53	LLP15	LLCL25	LLCS508	HKY30R
PCLNR/L3232P19	●	●		1906○○	32	32	170	40	32	40	LLSCN63	LLP16	LLCL16	LLCS310	HKY40R

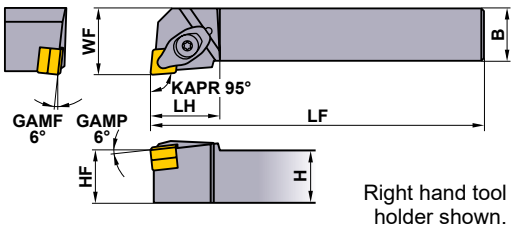
* Clamp Torque (N • m) : LLCS106=2.2, LLCS108=3.3, LLCS508=3.3, LLCS310=7.0

Note 1) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

DCLN

External turning, Facing — **DOUBLE CLAMP type**





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(12)	(12)	(12)	(12)
Medium	**Medium to Rough**	**Stainless**	**CBN**
Standard	RP	MM	
(09,12)	(12)	(12)	(12)

Order Number	Stock		Insert Number		Dimensions (mm)						*2 Shim	Shim Pin	Clamp Bridge	Spring	*1 Clamp Screw	Wrench
	R	L			H	B	LF	LH	HF	WF						
DCLNR/L1616H09	●	●	CNMG	09T3○○	16	16	100	25	16	20	LLSCN3T3 (LLSCN33)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DCLNR/L1616H09-T	●	●		0903○○	16	16	100	25	16	20	LLSCN33	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DCLNR/L2020K09	●	●		09T3○○	20	20	125	25	20	25	LLSCN3T3 (LLSCN33)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DCLNR/L2020K09-T	●	●		0903○○	20	20	125	25	20	25	LLSCN33	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DCLNR/L2525M09	●	●		09T3○○	25	25	150	25	25	32	LLSCN3T3 (LLSCN33)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DCLNR/L2525M09-T	●	●		0903○○	25	25	150	25	25	32	LLSCN33	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DCLNR/L2020K12	●	●	CNMA CNMG CNMM CNGA CNGG CNGM	1204○○	20	20	125	29	20	25	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
DCLNR/L2525M12	●	●		1204○○	25	25	150	29	25	32	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
DCLNR/L3225P12	●	●		1204○○	32	25	170	29	32	32	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

*1 Clamp Torque (N • m) : DC0520T=3.5, DC0621T=5.0
*2 Please use shim no. LLSCN33 with 3.18mm thick inserts. When using 3.18mm thick inserts, the shim should be ordered separately.

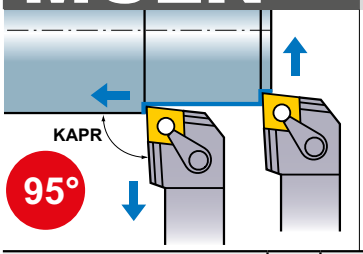
Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

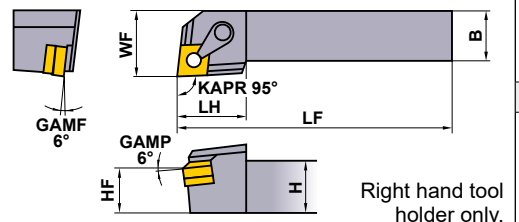
● : Inventory maintained.

PCLN type inserts	➤ A098—A105	PCBN & PCD inserts	➤ B022—B024, B049
DCLN type inserts	➤ A098—A105	RECOMMENDED CUTTING CONDITIONS	➤ A076, B008

MCLN

External turning, Facing — **DOUBLE CLAMP type** For heavy cutting





Right hand tool holder only.

Medium	Medium	Medium	Medium to Rough
MH	Standard	MS	RP
(19)	(19)	(19)	(19)
Heavy	**Heavy**	**Heavy**	**M Class**
HZ	HX	HL	Flat Top
(19)	(19)	(19)	(19)

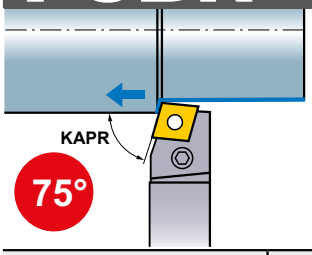
Order Number	Stock	Insert Number		Dimensions (mm)						Shim	Shim Pin	Clamp Bridge	Clamp Screw *	Wrench
	R			H	B	LF	LH	HF	WF					
MCLNR3232P19	●	CNMG CNMM CNMA	1906○○	32	32	170	36	32	40	MSCN63	MP6	CKW6	LS25	HKY40R
MCLNR4040R19	●		1906○○	40	40	200	36	40	50	MSCN63	MP6	CKW6	LS25	HKY40R

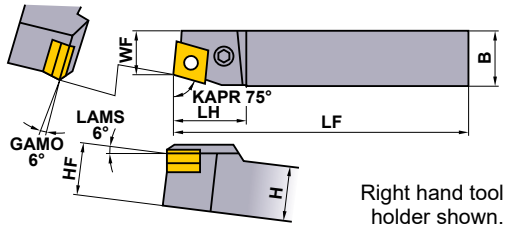
* Clamp Torque (N • m) : LS25=8.2

Note 1) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

PCBN

External turning — **LL type**





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(12)	(12)	(12)	(12)
Medium	**Medium to Rough**	**Stainless**	
Standard	RP	MM	
(12)	(12)	(12)	

Order Number	Stock		Insert Number		Dimensions (mm)						Shim	Shim Pin	Clamp Lever	Clamp Screw *	Wrench
	R	L			H	B	LF	LH	HF	WF					
PCBNR/L2020K12	●	●	CN○A CN○G CN○M	1204○○	20	20	125	28	20	17	LLSCN42	LLP14	LLCL14	LLCS108	HKY30R
PCBNR/L2525M12	●	●		1204○○	25	25	150	25	25	22	LLSCN42	LLP14	LLCL14	LLCS108	HKY30R

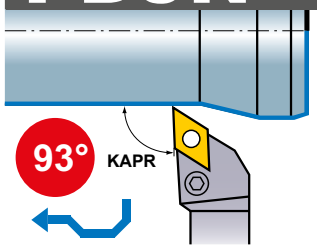
* Clamp Torque (N • m) : LLCS108=3.3

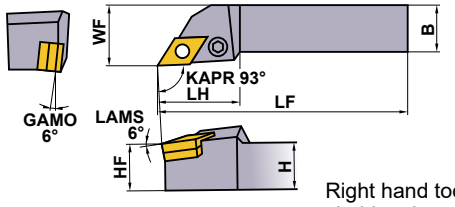
MCLN type inserts	➤ A100—A105	RECOMMENDED CUTTING CONDITIONS	➤ A076, B008
PCBN type inserts	➤ A098—A105	SPARE PARTS	➤ N001
PCBN & PCD inserts	➤ B022—B024, B049	TECHNICAL DATA	➤ P001

DN INSERTS TOOL HOLDERS

PDJN

External turning, Copying **LL type**





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(15)	(15)	(15)	(15)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP	MM	R/L	
(15)	(15)	(15)	(15)

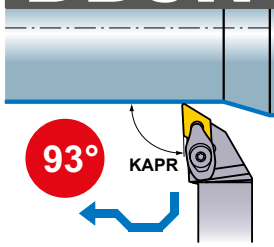
Order Number	Stock		Insert Number		Dimensions (mm)						✶2			✶1	
	R	L			H	B	LF	LH	HF	WF	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench
PDJNR/L2020K15	●	●	DNMA DNMG DNMM DNMX DNGA DNGG DNGM	1504○○	20	20	125	35	20	25	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HKY30R
PDJNR/L2525M15	●	●		1504○○	25	25	150	35	25	32	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HKY30R
PDJNR/L3225P15	●	●		1504○○	32	25	170	35	32	32	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HKY30R

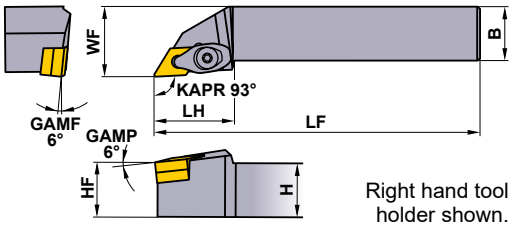
✶1 Clamp Torque (N • m) : LLCS108=3.3
✶2 Please use shim no. LLSDN42 with 6.35mm thick inserts. When using 6.35mm thick inserts, the shim should be ordered separately.

Note 1) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

DDJN

External turning, Copying **DOUBLE CLAMP type**





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(15)	(11,15)	(15)	(11,15)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP	MM	R/L	
(15)	(15)	(15)	(15)

Order Number	Stock		Insert Number		Dimensions (mm)						✶2				✶1	
	R	L			H	B	LF	LH	HF	WF	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench
DDJNR/L1616H11	●	●	DNMG DNGA	1104○○	16	16	100	28	16	20	LLSDN32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DDJNR/L2020K11	●	●		1104○○	20	20	125	28	20	25	LLSDN32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DDJNR/L2525M11	●	●		1104○○	25	25	150	28	25	32	LLSDN32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DDJNR/L3225P11	●	●		1104○○	32	25	170	28	32	32	LLSDN32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DDJNR/L2020K15	●	●	DNMA DNMG DNMM DNMX DNGA DNGG DNGM	1504○○	20	20	125	37	20	25	LLSDN43 (LLSDN42)	LLP24	DCK2613	DCS1	DC0621T	TKY20F
DDJNR/L2020K15-T	●	●		1506○○	20	20	125	37	20	25	LLSDN42	LLP24	DCK2613	DCS1	DC0621T	TKY20F
DDJNR/L2525M15	●	●		1504○○	25	25	150	37	25	32	LLSDN43 (LLSDN42)	LLP24	DCK2613	DCS1	DC0621T	TKY20F
DDJNR/L2525M15-T	●	●		1506○○	25	25	150	37	25	32	LLSDN42	LLP24	DCK2613	DCS1	DC0621T	TKY20F
DDJNR/L3225P15	●	●		1504○○	32	25	170	37	32	32	LLSDN43 (LLSDN42)	LLP24	DCK2613	DCS1	DC0621T	TKY20F
DDJNR/L3225P15-T	●	●		1506○○	32	25	170	37	32	32	LLSDN42	LLP24	DCK2613	DCS1	DC0621T	TKY20F

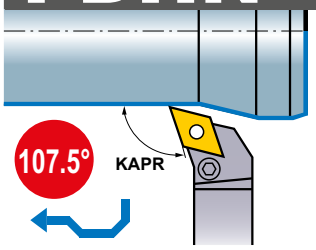
✶1 Clamp Torque (N • m) : DC0520T=3.5, DC0621T=5.0
✶2 Please use shim no. LLSDN42 with 6.35mm thick inserts. When using 6.35mm thick inserts, the shim should be ordered separately.

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

● : Inventory maintained.

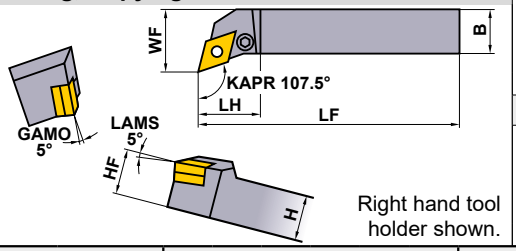
PDJN type inserts	➤A106—A112	PCBN & PCD inserts	➤B025—B028, B050
DDJN type inserts	➤A106—A112	RECOMMENDED CUTTING CONDITIONS	➤A076, B008

PDHN

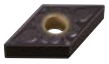
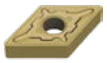
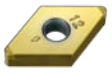


Facing, Copying

LL type



Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
			
(15)	(15)	(15)	(15)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP	MM	R/L	
			
(15)	(15)	(15)	(15)

Order Number	Stock		Insert Number		Dimensions (mm)						*2			*1	
	R	L			H	B	LF	LH	HF	WF	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench
PDHNR/L2020K15	●	●	DNMA DNMG	1504○○	20	20	125	34	20	25	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HKY30R
PDHNR/L2525M15	●	●	DNMM DNGA	1504○○	25	25	150	34	25	32	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HKY30R
PDHNR/L3225P15	●	●	DNGG DNGM	1504○○	32	25	170	34	32	32	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HKY30R

*1 Clamp Torque (N • m) : LLCS108=3.3

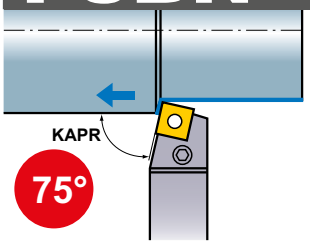
*2 Please use shim no. LLSDN42 with 6.35mm thick inserts. When using 6.35mm thick inserts, the shim should be ordered separately.

Note 1) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

PDHN type inserts ➤ A106—A112
PCBN & PCD inserts ➤ B025—B028, B050
RECOMMENDED CUTTING CONDITIONS ➤ A076, B008
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

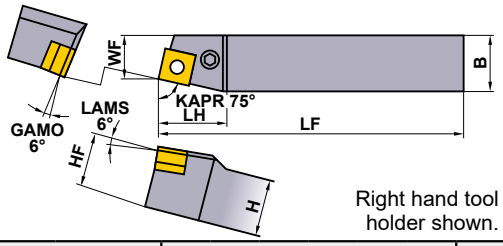
SN INSERTS TOOL HOLDERS

PSBN



External turning

LL type



Right hand tool holder shown.

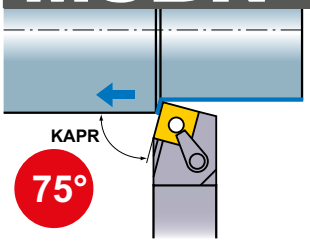
Finish	Light	Medium	Medium
FP	LP	MP	MK
(12)	(12)	(12)	(12,15,19)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP	MM	R/L	
(12,15,19)	(12,15,19)	(09,12)	(12)

Order Number	Stock		Insert Number		Dimensions (mm)						Shim	Shim Pin	Lever Spring	Clamp Lever	Clamp Screw*	Wrench
	R	L			H	B	LF	LH	HF	WF						
PSBNR/L1212F09	●		SNMA SNMG SNMM SNGA SNGG	0903○○	12	12	80	20	12	13	—	—	HLS2	LLCL13S	LLCS105	HKY20R
PSBNR/L1616H09	●	●		0903○○	16	16	100	22	16	13	LLSSN33	LLP23	—	LLCL13	LLCS106	HKY25R
PSBNR/L2020K12	●	●		1204○○	20	20	125	28	20	17	LLSSN42	LLP14	—	LLCL14	LLCS108	HKY30R
PSBNR/L2525M12	●	●		1204○○	25	25	150	25	25	22	LLSSN42	LLP14	—	LLCL14	LLCS108	HKY30R
PSBNR/L2525M15	●	●		1506○○	25	25	150	33	25	22	LLSSN53	LLP15	—	LLCL25	LLCS508	HKY30R
PSBNR/L3232P19	●	●		1906○○	32	32	170	40	32	27	LLSSN63	LLP16	—	LLCL16	LLCS310	HKY40R

* Clamp Torque (N • m) : LLCS105=1.5, LLCS106=2.2, LLCS108=3.3, LLCS508=3.3, LLCS310=7.0

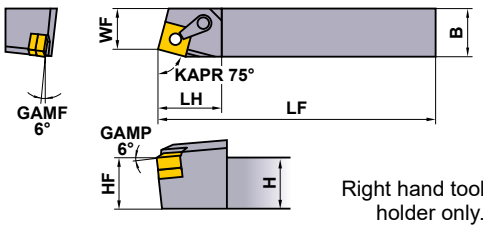
Note 1) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

MSBN



External turning

DOUBLE CLAMP type
For heavy cutting



Right hand tool holder only.

Medium	Medium	Medium	Medium to Rough
MH	Standard	MS	RP
(19)	(19)	(19)	(19)
Heavy	**Heavy**	**Heavy**	**M Class**
HZ	HX	HL	Flat Top
(19)	(19)	(19)	(19)

Order Number	Stock	Insert Number		Dimensions (mm)						Shim	Shim Pin	Clamp Bridge	Clamp Screw*	Wrench
	R			H	B	LF	LH	HF	WF					
MSBNR3232P19	●	SNMG SNMM SNMA	1906○○	32	32	170	41	32	27	MSSN63	MP6	CKW6	LS25	HKY40R
MSBNR4040R19	●		1906○○	40	40	200	41	40	35	MSSN63	MP6	CKW6	LS25	HKY40R

* Clamp Torque (N • m) : LS25=8.2

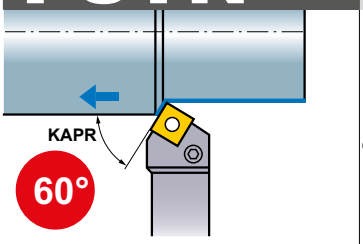
Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

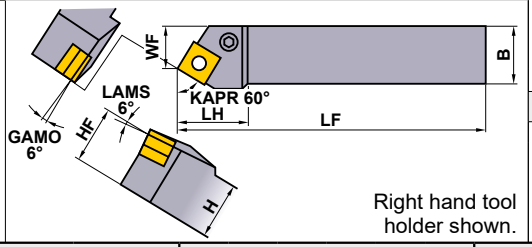
● : Inventory maintained.
★ : Inventory maintained in Japan.

PSBN type inserts ➤A114—A119
MSBN type inserts ➤A115—A119
PCBN & PCD inserts ➤B029, B050
RECOMMENDED CUTTING CONDITIONS ➤A076, B008

PSTN

External turning, Chamfering — **LL type**





Right hand tool holder shown.

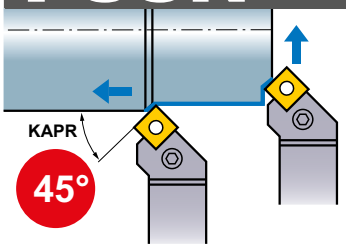
Finish	Light	Medium	Medium
FP (12)	LP (12)	MP (12)	MK (12)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP (12)	MM (12)	R/L (09,12)	(12)

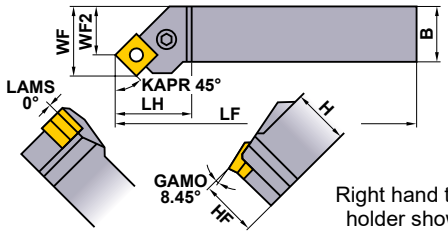
Order Number	Stock		Insert Number		Dimensions (mm)						Shim	Shim Pin	Clamp Lever	Clamp Screw *	Wrench
	R	L			H	B	LF	LH	HF	WF					
PSTNR/L1616H09	●	●	SNMA SNMG SNMM SNGA SNGG	0903○○	16	16	100	20	16	13	LLSSN33	LLP23	LLCL13	LLCS106	HKY25R
PSTNR/L2020K12	●	★		1204○○	20	20	125	25	20	17	LLSSN42	LLP14	LLCL14	LLCS108	HKY30R
PSTNR/L2525M12	●	●		1204○○	25	25	150	25	25	22	LLSSN42	LLP14	LLCL14	LLCS108	HKY30R

∗ Clamp Torque (N • m) : LLCS106=2.2, LLCS108=3.3

PSSN

External turning, Facing, Chamfering — **LL type**





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP (12)	LP (12)	MP (12)	MK (12,15,19)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP (12,15,19)	MM (12,15,19)	R/L (09,12)	(12)

Order Number	Stock		Insert Number		Dimensions (mm)							Shim	Shim Pin	Clamp Lever	Clamp Screw *	Wrench
	R	L			H	B	LF	LH	HF	WF	WF2					
PSSNR/L1616H09	●	●	SNMA SNMG SNMM SNGA SNGG	0903○○	16	16	100	22	16	20	(14)	LLSSN33	LLP23	LLCL13	LLCS106	HKY25R
PSSNR/L2020K12	●	●		1204○○	20	20	125	31	20	25	(17)	LLSSN42	LLP14	LLCL14	LLCS108	HKY30R
PSSNR/L2525M12	●	●		1204○○	25	25	150	31	25	32	(24)	LLSSN42	LLP14	LLCL14	LLCS108	HKY30R
PSSNR/L3232P15	●	●		1506○○	32	32	170	34	32	40	(29)	LLSSN53	LLP15	LLCL25	LLCS508	HKY30R
PSSNR/L3232P19	●	●		1906○○	32	32	170	40	32	40	(27)	LLSSN63	LLP16	LLCL16	LLCS310	HKY40R

∗ Clamp Torque (N • m) : LLCS106=2.2, LLCS108=3.3, LLCS508=3.3, LLCS310=7.0

Note 1) When facing or chamfering only and using insert with right or left hand chipbreaker, please use left hand insert for right hand holder and right hand insert for left hand holder.

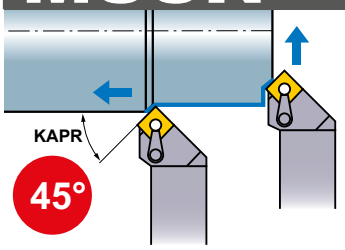
Note 2) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

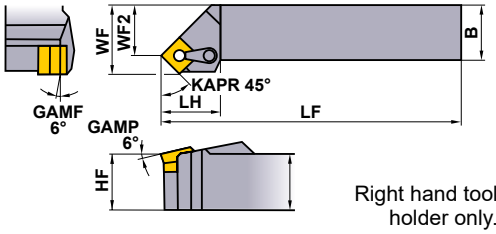
PSTN type inserts	**➤ A114—A119**	**RECOMMENDED CUTTING CONDITIONS**	**➤ A076, B008**
PSSN type inserts	**➤ A114—A119**	**SPARE PARTS**	**➤ N001**
PCBN & PCD inserts	**➤ B029, B050**	**TECHNICAL DATA**	**➤ P001**

SN INSERTS TOOL HOLDERS

MSSN

External turning, Facing, Chamfering — **DOUBLE CLAMP type** For heavy cutting





Right hand tool holder only.

Medium	Medium	Medium	Rough
MH	Standard	MS	RP
(19)	(19)	(19)	(19)
Heavy	**Heavy**	**Heavy**	**M Class**
HZ	HX	HL	Flat Top
(19)	(19)	(19)	(19)

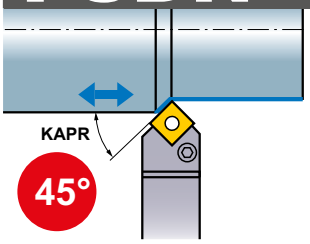
Order Number	Stock	Insert Number		Dimensions (mm)							Shim	Shim Pin	Clamp Bridge	Clamp Screw *	Wrench
	R			H	B	LF	LH	HF	WF	WF2					
MSSNR3232P19	●	SNMG SNMM SNMA	1906○○	32	32	170	44	32	40	27	MSSN63	MP6	CKW6	LS25	HKY40R
MSSNR4040R19	●		1906○○	40	40	200	44	40	50	37	MSSN63	MP6	CKW6	LS25	HKY40R

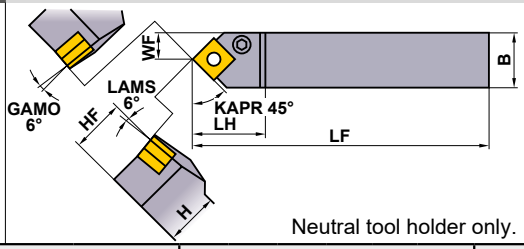
* Clamp Torque (N • m) : LS25=8.2

Note 1) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

PSDN

External turning, Chamfering — **LL type**





Neutral tool holder only.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(12)	(12)	(12)	(12)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP	MM	R/L	
(12)	(12)	(09,12)	(12)

Order Number	Stock	Insert Number		Dimensions (mm)						Shim	Shim Pin	Lever Spring	Clamp Lever	Clamp Screw *	Wrench
				H	B	LF	LH	HF	WF						
PSDNN1212F09	●	SNMA SNMG SNMM SNGA SNGG	0903○○	12	12	80	20	12	6.0	—	—	HLS2	LLCL13S	LLCS105	HKY20R
PSDNN1616H09	●		0903○○	16	16	100	22	16	8.0	LLSSN33	LLP23	—	LLCL13	LLCS106	HKY25R
PSDNN2020K12	●		1204○○	20	20	125	28	20	10.0	LLSSN42	LLP14	—	LLCL14	LLCS108	HKY30R
PSDNN2525M12	●		1204○○	25	25	150	28	25	12.5	LLSSN42	LLP14	—	LLCL14	LLCS108	HKY30R
PSDNN3225P12	●		1204○○	32	25	170	28	32	12.5	LLSSN42	LLP14	—	LLCL14	LLCS108	HKY30R

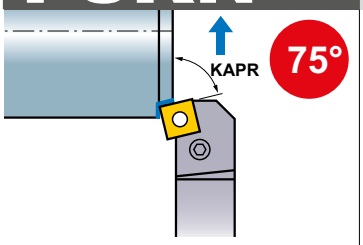
* Clamp Torque (N • m) : LLCS105=1.5, LLCS106=2.2, LLCS108=3.3

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

● : Inventory maintained.

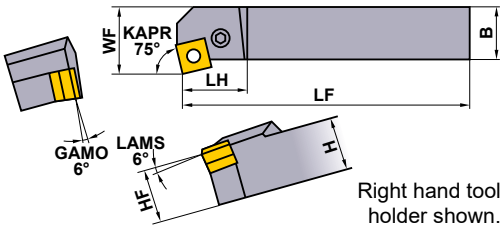
MSSN type inserts	➤ A115—A119	PCBN & PCD inserts	➤ B029, B050
PSDN type inserts	➤ A114—A119	RECOMMENDED CUTTING CONDITIONS	➤ A076, B008

PSKN



Facing

LL type



Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(12)	(12)	(12)	(12)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP	MM	R/L	
(12)	(12)	(09,12)	(12)

Order Number	Stock		Insert Number		Dimensions (mm)										
	R	L			H	B	LF	LH	HF	WF	Shim	Shim Pin	Clamp Lever	Clamp Screw *	Wrench
PSKNR/L1616H09	●	●	SNMA SNMG	0903○○	16	16	100	20	16	20	LLSSN33	LLP23	LLCL13	LLCS106	HKY25R
PSKNR/L2020K12	●	●	SNMM SNGA	1204○○	20	20	125	25	20	25	LLSSN42	LLP14	LLCL14	LLCS108	HKY30R
PSKNR/L2525M12	●	●	SNGG	1204○○	25	25	150	25	25	32	LLSSN42	LLP14	LLCL14	LLCS108	HKY30R

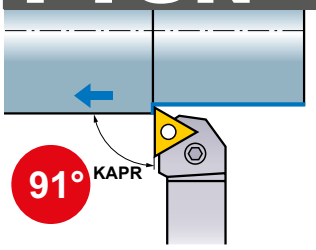
* Clamp Torque (N • m) : LLCS106=2.2, LLCS108=3.3

Note 1) When using inserts with right or left hand chipbreakers, please use left hand inserts for right hand holders and right hand inserts for left hand holders.

PSKN type inserts ➤ A114—A119
PCBN & PCD inserts ➤ B029, B050
RECOMMENDED CUTTING CONDITIONS ➤ A076, B008
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

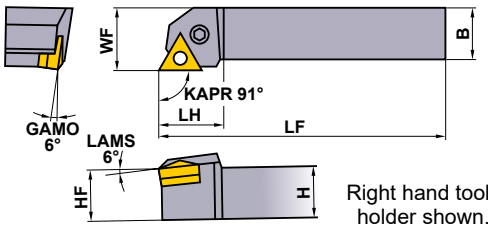
TN INSERTS TOOL HOLDERS

PTGN

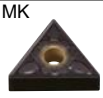


External turning

LL type



Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(16)	(16,22)	(16,22)	 (16,22)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP	MM	R/L	
(16,22,27)	(16,22)	(11,16,22)	(16)

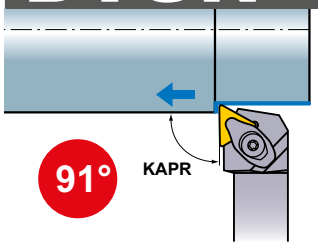
Order Number	Stock		Insert Number		Dimensions (mm)						✶2 Shim	✶2 Shim Pin	Lever Spring	Clamp Lever	✶1 Clamp Screw	Wrench
	R	L			H	B	LF	LH	HF	WF						
PTGNR/L1010E11	●	●	TNMA TNMG TNMM TNGA TNGG TNGM	1103○○	10	10	70	17	10	12	–	–	HLS1	LLCL12S	LLCS105	HKY20F
PTGNR/L1212F11	●	●		1103○○	12	12	80	17	12	16	–	–	HLS1	LLCL12S	LLCS105	HKY20F
PTGNR/L1616H16	●	●		1604○○	16	16	100	22	16	20	LLSTN32 (LLSTN33)	LLP13 (LLP23)	–	LLCL13	LLCS106	HKY25R
PTGNR/L2020K16	●	●		1604○○	20	20	125	22	20	25	LLSTN32 (LLSTN33)	LLP13 (LLP23)	–	LLCL13	LLCS106	HKY25R
PTGNR/L2525M16	●	●		1604○○	25	25	150	22	25	32	LLSTN32 (LLSTN33)	LLP13 (LLP23)	–	LLCL13	LLCS206	HKY25R
PTGNR/L2525M22	●	●		2204○○	25	25	150	28	25	32	LLSTN42	LLP14	–	LLCL14	LLCS108	HKY30R
PTGNR/L3225P22	●	●		2204○○	32	25	170	28	32	32	LLSTN42	LLP14	–	LLCL14	LLCS108	HKY30R
PTGNR/L3232P27	●	●		2706○○	32	32	170	35	32	40	LLSTN53	LLP15	–	LLCL25	LLCS508	HKY30R

✶1 Clamp Torque (N • m) : LLCS105=1.5, LLCS106=2.2, LLCS206=2.2, LLCS108=3.3, LLCS508=3.3
PTGNR/L1010E11 • PTGNR/L1212F11 Clamp Torque (N • m) : LLCS105=1.0

✶2 Please use shim no. LLSTN33 and shim pin no. LLP23 with 3.18mm thick inserts. When using 3.18mm thick inserts, the shim and shim pin should be ordered separately.

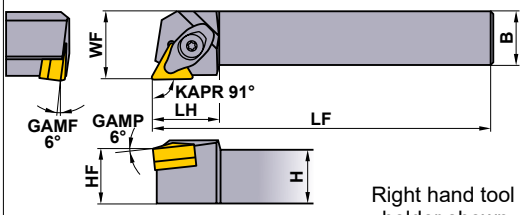
Note 1) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

DTGN

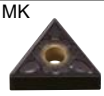


External turning

DOUBLE CLAMP type



Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(16)	(16)	(16)	 (16)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP	MM	R/L	
(16)	(16)	(16)	(16)

Order Number	Stock		Insert Number		Dimensions (mm)						✶2 Shim	✶2 Shim Pin	Clamp Bridge	Spring	✶1 Clamp Screw	Wrench
	R	L			H	B	LF	LH	HF	WF						
DTGNR/L1616H16	●	●	TNMA TNMG TNMM TNGA TNGG TNGM	1604○○	16	16	100	25	16	20	LLSTN32 (LLSTN33)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DTGNR/L1616H16-T	●	●		1603○○	16	16	100	25	16	20	LLSTN33	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DTGNR/L2020K16	●	●		1604○○	20	20	125	25	20	25	LLSTN32 (LLSTN33)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DTGNR/L2020K16-T	●	●		1603○○	20	20	125	25	20	25	LLSTN33	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DTGNR/L2525M16	●	●		1604○○	25	25	150	25	25	32	LLSTN32 (LLSTN33)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DTGNR/L2525M16-T	●	●		1603○○	25	25	150	25	25	32	LLSTN33	LLP23	DCK2211	DCS2	DC0520T	TKY15F

✶1 Clamp Torque (N • m) : DC0520T=3.5

✶2 Please use shim no. LLSTN33 with 3.18mm thick inserts. When using 3.18mm thick inserts, the shim should be ordered separately.

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

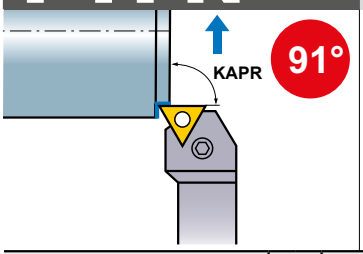
Note 2) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

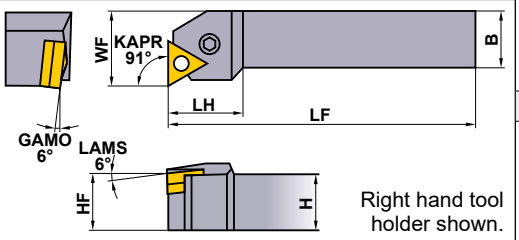
● : Inventory maintained.

PTGN type inserts ➤ A120—A126
DTGN type inserts ➤ A120—A126
PCBN & PCD inserts ➤ B030, B031, B051
RECOMMENDED CUTTING CONDITIONS ➤ A076, B008

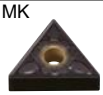
PTFN

Facing — LL type





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(16)	(16,22)	(16,22)	 (16,22)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP	MM	R/L	
(16,22)	(16,22)	(16,22)	(16)

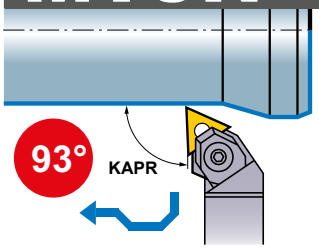
Order Number	Stock		Insert Number		Dimensions (mm)						✶2	✶2		✶1	
	R	L			H	B	LF	LH	HF	WF	Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench
PTFNR/L1616H16	●	●	TNMA TNMG TNMM TNGA TNGG TNGM	1604○○	16	16	100	22	16	20	LLSTN32 (LLSTN33)	LLP13 (LLP23)	LLCL13	LLCS106	HKY25R
PTFNR/L2020K16	●	●		1604○○	20	20	125	22	20	25	LLSTN32 (LLSTN33)	LLP13 (LLP23)	LLCL13	LLCS106	HKY25R
PTFNR/L2525M16	●	●		1604○○	25	25	150	22	25	32	LLSTN32 (LLSTN33)	LLP13 (LLP23)	LLCL13	LLCS206	HKY25R
PTFNR/L2525M22	●	●		2204○○	25	25	150	28	25	32	LLSTN42	LLP14	LLCL14	LLCS108	HKY30R

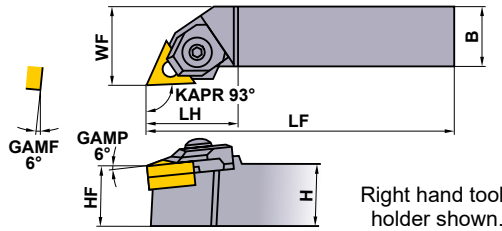
✶1 Clamp Torque (N • m) : LLCS106=2.2, LLCS206=2.2, LLCS108=3.3
✶2 Please use shim no. LLSTN33 and shim pin no. LLP23 with 3.18mm thick inserts. When using 3.18mm thick inserts, the shim should be ordered separately.

Note 1) When using inserts with right or left hand chipbreakers, please use left hand inserts for right hand holders and right hand inserts for left hand holders.
Note 2) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

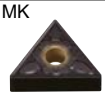
MTJN

External turning, Copying — WP type





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(16)	(16,22)	(16,22)	 (16,22)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP	MM	R/L	
(16,22)	(16,22)	(16,22)	(16)

Order Number	Stock		Insert Number		Dimensions (mm)										✶1	✶2
	R	L			H	B	LF	LH	HF	WF	Shim	Shim Pin	Clamp Bridge	Side Lock Plate	Spring	Clamp Screw	Wrench
MTJNR/L2020K16N	●	●	TN○A TN○G TN○M TNMX	1604○○	20	20	125	31	20	25	WPSTN33	CCP33	CCK13	CPT13	MES2	SLCS105	HKY25R HKY40R
MTJNR/L2525M16N	●	●		1604○○	25	25	150	31	25	32	WPSTN33	CCP33	CCK13	CPT13	MES2	SLCS105	HKY25R HKY40R
MTJNR/L2525M22N	●	●		2204○○	25	25	150	38	25	32	WPSTN43	CCP34	CCK14	CPT14	MES3	SLCS106	HKY30R HKY40R

✶1 Clamp Torque (N • m) : SLCS105=7.0, SLCS106=7.0
✶2 HKY25R, HKY30R Wrench for Shim Pin, HKY40R Wrench for Clamp Screw.

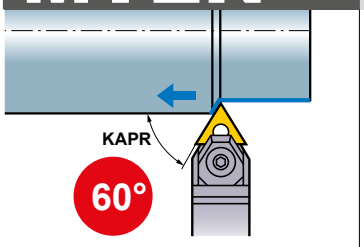
Note 1) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

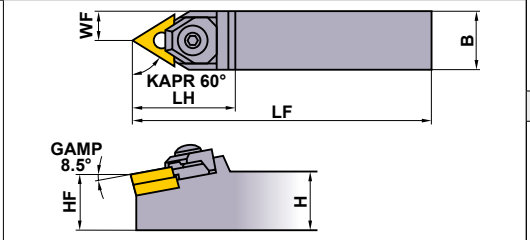
PTFN type inserts	➤ A120—A126	RECOMMENDED CUTTING CONDITIONS	➤ A076, B008
MTJN type inserts	➤ A120—A126	SPARE PARTS	➤ N001
PCBN & PCD inserts	➤ B030, B031, B051	TECHNICAL DATA	➤ P001

TN INSERTS TOOL HOLDERS

MTEN

External turning, Chamfering — **WP type**





Finish	Light	Medium	Medium
FP	LP	MP	MK
(16)	(16,22)	(16,22)	(16,22)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP	MM	R/L	
(16,22)	(16,22)	(16,22)	(16)

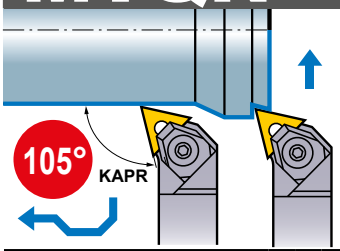
Order Number	Stock	Insert Number		Dimensions (mm)						Shim	Shim Pin	Clamp Bridge	Side Lock Plate	Spring	Clamp Screw *1	Wrench *2
				H	B	LF	LH	HF	WF							
MTENN2020K16N	●	TN□A TN□G TN□M TNMX	1604□□	20	20	125	34	20	10	WPSTN33	CCP33	CCK13	CPT13	MES2	SLCS105	HKY25R HKY40R
MTENN2525M22N	●		2204□□	25	25	150	44	25	12.5	WPSTN43	CCP34	CCK14	CPT14	MES3	SLCS106	HKY30R HKY40R

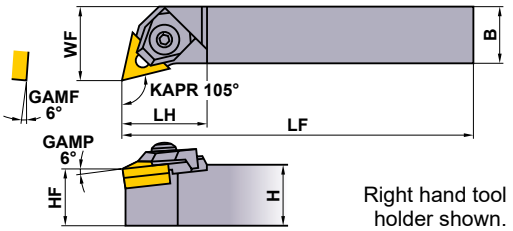
*1 Clamp Torque (N • m) : SLCS105=7.0, SLCS106=7.0
*2 HKY25R, HKY30R Wrench for Shim Pin, HKY40R Wrench for Clamp Screw.

Note 1) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

MTQN

Facing, Copying — **WP type**





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(16)	(16,22)	(16,22)	(16,22)
Medium to Rough	**Stainless**	**G Class**	**CBN**
RP	MM	R/L	
(16,22)	(16,22)	(16,22)	(16)

Order Number	Stock		Insert Number		Dimensions (mm)						Shim	Shim Pin	Clamp Bridge	Side Lock Plate	Spring	Clamp Screw *1	Wrench *2
	R	L			H	B	LF	LH	HF	WF							
MTQNR/L2020K16N	●	●	TN□A TN□G TN□M TNMX	1604□□	20	20	125	31	20	25	WPSTN33	CCP33	CCK13	CPT13	MES2	SLCS105	HKY25R HKY40R
MTQNR/L2525M22N	●	●		2204□□	25	25	150	36	25	32	WPSTN43	CCP34	CCK14	CPT14	MES3	SLCS106	HKY30R HKY40R

*1 Clamp Torque (N • m) : SLCS105=7.0, SLCS106=7.0
*2 HKY25R, HKY30R Wrench for Shim Pin, HKY40R Wrench for Clamp Screw.

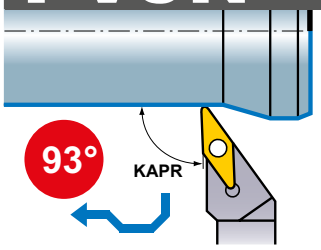
Note 1) When facing only and using inserts with right or left hand chipbreakers, please use left hand inserts for right hand holders and right hand inserts for left hand holders.
Note 2) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 3) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

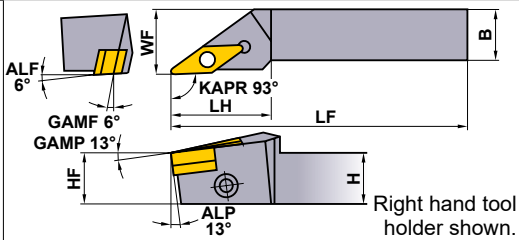
● : Inventory maintained.

MTEN type inserts ➤ A120—A126
MTQN type inserts ➤ A120—A126
PCBN & PCD inserts ➤ B030, B031, B051
RECOMMENDED CUTTING CONDITIONS ➤ A076, B008

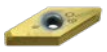
PVJN

External turning, Copying — **MP type**





Right hand tool holder shown.

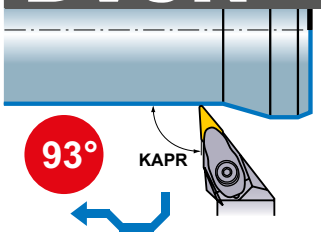
Finish	Light	Medium	Medium
FP	LP	MP	MK
(16)	(16)	(16)	(16)
Medium	**Stainless**	**G Class**	**CBN**
Standard	MM	R/L	
			
(16)	(16)	(16)	(16)

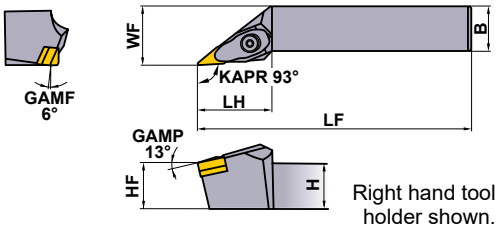
Order Number	Stock		Insert Number		Dimensions (mm)						✱2		✱1		
	R	L			H	B	LF	LH	HF	WF	Shim	Lock Pin	Lock Screw	Stop Ring	Wrench
PVJNR/L2020K16	●	●	VN○A VN○G VN○M	1604○○	20	20	125	32	20	25	PV322 (PV321) (PV323)	P11S	HSP05008C	E03	HKY25R
PVJNR/L2525M16	●	●			25	25	150	38	25	32		P11S	HSP05008C	E03	HKY25R

✱1 Clamp Torque (N • m) : HSP05008C=2.5
✱2 Please use shim no. PV321 and PV323 with RE0.4mm and RE1.2mm thick inserts. When using inserts, shim should be ordered separately.

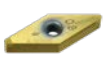
DVJN

External turning, Copying — **DOUBLE CLAMP type**





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(16)	(16)	(16)	(16)
Medium	**Stainless**	**G Class**	**CBN**
Standard	MM	R/L	
			
(16)	(16)	(16)	(16)

Order Number	Stock		Insert Number		Dimensions (mm)										✱	
	R	L			H	B	LF	LH	HF	WF	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench
DVJNR/L2020K16	●	●	VN○A VN○G VN○M	1604○○	20	20	125	41	20	25	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F
DVJNR/L2525M16	●	●			25	25	150	41	25	32	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F

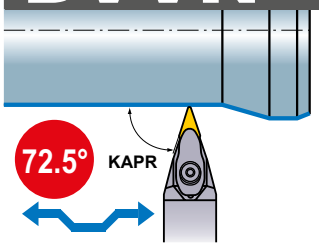
✱ Clamp Torque (N • m) : DC0520T=3.5

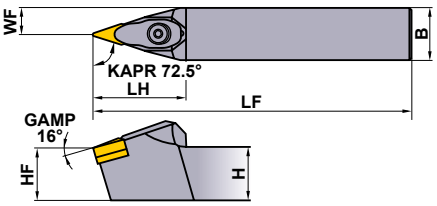
PVJN type inserts	➤ A127—A130	RECOMMENDED CUTTING CONDITIONS	➤ A076, B008
DVJN type inserts	➤ A127—A130	SPARE PARTS	➤ N001
PCBN & PCD inserts	➤ B032, B033, B052	TECHNICAL DATA	➤ P001

VN ○○ INSERTS TOOL HOLDERS

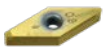
DVVN

External turning, Copying **DOUBLE CLAMP type**





Neutral tool holder only.

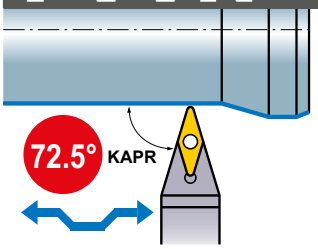
Finish	Light	Medium	Medium
FP	LP	MP	MK
(16)	(16)	(16)	(16)
Medium	**Stainless**	**G Class**	**CBN**
Standard	MM	R/L	
			
(16)	(16)	(16)	(16)

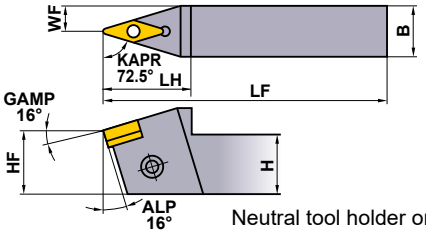
Order Number	Stock	Insert Number		Dimensions (mm)						Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
				H	B	LF	LH	HF	WF						
DVVNN2020K16	●	VN○A VN○G VN○M	1604○○	20	20	125	44	20	10	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F
DVVNN2525M16	●		1604○○	25	25	150	44	25	12.5	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F

* Clamp Torque (N • m) : DC0520T=3.5

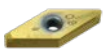
PVVN

External turning, Copying **MP type**





Neutral tool holder only.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(16)	(16)	(16)	(16)
Medium	**Stainless**	**G Class**	**CBN**
Standard	MM	R/L	
			
(16)	(16)	(16)	(16)

Order Number	Stock	Insert Number		Dimensions (mm)						Shim *2	Lock Pin	Lock Screw *1	Stop Ring	Wrench
				H	B	LF	LH	HF	WF					
PVVNN2020K16	●	VN○A VN○G VN○M	1604○○	20	20	125	38	20	10	PV322 (PV321) (PV323)	P11S	HSP05008C	E03	HKY25R
PVVNN2525M16	●		1604○○	25	25	150	38	25	12.5		P11S	HSP05008C	E03	HKY25R

*1 Clamp Torque (N • m) : HSP05008C=2.5
*2 Please use shim no. PV321 and PV323 with RE0.4mm and RE1.2mm thick inserts. When using inserts, shim should be ordered separately.

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

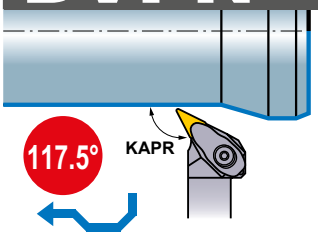
● : Inventory maintained.
★ : Inventory maintained in Japan.

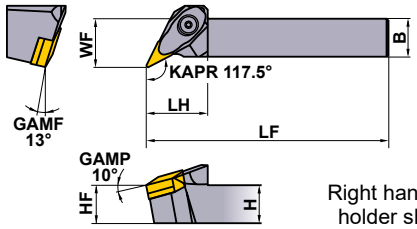
DVVN type inserts ➤ A127—A130
PVVN type inserts ➤ A127—A130
PPCBN & PCD inserts ➤ B032, B033, B052
RECOMMENDED CUTTING CONDITIONS ➤ A076, B008

DVPN

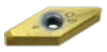
DOUBLE CLAMP type

Facing, Copying





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(16)	(16)	(16)	(16)
Medium	**Stainless**	**G Class**	**CBN**
Standard	MM	R/L	
			
(16)	(16)	(16)	(16)

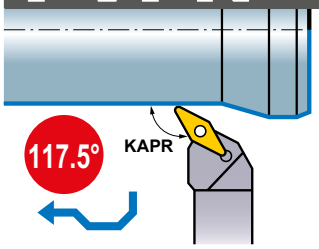
Order Number	Stock		Insert Number		Dimensions (mm)										*	
	R	L			H	B	LF	LH	HF	WF	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench
DVPNR/L2020K16	●	★	VN□A VN□G VN□M	1604□□	20	20	125	32	20	25	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F
DVPNR/L2525M16	●	●			25	25	150	32	25	32	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F

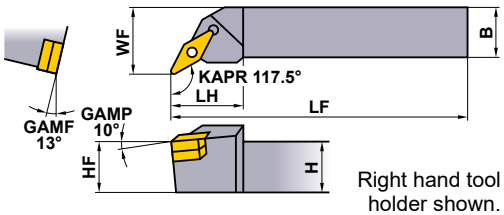
* Clamp Torque (N • m) : DC0520T=3.5

PVPN

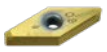
MP type

Facing, Copying





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(16)	(16)	(16)	(16)
Medium	**Stainless**	**G Class**	**CBN**
Standard	MM	R/L	
			
(16)	(16)	(16)	(16)

Order Number	Stock		Insert Number		Dimensions (mm)						*2		*1		
	R	L			H	B	LF	LH	HF	WF	Shim	Lock Pin	Lock Screw	Stop Ring	Wrench
PVPNR/L2020K16	●	●	VN□A VN□G VN□M	1604□□	20	20	125	32	20	25	PV322 (PV321) (PV323)	P11S	HSP05008C	E03	HKY25R
PVPNR/L2525M16	●	●			25	25	150	32	25	32		P11S	HSP05008C	E03	HKY25R

*1 Clamp Torque (N • m) : HSP05008C=2.5

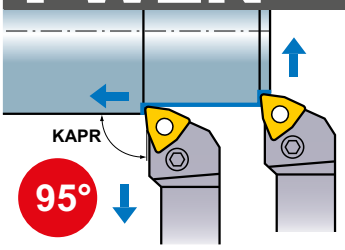
*2 Please use shim no. PV321 and PV323 with RE0.4mm and RE1.2mm thick inserts. When using inserts, shim should be ordered separately.

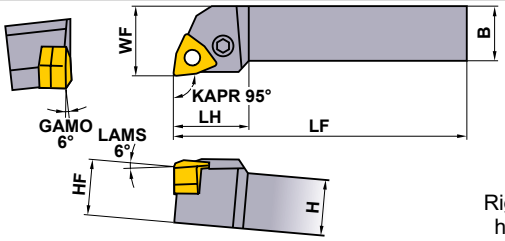
DVPN type inserts	➤ A127—A130	RECOMMENDED CUTTING CONDITIONS	➤ A076, B008
PVPN type inserts	➤ A127—A130	SPARE PARTS	➤ N001
PPCBN & PCD inserts	➤ B032, B033, B052	TECHNICAL DATA	➤ P001

WN□□ INSERTS TOOL HOLDERS

PWLN

External turning, Facing — **LL type**





Right hand tool holder shown.

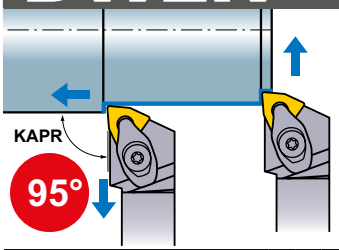
Light	Medium
LP (06)	MP (06)
Stainless	
MM (06)	

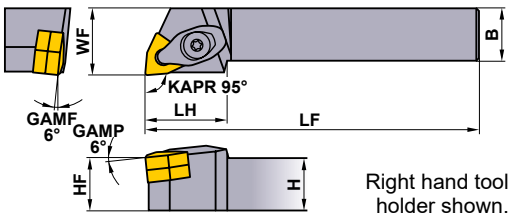
Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) H	B	LF	LH	HF	WF	Shim *2	Shim Pin	Clamp Lever	Clamp Screw *1	Wrench
PWLNR/L1616H06	●	●	WNMG	06T3□□	16	16	100	22	16	20	LLSWN3T3 (LLSWN32)	LLP13	LLCL13	LLCS106	HKY25R
PWLNR/L2020K06	●	●		06T3□□	20	20	125	22	20	25	LLSWN3T3 (LLSWN32)	LLP13	LLCL13	LLCS106	HKY25R
PWLNR/L2525M06	●	●		06T3□□	25	25	150	25	25	32	LLSWN3T3 (LLSWN32)	LLP13	LLCL13	LLCS106	HKY25R

*1 Clamp Torque (N • m) : LLCS106=2.2
*2 Please use shim no. LLSWN32 with 4.76mm thick inserts. When using 4.76mm thick inserts, the shim should be ordered separately.

DWLN

External turning, Facing — **DOUBLE CLAMP type**





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP (08)	LP (06,08)	MP (06,08)	MK (08)
Medium	**Medium to Rough**	**Stainless**	**CBN**
Standard (08)	RP (08)	MM (06,08)	(08)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) H	B	LF	LH	HF	WF	Shim *2	Shim Pin	Clamp Bridge	Spring	Clamp Screw *1	Wrench
DWLNR/L1616H06	●	●	WNMA WNMG WNGA	06T3□□	16	16	100	25	16	20	LLSWN3T3 (LLSWN32)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DWLNR/L2020K06	●	●		06T3□□	20	20	125	25	20	25	LLSWN3T3 (LLSWN32)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DWLNR/L2020K06-T	●	●		0604□□	20	20	125	25	20	25	LLSWN32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DWLNR/L2525M06	●	●		06T3□□	25	25	150	25	25	32	LLSWN3T3 (LLSWN32)	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DWLNR/L2525M06-T	●	●		0604□□	25	25	150	25	25	32	LLSWN32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
DWLNR/L2020K08	●	●		0804□□	20	20	125	31	20	25	LLSWN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
DWLNR/L2525M08	●	●		0804□□	25	25	150	31	25	32	LLSWN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
DWLNR/L3225P08	●	●		0804□□	32	25	170	31	32	32	LLSWN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

*1 Clamp Torque (N • m) : DC0520T=3.5, DC0621T=5.0
*2 Please use shim no. LLSWN32 with 4.76mm thick inserts. When using 4.76mm thick inserts, the shim should be ordered separately.

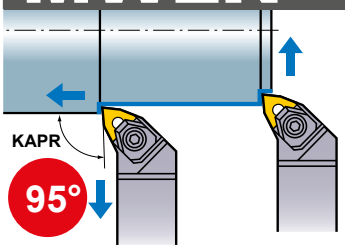
Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

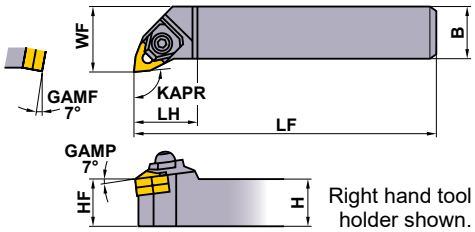
● : Inventory maintained.

PWLN type inserts ➤ A131—A133
DWLN type inserts ➤ A131—A135
PCBN inserts ➤ B034
RECOMMENDED CUTTING CONDITIONS ➤ A076, B008

MWLN

External turning, Facing — **WP type**





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(08)	(08)	(08)	(08)
Medium	**Medium to Rough**	**Stainless**	**CBN**
Standard	RP	MM	
(08)	(08)	(08)	(08)

Order Number	Stock		Insert Number		Dimensions (mm)						Shim	Shim Pin	Side Lock Plate	Clamp Bridge	Clamp Screw *	Spring	Wrench
	R	L			H	B	LF	LH	HF	WF							
MWLNR/L2020K08	●	●	WNMA WNMG WNGA	0804○○	20	20	125	32	20	25	WPSWN43	CCP34	CPT24	CCK13	SLCS105	MES2	HKY40R
MWLNR/L2525M08	●	●		0804○○	25	25	150	32	25	32	WPSWN43	CCP34	CPT24	CCK13	SLCS105	MES2	HKY40R
MWLNR/L3225P08	●	●		0804○○	32	25	170	32	32	32	WPSWN43	CCP34	CPT24	CCK13	SLCS105	MES2	HKY40R

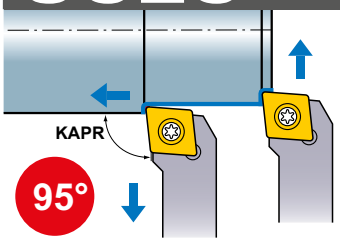
* Clamp Torque (N • m) : SLCS105=7.0

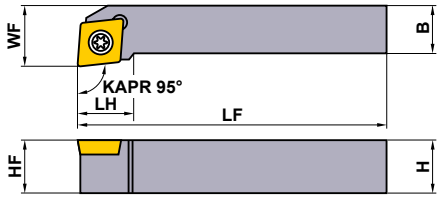
MWLN type inserts	➤ A131—A135	SPARE PARTS	➤ N001
PCBN inserts	➤ B034	TECHNICAL DATA	➤ P001
RECOMMENDED CUTTING CONDITIONS	➤ A076, B008		

CC INSERTS TOOL HOLDERS

SCLC

External turning, Facing **SP type**





Right hand tool holder shown.

Finish	Light	Medium	Stainless
FP (06,09)	LP (06,09)	MP (06,09,12)	FM (06,09)
Stainless	Stainless	Flat top	PCD/CBN
LM (06,09)	MM (06,09,12)	(06,09,12)	(06,09,12)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) H	B	LF	LH	HF	WF	∗1 Clamp Screw	Wrench
SCLCR/L0808D06	●	●	CC□B CC□H ∗2 CC□T CC□W	0602□□	8	8	60	8.9	8	10	TS25	TKY08F
SCLCR/L1010E06	●	●		0602□□	10	10	70	8.9	10	12	TS25	TKY08F
SCLCR/L1212F09	●	●		09T3□□	12	12	80	13.6	12	16	TS43	TKY15F
SCLCR/L1616H12	●	●		1204□□	16	16	100	16.7	16	20	TS5	TKY25F

∗1 Clamp Torque (N • m) : TS25=1.0, TS43=3.5, TS5=7.5
∗2 When using CCGH and CCMH, it is recommended to use TS253 clamp screw.

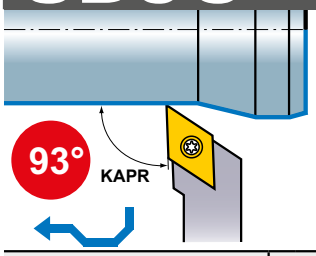
Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

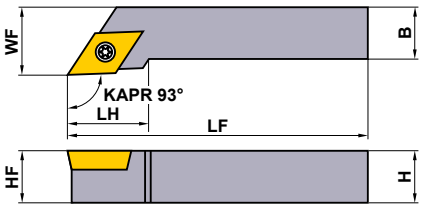
● : Inventory maintained.

SCLC type inserts	➢ A140—A148
PCBN & PCD inserts	➢ B037, B038, B053
RECOMMENDED CUTTING CONDITIONS	➢ A076, B008

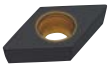
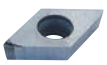
SDJC

External turning, Copying — **SP type**





Right hand tool holder shown.

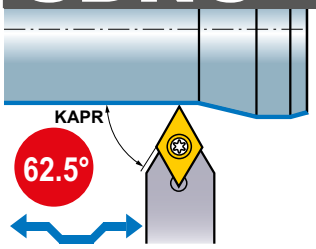
Finish	Light	Medium	Stainless
FP	LP	MP	FM
(07,11)	(07,11)	(07,11)	(07,11)
Stainless	**Stainless**	**Flat top**	**PCD/CBN**
LM	MM		
			
(07,11)	(07,11)	(07,11)	(07,11)

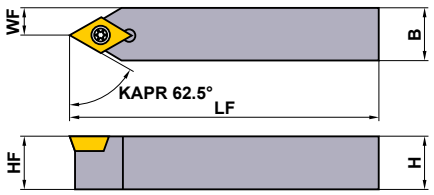
Order Number	Stock		Insert Number		Dimensions (mm)								*	
	R	L			H	B	LF	LH	HF	WF	Shim	Shim Screw	Clamp Screw	Wrench
SDJCR/L1010E07	●	●	DCET DCGT DCMW DCMT DCGW	0702○○	10	10	70	12	10	12	–	–	TS25	TKY08F
SDJCR/L1212F11	●	●		11T3○○	12	12	80	18	12	16	–	–	TS43	TKY15F
SDJCR/L1616H11	●	●		11T3○○	16	16	100	18	16	20	–	–	TS43	TKY15F
SDJCR/L2020K11		●		11T3○○	20	20	125	18	20	25	SPSDN32	JSS6	TS406	TKY15R
SDJCR/L2525M11	●	●		11T3○○	25	25	150	25	25	32	SPSDN32	JSS6	TS406	TKY15R

* Clamp Torque (N • m) : TS25=1.0, TS43=3.5

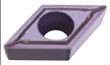
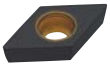
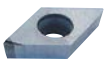
SDNC

External turning, Copying — **SP type**





Neutral tool holder only.

Finish	Light	Medium	Stainless
FP	LP	MP	FM
			
(07,11)	(07,11)	(07,11)	(07,11)
Stainless	**Stainless**	**Flat top**	**PCD/CBN**
LM	MM		
			
(07,11)	(07,11)	(07,11)	(07,11)

Order Number	Stock	Insert Number		Dimensions (mm)							*	
				H	B	LF	HF	WF	Shim	Shim Screw	Clamp Screw	Wrench
SDNCN0808D07	●	DCET DCGT DCMW DCMT DCGW	0702○○	8	8	60	8	4	–	–	TS25	TKY08F
SDNCN1010E07	●		0702○○	10	10	70	10	5	–	–	TS25	TKY08F
SDNCN1212F11	●		11T3○○	12	12	80	12	6	–	–	TS43	TKY15F
SDNCN1616H11	●		11T3○○	16	16	100	16	8	–	–	TS43	TKY15F
SDNCN2525M11	●		11T3○○	25	25	150	25	12.5	SPSDN32	JSS6	TS406	TKY15R

* Clamp Torque (N • m) : TS25=1.0, TS43=3.5

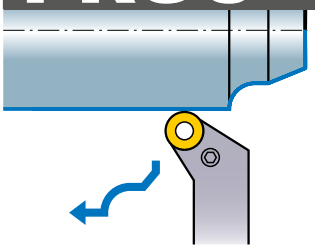
SDJC type inserts	➤ A152—A158	RECOMMENDED CUTTING CONDITIONS	➤ A076, B008
SDNC type inserts	➤ A152—A158	SPARE PARTS	➤ N001
PCBN & PCD inserts	➤ B040, B041, B054	TECHNICAL DATA	➤ P001

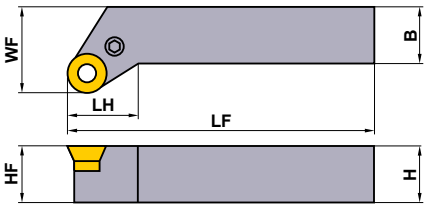
RC INSERTS TOOL HOLDERS

PRGC

External turning, Facing, Copying — **LL type**

Medium (10,12,16,20) / Heavy Cutting RR (16,20)





Right hand tool holder shown.

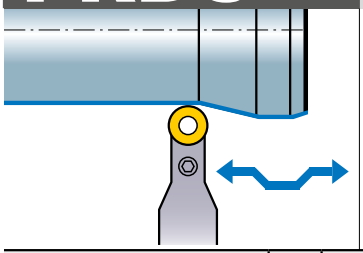
Order Number	Stock		Insert Number		Dimensions (mm)						Shim	Shim Pin	Clamp Lever	Clamp Screw *	Wrench
	R	L			H	B	LF	LH	HF	WF					
PRGCR/L2525M10	●	●	RCMX	1003M0	25	25	150	16.7	25	32	LLSRN103	LLP13	LLCL110	LLCS205	HKY20R
PRGCR/L2525M12	●	●		1204M0	25	25	150	17.5	25	32	LLSRN123	LLP13	LLCL112	LLCS106	HKY25R
PRGCR/L2525M16	●	★		1606M0	25	25	150	19.9	25	32	LLSRN164	LLP24	LLCL116	LLCS306	HKY25R
PRGCR/L3232P20	●	●		2006M0	32	32	170	23.8	32	40	LLSRN204	LLP15	LLCL120	LLCS508	HKY30R

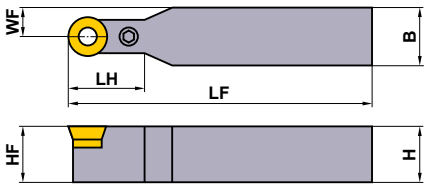
* Clamp Torque (N • m) : LLCS205=1.5, LLCS106=2.2, LLCS306=2.2, LLCS508=3.3

PRDC

External turning, Copying — **LL type**

Medium (10,12,16,20) / Heavy Cutting RR (16,20)





Neutral tool holder only.

Order Number	Stock	Insert Number		Dimensions (mm)						Shim	Shim Pin	Clamp Lever	Clamp Screw *	Wrench
				H	B	LF	LH	HF	WF					
PRDCN2020K10	●	RCMX	1003M0	20	20	125	23	20	10.0	LLSRN103	LLP13	LLCL110	LLCS205	HKY20R
PRDCN2525M12	●		1204M0	25	25	150	24	25	12.5	LLSRN123	LLP13	LLCL112	LLCS106	HKY25R
PRDCN3225P12	●		1204M0	32	25	170	24	32	12.5	LLSRN123	LLP13	LLCL112	LLCS106	HKY25R
PRDCN3225P16	●		1606M0	32	25	170	28	32	12.5	LLSRN164	LLP24	LLCL116	LLCS306	HKY25R
PRDCN3232P20	●		2006M0	32	32	170	33	32	16.0	LLSRN204	LLP15	LLCL120	LLCS508	HKY30R

* Clamp Torque (N • m) : LLCS205=1.5, LLCS106=2.2, LLCS306=2.2, LLCS508=3.3

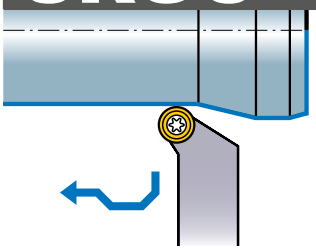
Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

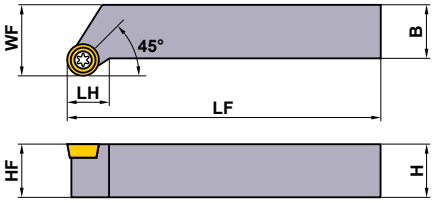
● : Inventory maintained. ★ : Inventory maintained in Japan.

PRGC type inserts	➢ A160
PRDC type inserts	➢ A160
RECOMMENDED CUTTING CONDITIONS	➢ A076, B008

SRGC

External turning, Facing, Copying — **SP type**





Right hand tool holder shown.

Medium — Finish Cutting
AZ

(08)
Medium
Standard

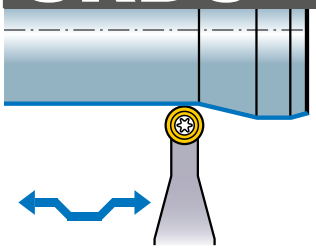
(06,08)

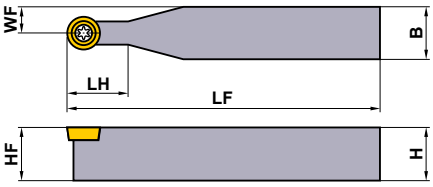
Order Number	Stock		Insert Number		Dimensions (mm)						*	
	R	L			H	B	LF	LH	HF	WF	Clamp Screw	Wrench
SRGCR/L1616H06	●	●	RCMT RCGT	0602○○	16	16	100	10	16	20	TS25	TKY08F
SRGCR/L1616H08	●	●		0803○○	16	16	100	14.5	16	22	TS3	TKY08F

* Clamp Torque (N • m) : TS25=1.0, TS3=1.0

SRDC

External turning, Copying — **SP type**





Medium — Finish Cutting
AZ

(08)
Medium
Standard

(06,08)

Order Number	Stock	Insert Number		Dimensions (mm)						*	
				H	B	LF	LH	HF	WF	Clamp Screw	Wrench
SRDCN1616H06	●	RCMT RCGT	0602○○	16	16	100	12	16	8	TS25	TKY08F
SRDCN1616H08	●		0803○○	16	16	100	16	16	8	TS3	TKY08F

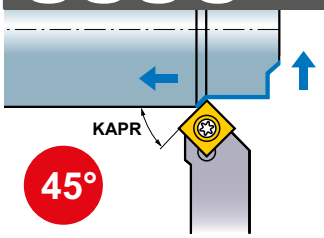
* Clamp Torque (N • m) : TS25=1.0, TS3=1.0

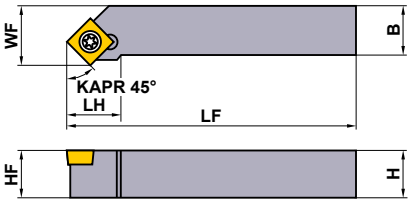
SRGC type inserts	➤ A160
SRDC type inserts	➤ A160
RECOMMENDED CUTTING CONDITIONS	➤ A076, B008
SPARE PARTS	➤ N001
TECHNICAL DATA	➤ P001

SC INSERTS TOOL HOLDERS

SSSC

External turning, Chamfering, Facing **SP type**





Right hand tool holder shown.

Finish	Light	Medium	Stainless
FP	LP	MP	FM
(09)	(09)	(09)	(09)
Stainless	**Stainless**	**Medium**	**Flat top**
LM	MM	Standard	
(09)	(09)	(09)	(09)

Order Number	Stock		Insert Number		Dimensions (mm)								*	
	R	L			H	B	LF	LH	HF	WF	Shim	Shim Screw	Clamp Screw	Wrench
SSSCR/L1212F09	●	●	SCMW SCMT	09T3○○	12	12	80	15.2	12	13	—	—	TS43	TKY15F
SSSCR/L1616H09	●	●		09T3○○	16	16	100	15.2	16	17	—	—	TS43	TKY15F
SSSCR/L2020K12	●			1204○○	20	20	125	18	20	22	SPSSN42	JSS7	TS53	TKY25R
SSSCR/L2525M12	●			1204○○	25	25	150	25	25	27	SPSSN42	JSS7	TS53	TKY25R

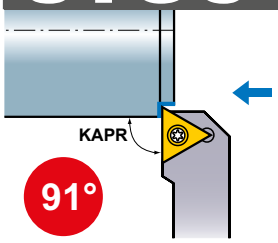
* Clamp Torque (N • m) : TS43=3.5

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

● : Inventory maintained.

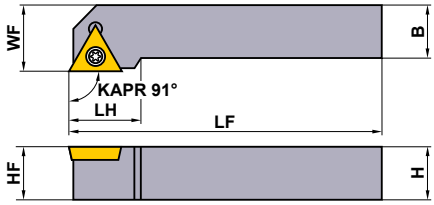
SSSC type inserts ➤ A161, A162
RECOMMENDED CUTTING CONDITIONS ➤ A076, B008

STGC



External turning

SP type



Right hand tool holder shown.

Finish	Light	Medium	Stainless
FP	LP	MP	FM
(11,16)	(11,16)	(11,13,16)	(11,16)
Stainless	**Stainless**	**Flat top**	**PCD/CBN**
LM	MM		
(11,16)	(11,13,16)	(11,13,16)	(11,13,16)

Order Number	Stock		Insert Number		Dimensions (mm)								*	
	R	L			H	B	LF	LH	HF	WF	Shim	Shim Screw	Clamp Screw	Wrench
STGCR/L1010E11	●	●	TCGT TCMT TCGW TCMW	1102○○	10	10	70	13.5	10	12	–	–	TS25	TKY08F
STGCR/L1212F13	●	●		1303○○	12	12	80	17.6	12	16	–	–	TS3	TKY08F
STGCR/L1616H16	●	●		16T3○○	16	16	100	20.7	16	20	–	–	TS43	TKY15F
STGCR/L2020K16	●			16T3○○	20	20	125	22.9	20	25	SPSTN32	JSS6	TS406	TKY15R

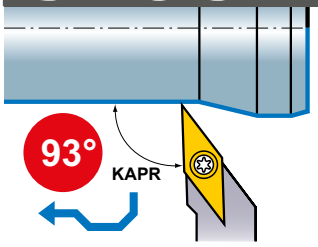
* Clamp Torque (N • m) : TS25=1.0, TS3=1.0, TS43=3.5

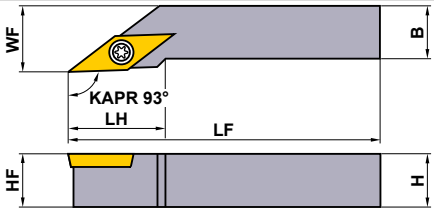
STGC type inserts ➤ A165—A168
PCBN & PCD inserts ➤ B042, B055
RECOMMENDED CUTTING CONDITIONS ➤ A076, B008
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

VC INSERTS TOOL HOLDERS

SVJC

External turning, Copying — **SP type**





Right hand tool holder shown.

Finish	Light	Medium	Stainless
FP	LP	MP	FM
(11,16)	(11,16)	(16)	(11,16)
Stainless	**Stainless**	**Medium**	**Flat top**
LM	MM	Standard	
(11,16)	(16)	(11,16)	(11,16)

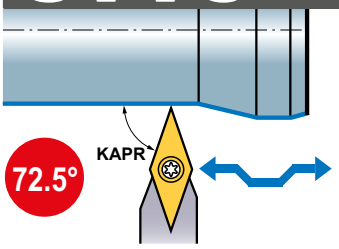
Order Number	Stock		Insert Number		Dimensions (mm)						Shim	Shim Pin	Clamp Screw *	Wrench
	R	L			H	B	LF	LH	HF	WF				
SVJCR/L1010E11	●	●	VCGT VCGW VCMT VCMW	1103○○	10	10	70	17	10	12	–	–	TS25	①TKY08F
SVJCR/L1616H16	●	●		1604○○	16	16	100	25	16	20	–	–	TS43	①TKY15F
SVJCR/L2020K16	●	●		1604○○	20	20	125	40	20	25	SPSVN32	BCP141	TS44	②TKY15R
SVJCR/L2525M16	●	●		1604○○	25	25	150	40	25	32	SPSVN32	BCP141	TS44	②TKY15R

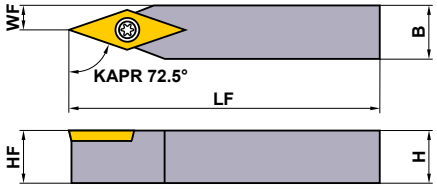
* Clamp Torque (N • m) : TS25=1.0, TS43=3.5, TS44=3.5

Note 1) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

SVVC

External turning, Copying — **SP type**





Neutral tool holder only.

Finish	Light	Medium	Stainless
FP	LP	MP	FM
(16)	(16)	(16)	(16)
Stainless	**Stainless**	**Medium**	**Flat top**
LM	MM	Standard	
(16)	(16)	(16)	(16)

Order Number	Stock	Insert Number		Dimensions (mm)					Shim	Shim Pin	Clamp Screw *	Wrench
				H	B	LF	HF	WF				
SVVCN1616H16	●	VCGT VCGW VCMT VCMW	1604○○	16	16	100	16	8	–	–	TS43	①TKY15F
SVVCN2020K16	●		1604○○	20	20	125	20	10	SPSVN32	BCP141	TS44	②TKY15R
SVVCN2525M16	●		1604○○	25	25	150	25	12.5	SPSVN32	BCP141	TS44	②TKY15R

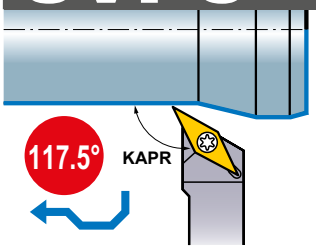
* Clamp Torque (N • m) : TS43=3.5, TS44=3.5

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

● : Inventory maintained.

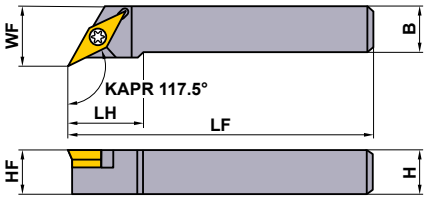
SVJC type inserts ➤A177—A180
SVVC type inserts ➤A177—A180
PCBN & PCD inserts ➤B046, B057
RECOMMENDED CUTTING CONDITIONS ➤A076, B008

SVPC



Facing, Copying

SP type



Right hand tool holder shown.

Finish	Light	Medium	Stainless
FP	LP	MP	FM
(16)	(16)	(16)	(16)
Stainless	**Stainless**	**Medium**	**Flat top**
LM	MM	Standard	
(16)	(16)	(16)	(16)

Order Number	Stock		Insert Number		Dimensions (mm)								*	
	R	L			H	B	LF	LH	HF	WF	Shim	Shim Pin	Clamp Screw	Wrench
SVPCR/L2020K16	●	●	VCGT VCGW	1604○○	20	20	125	30	20	25	SPSVN32	BCP141	TS44	TKY15R
SVPCR/L2525M16	●	●	VCMT VCMW	1604○○	25	25	150	30	25	32	SPSVN32	BCP141	TS44	TKY15R

* Clamp Torque (N • m) : TS44=3.5

Note 1) When using an insert with a corner radius R ≥ 1.6 mm, and dependant on the machined diameter and form, there is a risk the standard shim may interfere with the workpiece. Replace the shim so the maximum corner radius of the shim is positioned under the cutting edge.

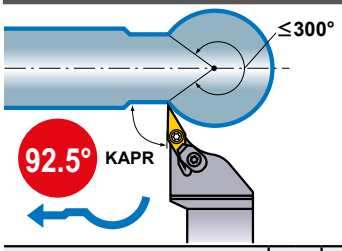
SVPC type inserts	➤ A177—A180		
PCBN inserts	➤ B046	SPARE PARTS	➤ N001
RECOMMENDED CUTTING CONDITIONS	➤ A076, B008	TECHNICAL DATA	➤ P001

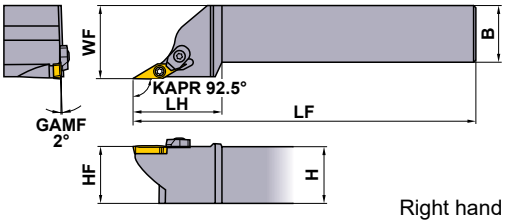
XC INSERTS TOOL HOLDERS

SXZC

External turning, Copying — **Profile Holder**

Finish: SVX





Right hand tool holder shown.

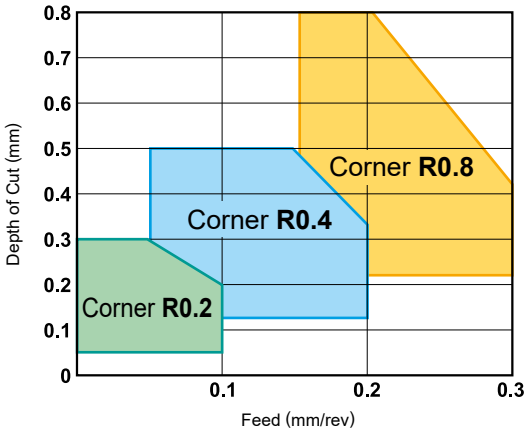
Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) H	B	LF	LH	HF	WF	Clamp Screw *	Clamp Bridge	Clamp Bridge Screw *	Spring	Insert Wrench	Wrench (Clamp bridge)
SXZCR/L1616H15	●	●	XCMT	1503○○-SVX	16	16	100	35	16	20	TS255	AMS3	AJS3010T10	ASS2	TKY08F	TKY10F
SXZCR/L2020K15	●	●	XCMT	1503○○-SVX	20	20	125	35	20	25	TS255	AMS3	AJS3010T10	ASS2	TKY08F	TKY10F
SXZCR/L2525M15	●	●	XCMT	1503○○-SVX	25	25	150	40	25	32	TS255	AMS3	AJS3010T10	ASS2	TKF08F	TKF10F

* Clamp Torque (N • m) : TS255=1.0, AJS3010T10=2.5

C

EXTERNAL TURNING TOOLS

■ APPLICABLE RANGE



RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Grade	Cutting Speed (m/min)
P	Mild Steel	≤180HB	**UE6020**	250 (150—350)
	Carbon Steel, Alloy Steel	150HB—250HB	**UE6020**	175 (100—250)
M	Stainless Steel	≤200HB	**VP15TF**	100 (70—120)

Note 1) The above cutting conditions are general guidelines.
Adjustments maybe necessary depending on machine rigidity, workpiece geometry and clamping.
Note 2) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

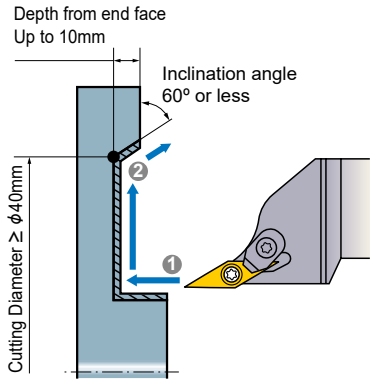
● : **Inventory maintained.**

SXZC type inserts ➤ **A186**

NOTE

When end face copying

Pay special attention to the following when face copying.



●Machining of an outer diameter (Step ①)

- To prevent burr formation, the depth of cut should be below half the nose radius.

●Machining of an inclination (Step ②)

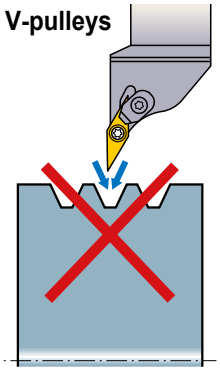
- To reduce the contact length of chips, the depth of cut should be below half the nose radius.
- To prevent interference between the tool and the workpiece, the cutting diameter should be 40mm or larger, inclination angle 60° or less and depth from the end face up to 10mm.

●When changing inserts

- When indexing the inserts, it is recommended to preset the cutting edge position to maintain machining accuracy.

Not possible

●Machining of V-pulleys

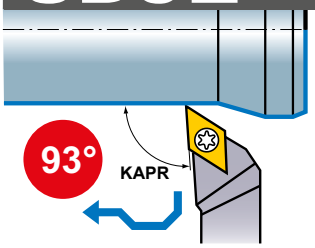


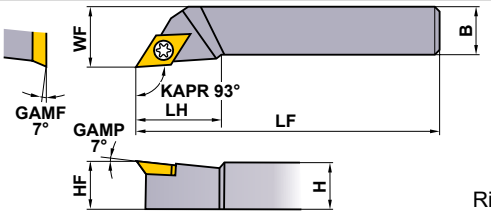
When machining V-pulleys, use a VNMG insert.

DE INSERTS TOOL HOLDERS

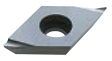
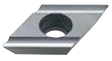
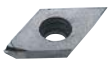
SDJE

External turning, Copying — **AL type**





Right hand tool holder shown.

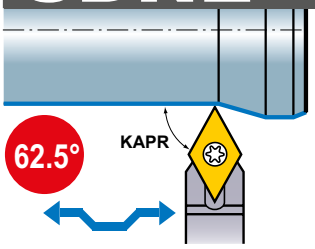
Finish	Medium
R/L-F	R/L
 (15)	 (15)
PCD	
R/L-F	
 (15)	

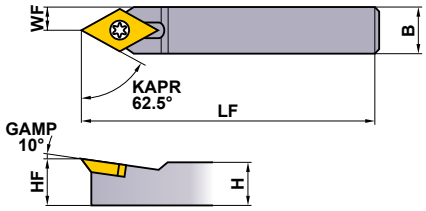
Order Number	Stock		Insert Number		Dimensions (mm)						* Clamp Screw	Wrench
	R	L			H	B	LF	LH	HF	WF		
SDJER/L1616H15	●	●	DEGX	1504○○	16	16	100	27	16	20	CS451190T	TKY20F
SDJER/L2020K15	●	●		1504○○	20	20	125	35	20	25	CS451190T	TKY20F
SDJER/L2525M15	●	●		1504○○	25	25	150	35	25	32	CS451190T	TKY20F

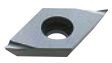
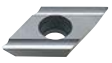
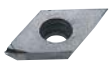
∗ Clamp Torque (N • m) : CS451190T=5.0

SDNE

External turning, Copying — **AL type**





Finish	Medium
R/L-F	R/L
 (15)	 (15)
PCD	
R/L-F	
 (15)	

Order Number	Stock	Insert Number		Dimensions (mm)					* Clamp Screw	Wrench
				H	B	LF	HF	WF		
SDNEN1616H15	●	DEGX	1504○○	16	16	100	16	8	CS451190T	TKY20F
SDNEN2020K15	●		1504○○	20	20	125	20	10	CS451190T	TKY20F
SDNEN2525M15	●		1504○○	25	25	150	25	12.5	CS451190T	TKY20F

∗ Clamp Torque (N • m) : CS451190T=5.0

RECOMMENDED CUTTING CONDITIONS

	Material	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
N	Aluminium Alloy	**HTi10**	400	0.05−0.3	0.2−3.0
		MD220	800	0.05−0.3	0.2−0.5

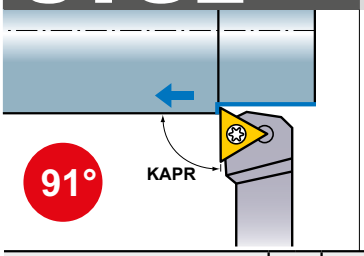
Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

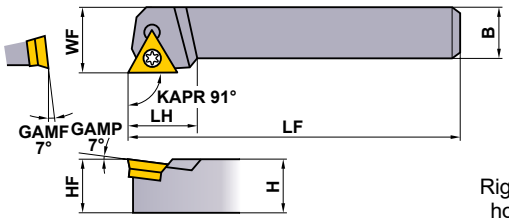
● : Inventory maintained. ★ : Inventory maintained in Japan.

SDJE type inserts ➤ **A159**
SDNE type inserts ➤ **A159**
PCD inserts ➤ **B059**

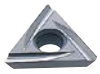
STGE

External turning — **AL type**





Right hand tool holder shown.

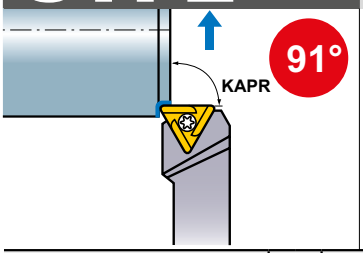
Medium	PCD
R/L	R/L
 (16)	(16)
PCD	
(16)	

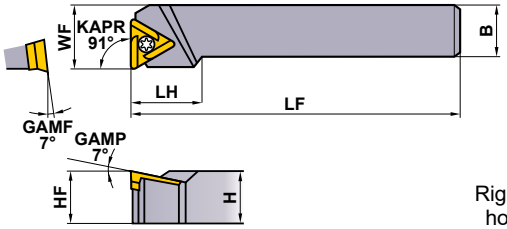
Order Number	Stock		Insert Number		Dimensions (mm)						* Clamp Screw	Wrench
	R	L			H	B	LF	LH	HF	WF		
STGER/L1616H16	★	★	TEGX	1603○○	16	16	100	22	16	20	FC400890T	TKY10F
STGER/L2020K16	★	★		1603○○	20	20	125	22	20	25	FC400890T	TKY10F
STGER/L2525M16	★	★		1603○○	25	25	150	22	25	32	FC400890T	TKY10F

* Clamp Torque (N • m) : FC400890T=2.5

STFE

Facing — **AL type**





Right hand tool holder shown.

Medium	PCD
R/L	R/L
(16)	(16)
PCD	
(16)	

Order Number	Stock		Insert Number		Dimensions (mm)						* Clamp Screw	Wrench
	R	L			H	B	LF	LH	HF	WF		
STFER/L1616H16	★	★	TEGX	1603○○	16	16	100	22	16	20	FC400890T	TKY10F
STFER/L2020K16	★	★		1603○○	20	20	125	22	20	25	FC400890T	TKY10F
STFER/L2525M16	★	★		1603○○	25	25	150	22	25	32	FC400890T	TKY10F

* Clamp Torque (N • m) : FC400890T=2.5

Note 1) When using inserts with right or left hand chipbreakers, please use left hand inserts for right hand holders and right hand inserts for left hand holders.

RECOMMENDED CUTTING CONDITIONS

	Material	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
N	Aluminium Alloy	**HTi10**	400	0.05—0.3	0.2—3.0
		MD220	800	0.05—0.3	0.2—0.5

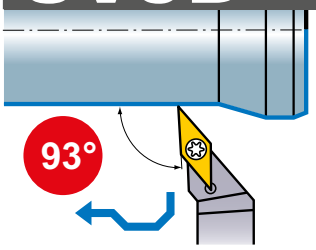
STGE type inserts ➤ **A169**
STFE type inserts ➤ **A169**
PCD inserts ➤ **B059**
SPARE PARTS ➤ **N001**
TECHNICAL DATA ➤ **P001**

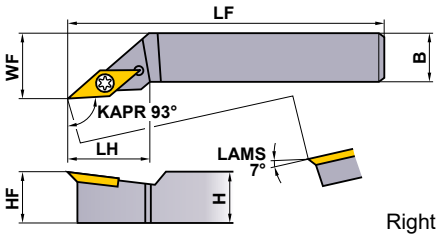
VD○○ INSERTS TOOL HOLDERS

SVJD

External turning, Copying

AL type





Right hand tool holder shown.

Finish

R/L

(16)

PCD

R/L-F

(16)

Order Number	Stock		Insert Number		Dimensions (mm)						*	
	R	L			H	B	LF	LH	HF	WF	Clamp Screw	Wrench
SVJDR/L1616H16	★	★	VDGX	1603○○	16	16	100	30	16	20	FC400890T	TKY10F
SVJDR/L2020K16	★	★		1603○○	20	20	125	30	20	25	FC400890T	TKY10F
SVJDR/L2525M16	★	★		1603○○	25	25	150	30	25	32	FC400890T	TKY10F

* Clamp Torque (N • m) : FC400890T=2.5

C

EXTERNAL TURNING TOOLS

RECOMMENDED CUTTING CONDITIONS

	Material	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
N	Aluminium Alloy	**HTi10**	400	0.05—0.3	0.2—3.0
		MD220	800	0.05—0.3	0.2—0.5

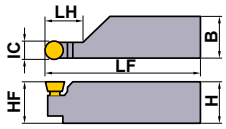
Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

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

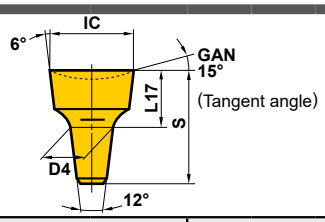
SVJD type inserts ➤ **A181**
PCD inserts ➤ **B060**

TL HOLDER

HOLDER

Geometry	Revised order number	Conventional order number	Stock	Insert Number	Dimensions (mm)					
					IC	H	B	HF	LF	LH
TLHR (External turning, Copying) 	**TLHR2020K5**	TLHR2020K5	●	RTG05A	5	20	20	20	125	16
	TLHR2020K6	TLHR2020K6	●	RTG06A	6	20	20	20	125	16
	TLHR2525M7	TLHR2525M7	●	RTG07A	7	25	25	25	150	20
	TLHR3225P10	TLHR54P10	●	RTG10A	10	32	25	32	170	25

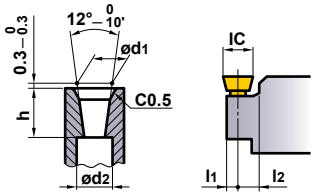
INSERTS



Order Number	Stock Carbide		Dimensions (mm)			
	UTi20T	HTi10	IC	S	D4	L17
RTG05A	●	●	5	7.5	2.5	3.5
RTG06A	●	●	6	7.5	3.5	3.5
RTG07A	●		7	11	3.5	5
RTG08A	●	●	8	11	4.5	5
RTG10A	●	●	10	14	5.5	6.5

INSERT SEAT LOCATION

When manufacturing a special tool holder, please machine the insert seat in accordance to the drawing.

Insert Seat Dimensions	Insert Diameter **IC**	Dimensions (mm)					Taper Diameter
		h	d_1	d_2	l_1	l_2	
	5	4	2.5	1.9	1.85	3.2	1.5
	6	4	3.5	2.9	2.35	3.7	2.5
	7	6	3.5	2.5	2.75	4.3	2.1
	8	6	4.5	3.5	3.25	4.8	3.1
	10	7.5	5.5	4.2	4.15	5.9	3.8
	12	7.5	7.5	6.2	5.15	6.9	5.8

TLHR type inserts ➤ A187
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

HOW TO READ THE STANDARD OF SMALL TOOLS

●How this section page is organised

①Organised according to the cutting mode of small tools.
(Refer to the inside title on the next page.)
②Shown as Turning → External Grooving → External Cutting Off → Threading → Boring.

FIGURE SHOWING THE TOOLING APPLICATION
Uses illustrations and arrows to depict the available machining applications such as external turning, copying, facing, chamfering, threading, and grooving together with cutting edge lead angles.

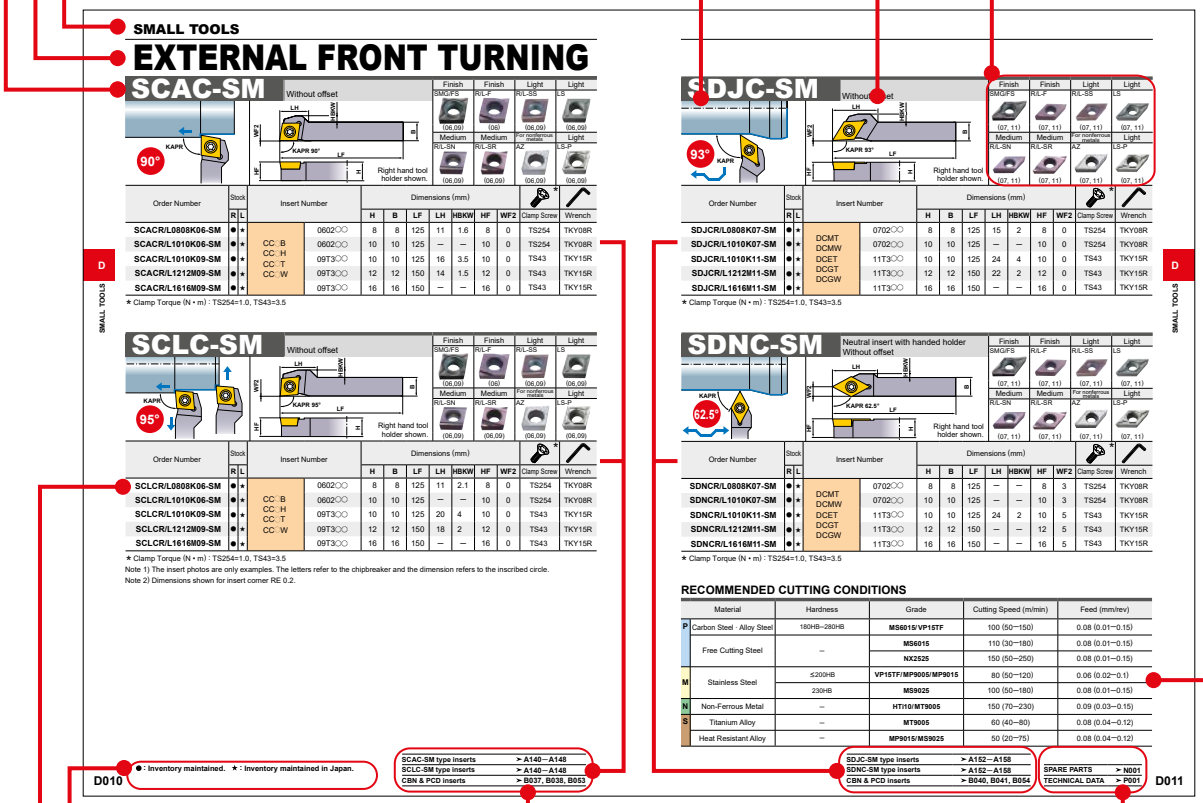
TYPE OF TOOL HOLDER
Indicates the first four letters of the order number, as well as cutting applications.

APPLICATION

PRODUCT SECTION

GEOMETRY

CHIPBREAKER BY CUTTING APPLICATION



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

REFERENCE PAGE FOR APPLICABLE INSERTS
Indicates reference pages giving details of inserts that are applicable to the product.

PRODUCT STANDARDS
Indicates order numbers, stock status (per right/left hand), applicable inserts, dimensions, and spare parts.

PAGE REFERENCE
·SPARE PARTS
·TECHNICAL DATA
Indicates reference pages, including the above, on the right hand page of each double-page spread.

RECOMMENDED CUTTING CONDITIONS
For each material classification, indicates recommended cutting conditions according to the ISO categories for cutting grades, P, M, K and N.

TURNING TOOLS

SMALL TOOLS

OUTLINE OF SMALL TOOLS D002
CLASSIFICATION D006

STANDARD OF SMALL TOOLS

EXTERNAL FRONT TURNING
SCAC-SM D010
SCLC-SM D010
SDJC-SM D011
SDNC-SM D011
SVLP-SM D012
SVJB-SM D012
SVJC-SM D013
SVPP-SM D013
SVVB-SM D013

EXTERNAL BACK TURNING
BTAH D014
CTBH D015
BTVH D016

EXTERNAL GROOVING
GTAH D018
GTBH D018
GTCH D018

EXTERNAL CUTTING OFF
CTAH D020
CTAH-S D020
CTBH D022

EXTERNAL THREADING
TTAH D024

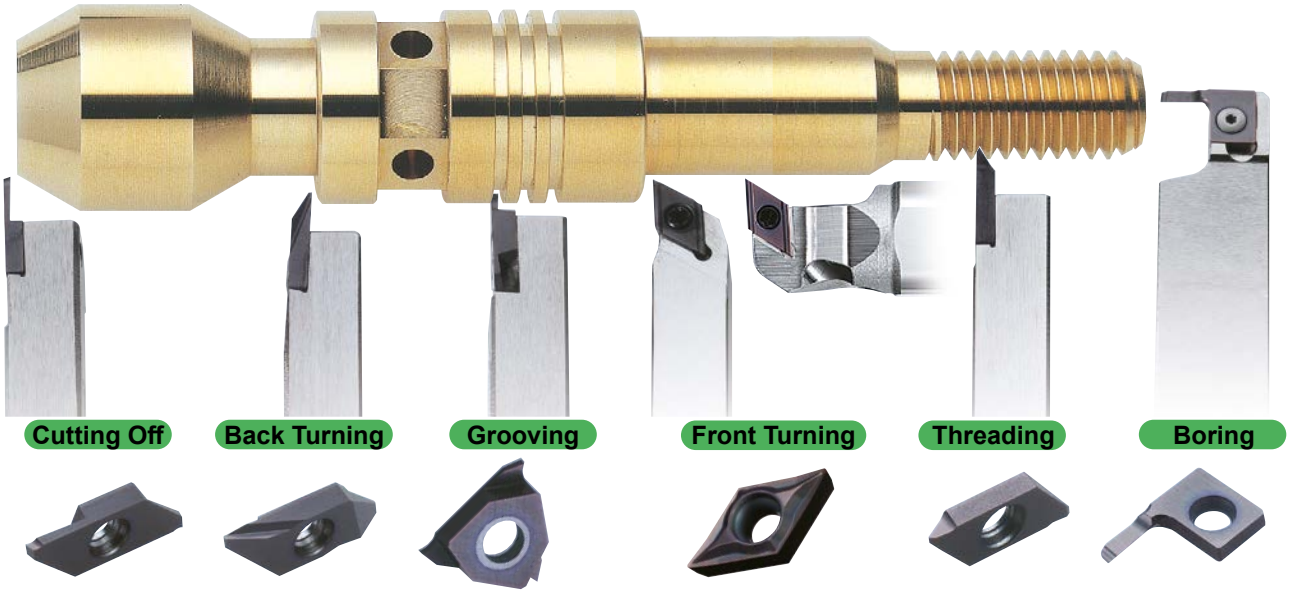
EXTERNAL FRONT TURNING, COPYING, FACING
SH D026

*Alphabetical order index

D014 **BTAH**
D014 **BTAT (INSERTS)**
D015 **BTBT (INSERTS)**
D016 **BTVH**
D016 **BTVT (INSERTS)**
D020 **CTAH**
D020 **CTAH-S**
D021 **CTAT (INSERTS)**
D015 **CTBH**
D022 **CTBT (INSERTS)**
D018 **GTAH**
D018 **GTAT (INSERTS)**
D018 **GTBH**
D018 **GTBT (INSERTS)**
D018 **GTCH**
D018 **GTCT (INSERTS)**
D010 **SCAC-SM**
D010 **SCLC-SM**
D011 **SDJC-SM**
D011 **SDNC-SM**
D026 **SH**
D012 **SVJB-SM**
D013 **SVJC-SM**
D012 **SVLP-SM**
D013 **SVPP-SM**
D013 **SVVB-SM**
D024 **TTAH**
D024 **TTAT (INSERTS)**

OUTLINE OF SMALL TOOLS

TOOLS FOR GANG TYPE AUTOMATIC LATHES (FOR EXTERNAL TURNING AND BORING)



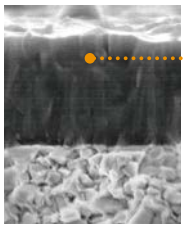
PVD Coated Cemented Carbide Grade for Carbon Steel

MS6015

Ideal for turning pure iron, carbon and free cutting steels, and for achieving good surface finishes plus excellent dimensional accuracy.

	MS6015	Conventional
Coating	TiCN multilayer	TiAlN
Hardness (HV)	3,000	2,800
Wear Coefficient (Carbon Steel)	Low	High
Base Material Hardness (HRA)	92.0	92.0
T.R.S (GPa)	2.0	2.0

Ti-C-N Multilayer Coating

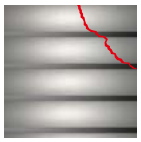


Superior wear and welding resistance and demonstrating the best possible results for machining carbon steel.

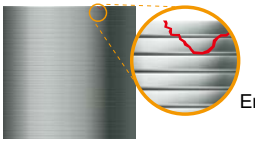
MS7025 NEW

Dramatically improved welding and wear resistance in low feed machining with a more precise nano-multilayer coating

By combining the high lubrication layer with excellent welding resistance, and the high hardness layer with a greater wear resistance that suppresses the progress of wear at the nano-level, the film damage is significantly reduced and the welding and wear resistance are dramatically improved.



Conventional Multilayer Coating



Nano-multilayer Coating

PVD Coated Grade for High Precision and Small Parts Machining

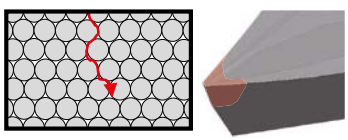
MS9025

Effective reduction of notch wear with a balance of wear and fracture resistance.

Improved Cemented Carbide

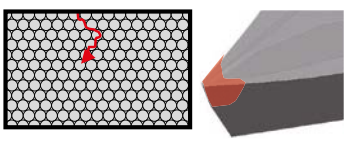
Thermal conductivity has been improved by optimising the grain size and therefore reducing the boundary contact between the WC particles. This optimisation reduces the temperature of the cutting edge during machining.

MS9025



Reducing the cutting edge temperature by improved thermal conductivity.

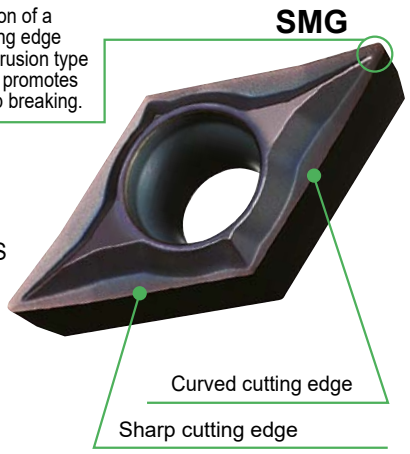
Conventional

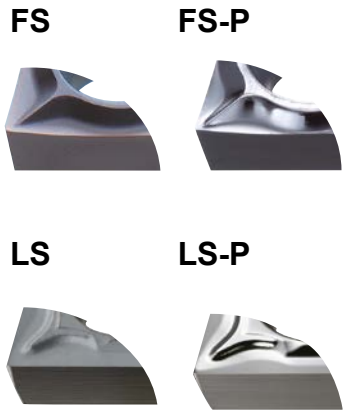


Higher cutting edge temperatures due to more particle boundary contact.

●Moulded chipbreaker insert

A combination of a curved cutting edge and the protrusion type chipbreaker promotes efficient chip breaking.





Nose radii designed with minus tolerance

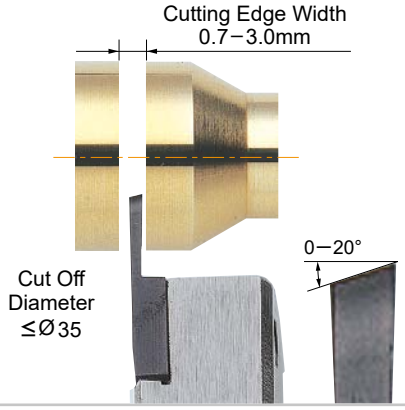
- Suitable for small parts applications that often require minus tolerance dimensions.
- The order number is shown with the letter "M" that indicates minus tolerance. ex. DCGT11T301M-FS
- The radius value is printed on the side of the insert label for easy recognition.

●Tolerance Corner R

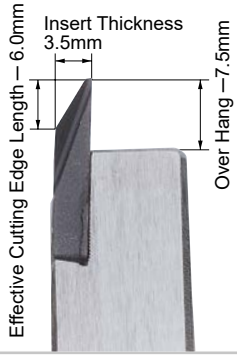
E class
RE $^{0}_{-0.02}$ mm

The letter "M" insert
RE $^{0}_{-0.05}$ mm
(Conventional G-class insert
RE ±0.10 mm)

●Cutting Off

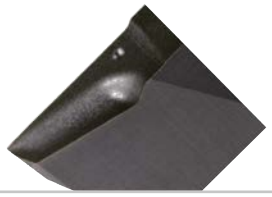


●Back Turning

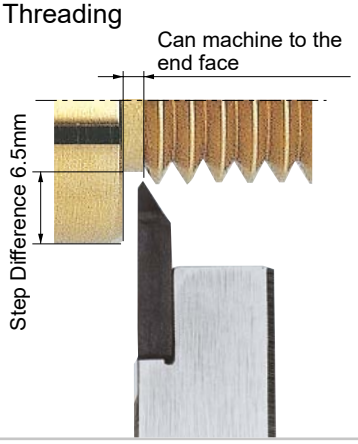


Inserts for Moulded Back Turning

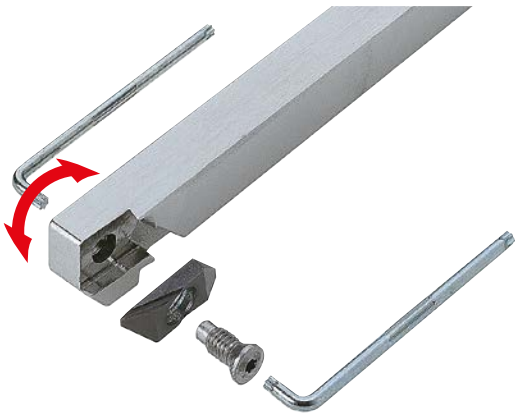
SMB Breaker



●Threading



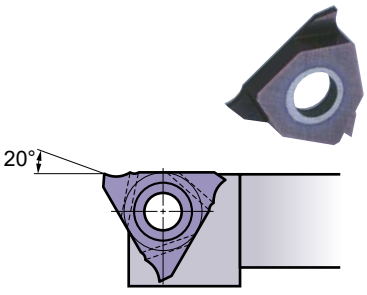
●Back Clamping Mechanism



Screw designed for front and back clamping.

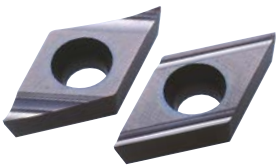
●Grooving

- 3 cutiing edges
- Groove width 0.3–3.0mm
- Traversing possible



●Front Turning

- ISO E class accuracy inserts
- A wide variety of small corner R inserts
- Rake angle 30°



OUTLINE OF SMALL TOOLS

Grooving System

GY series

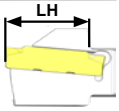
Monoblock Holder for Swiss-type Automatic Lathe

Max. Cut Off Diameter : 34mm

The new geometry with greatly improved rigidity suppresses vibrations and dimensional changes thereby solves common cutting off problems.

Overhang Length Compatible with Swiss-type Automatic Lathes

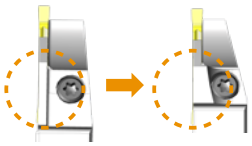
Head length corresponding to the maximum machining diameter of CNC Swiss Type automatic lathes and turret machines.



Features of High Rigidity Holder

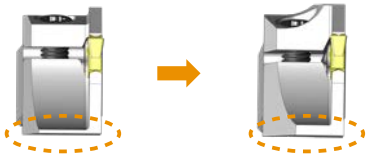
Strong Clamp Bridge

The strong design of the clamp bridge suppresses chatter and vibration.

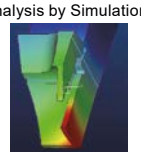


Thicker Tool Base

Tool deflection caused by cutting resistance is greatly reduced.



Analysis by Simulation



Analysis by Simulation
Deflection Measurement : 0.044

Analysis by Simulation
Deflection Measurement : 0.013

Cutting Off & Grooving System

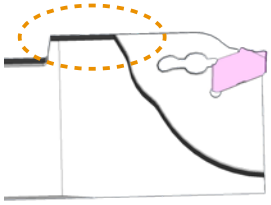
GW series

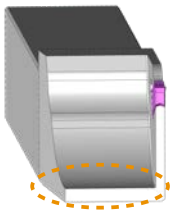
Monoblock Holder for Swiss-type Automatic Lathe

Max. Cut Off Diameter : 76mm

High Rigidity Holder

Tool deflection caused by cutting resistance and the remaining material pip in the centre are greatly reduced.

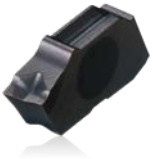




New Low Resistance and High Lead Angle Insert

New inserts with a lead angle of 8° have been added to the range to reduce burrs and the size of the remaining pip in the centre of the workpiece after cutting.

Lead Angle 5°



Lead Angle 8°

Tools for an extensive range of small parts machining

External Turning	Tools for front turning, back turning, grooving, threading and cutting off
Internal Turning	Tools for boring, internal grooving and internal threading
Drilling	Drills
End Milling	End Mills

Tools for CNC automatic and small lathes

Types of Tool Posts	Gang type, turret type, cam type (radial pattern type)
Tool Sizes	Square shank: 8−16 mm Round shank : less than Ø25.4

Indexable inserts developed under the concept of "high quality, high efficiency and long tool life."

High Quality	E class tolerance, sharp cutting edge, high accuracy small corner R, smooth surface finish
Long Tool Life	PVD coating MS6015/MS7025/MS9025/VP15TF
High Efficiency	Regrinding not necessary due to the employment of indexable inserts. A wide variety of top cutting edge geometries

TOOLS FOR CAM TYPE AUTOMATIC LATHES

- The most suitable for use with cam type automatic lathes (radial pattern tool posts)
- The most suitable for machining of small parts with work diameter 5mm or smaller
- Single holder for front turning, back turning, grooving, threading and cutting off operations

Front Turning | Back Turning | Grooving | Threading | Cutting Off

INTERNAL TURNING TOOLS

Solid type **MICRO-MINI TWIN**
Minimum cutting diameter Ø2.2–

Boring
Grooving
Threading

Round Shank

Square Shank

MICRO-DEX Boring Bars

Minimum cutting diameter
Ø5.0–

Minimum cutting diameter
Ø10.0

DIMPLE BAR

(Please see the Boring Bar section for these tools.)

DRILLING TOOLS

Violet Coated Precision Drills

VAPDS/VAPDM (General)
(For stainless steel)
VAPDSCB
(For counter boring)

Solid Carbide Drill

MVS/DWAE

Solid Carbide Flat Bottom Drills

MFE

Solid Carbide Drills for Centreing and Chamfering

DLE

Micro Solid Carbide Drills

MSE Drills
MSE/MSP (Centre Drills)

Solid Gun Drill

Micro Solid Carbide Gun Drill with through coolant holes

MGS

END MILLING TOOLS

Solid Carbide End Mill

MSTAR / MSTAR Plus End Mill Series

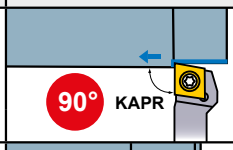
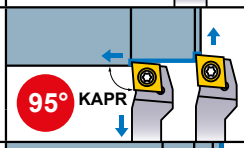
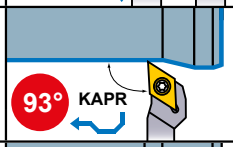
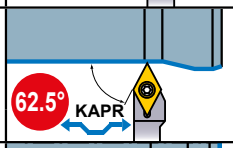
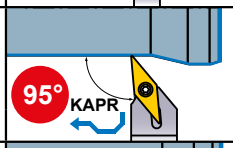
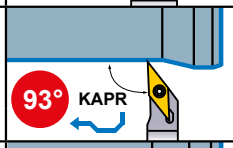
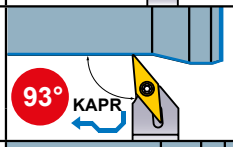
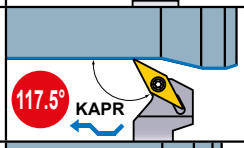
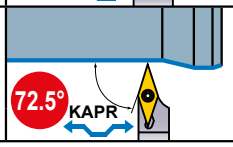
Vibration Control End Mills for Machining Difficult-to-Cut Materials

SMART MIRACLE End Mill Series

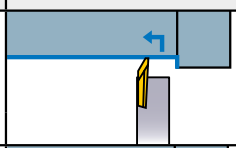
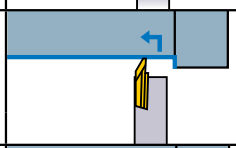
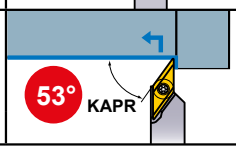
CLASSIFICATION OF EXTERNAL TURNING TOOLS

GANG TYPE TOOL POSTS

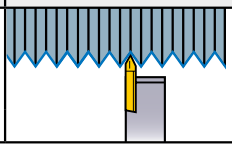
● FRONT TURNING

Name of Tool Holder	Shank Size (mm) (H x W x L)	Geometry
SCAC-SM ➲ D010	8 x 8 x 125 10 x 10 x 125 12 x 12 x 150 16 x 16 x 150	
SCLC-SM ➲ D010	8 x 8 x 125 10 x 10 x 125 12 x 12 x 150 16 x 16 x 150	
SDJC-SM ➲ D011	8 x 8 x 125 10 x 10 x 125 12 x 12 x 150 16 x 16 x 150	
SDNC-SM ➲ D011	8 x 8 x 125 10 x 10 x 125 12 x 12 x 150 16 x 16 x 150	
SVLP-SM ➲ D012	10 x 10 x 125 12 x 12 x 150 16 x 16 x 150	
SVJB-SM ➲ D012	10 x 10 x 125 12 x 12 x 150 16 x 16 x 150	
SVJC-SM ➲ D013	10 x 10 x 120 12 x 12 x 120 16 x 16 x 120	
SVPP-SM ➲ D013	10 x 10 x 125 12 x 12 x 150 16 x 16 x 150	
SVVB-SM ➲ D013	10 x 10 x 125 12 x 12 x 150 16 x 16 x 150	

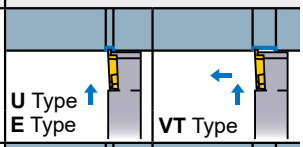
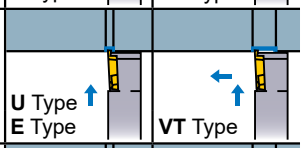
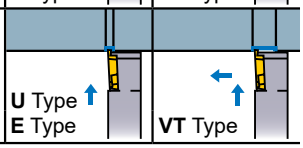
● BACK TURNING

Name of Tool Holder	Shank Size (mm) (H x W x L)	Geometry
BTAH (Insert Size 2.8, 3.5, 5.0mm) ➲ D014	8 x 10 x 120 10 x 10 x 120 12 x 12 x 120 16 x 16 x 120	
CTBH (Insert Size 4.5, 6.0mm) ➲ D015	10 x 10 x 120 12 x 12 x 120 16 x 16 x 120	
BTVH (Insert Size 7.5mm) ➲ D016	10 x 10 x 120 12 x 12 x 120 16 x 16 x 120	

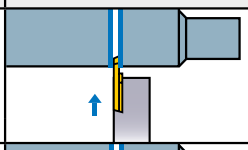
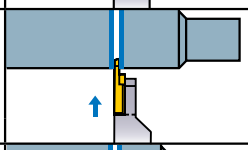
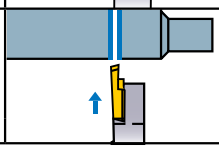
● THREADING

Name of Tool Holder	Shank Size (mm) (H x W x L)	Geometry
TTAH ➲ D024	8 x 10 x 120 10 x 10 x 120 12 x 12 x 120 16 x 16 x 120	

● GROOVING

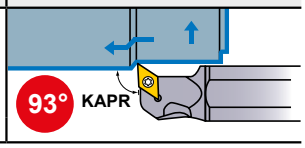
Name of Tool Holder	Shank Size (mm) (H x W x L)	Geometry
GTAH (Groove Width 0.3–3.0mm) ➲ D018	8 x 8 x 80 8 x 8 x 120 10 x 10 x 80 10 x 10 x 120 12 x 12 x 80 12 x 12 x 120 16 x 16 x 120	
GTBH (Groove Width 1.45–3.0mm) ➲ D018	10 x 10 x 80 10 x 10 x 120 12 x 12 x 120 16 x 16 x 120	
GTCH (Groove Width 2.5–3.0mm) ➲ D018	10 x 10 x 80 10 x 10 x 120	

● CUTTING OFF

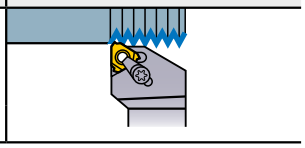
Name of Tool Holder	Shank Size (mm) (H x W x L)	Geometry
CTAH (Max. Cut Off Diameter 12mm) ➲ D020	8 x 10 x 120 10 x 10 x 120 12 x 12 x 120 16 x 16 x 120	
CTAH-S (Max. Cut Off Diameter 12mm) ➲ D020	10 x 10 x 80	
CTBH (Max. Cut Off Diameter 16mm) ➲ D022	10 x 10 x 120 12 x 12 x 120 16 x 16 x 120	

OPPOSITE TOOL POSTS

● DIMPLE SLEEVE HOLDER

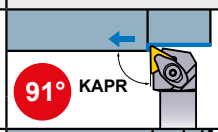
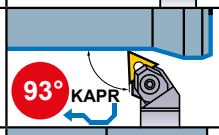
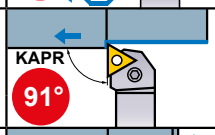
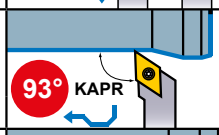
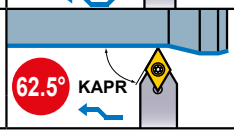
Name of Tool Holder	Shank Size (mm) (Shank Dia. x L)	Geometry
SH (Front Turning, Copying, Facing) ➲ D026	Ø15.875 x 100 Ø19.05 x 125 Ø20 x 125 Ø22 x 125 Ø25.4 x 150	

● THREADING

Name of Tool Holder	Shank Size (mm) (H x W x L)	Geometry
MMT ➲ G019	12 x 12 x 100 16 x 16 x 100 20 x 20 x 125 25 x 25 x 150 32 x 32 x 170	

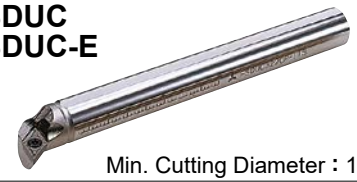
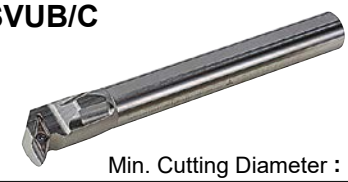
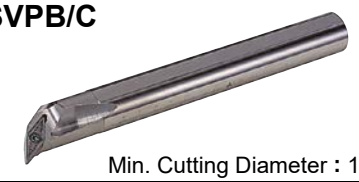
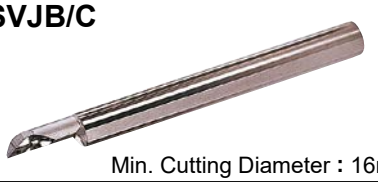
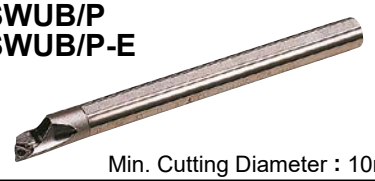
TURRET TYPE TOOL POSTS

● FRONT TURNING

Name of Tool Holder	Shank Size (mm) (H x W x L)	Geometry
DTGN ➲ C016	16 x 16 x 100 20 x 20 x 125 25 x 25 x 150	
MTJN ➲ C017	20 x 20 x 125 25 x 25 x 150	
PTGN ➲ C016	10 x 10 x 70 12 x 12 x 80 16 x 16 x 100 20 x 20 x 125 25 x 25 x 150	
SCLC ➲ C024	8 x 8 x 60 10 x 10 x 70 12 x 12 x 80 16 x 16 x 100	
SDJC ➲ C025	10 x 10 x 70 12 x 12 x 80 16 x 16 x 100	
SDNC ➲ C025	8 x 8 x 60 10 x 10 x 70 12 x 12 x 80 16 x 16 x 100	

CLASSIFICATION OF INTERNAL TURNING TOOLS (FOR GENERAL USE)

Product Name	Holder
MICRO-MINI TWIN Boring Bars (Solid Carbide) ➲ E021, E023	**CB CR** Min. Cutting Diameter : 2.2mm
MICRO-DEX Boring Bars (Carbide Shank) ➲ E018	**SCLC** Min. Cutting Diameter : 5mm
MICRO-DEX Boring Bars (Carbide Shank) ➲ E019	**STUC** Min. Cutting Diameter : 8mm
MICRO-DEX Boring Bars (Carbide Shank) ➲ E018	**SWUB** Min. Cutting Diameter : 6mm
F type Bars (Steel Shank) ➲ E030	**FSWL1** Min. Cutting Diameter : 5.8mm
F type Bars (Carbide Shank) ➲ E030	**FSWL2** Min. Cutting Diameter : 5.8mm
DIMPLE BAR (Steel Shank Carbide Shank) ➲ E007, E008	**FSCLC/P FSCLC/P-E** Min. Cutting Diameter : 10mm

Product Name	Holder
DIMPLE BAR (Steel Shank Carbide Shank) ➲ E010	**FSDUC FSDUC-E**  Min. Cutting Diameter : 14mm
DIMPLE BAR (Steel Shank Carbide Shank) ➲ E011	**FSDQC FSDQC-E** Min. Cutting Diameter : 13mm
DIMPLE BAR (Steel Shank Carbide Shank) ➲ E009	**FSTUP FSTUP-E** Min. Cutting Diameter : 10mm
DIMPLE BAR (Steel Shank) ➲ E013	**FSVUB/C**  Min. Cutting Diameter : 16mm
DIMPLE BAR (Steel Shank) ➲ E013	**FSVPB/C**  Min. Cutting Diameter : 16mm
DIMPLE BAR (Steel Shank) ➲ E014	**FSVJB/C**  Min. Cutting Diameter : 16mm
DIMPLE BAR (Steel Shank Carbide Shank) ➲ E012	**FSWUB/P FSWUB/P-E**  Min. Cutting Diameter : 10mm

TOOLS FOR GROOVING AND THREADING/END MILLS/DRILLS

FOR GROOVING AND THREADING

Product Name	Holder
GY series F018	**External for Swiss-type lathes** Max. Cut Off Diameter : 34mm
GW series F122	**External for Swiss-type lathes** Max. Cut Off Diameter : 76mm
MICRO-MINI TWIN (Solid Type) F134	**CG TYPE (Grooving)** Min. Cutting Diameter : 3mm
MICRO-MINI TWIN (Solid Type) G031	**CT TYPE (Threading)** Min. Cutting Diameter : 3mm

END MILLS

Series Title	Shape
NEW For Swiss-Type Automatic Lathes MS Plus End Mill Series I105, I108, I111	**MP2ES/MP3ES/MP4EC**

Solid Carbide End Mill Series I028

HSS End Mill Series I036

DRILLS

Product Name	Series Title
Solid Carbide Drills M049	**MVS series**
Solid Carbide Drills M024	**DWAE series**
Centre Drills M012	**DLE series**
Flat Bottom Drills M018	**MFE series**

Solid Carbide Drill Series M004

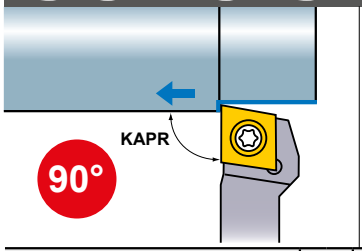
Solid Gun Drill Series M075

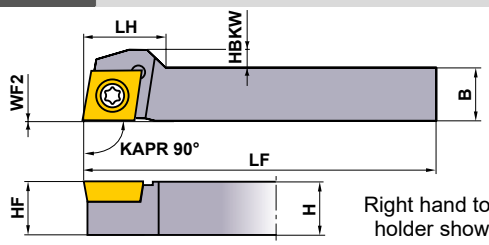
HSS Drill Series M005

EXTERNAL FRONT TURNING

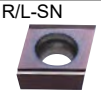
SCAC-SM

Without offset





Right hand tool holder shown.

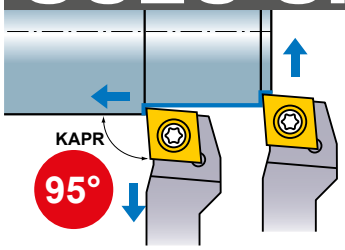
Finish	Finish	Light	Light
SMG/FS	R/L-F	R/L-SS	LS
(06,09)	(06)	(06,09)	(06,09)
Medium	Medium	For nonferrous metals	Light
R/L-SN	R/L-SR	AZ	LS-P
 (06,09)	(06,09)	(06,09)	(06,09)

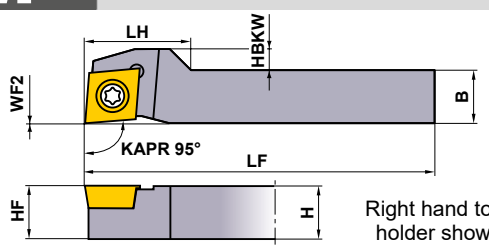
Order Number	Stock		Insert Number		Dimensions (mm)							*	
	R	L			H	B	LF	LH	HBKW	HF	WF2	Clamp Screw	Wrench
SCACR/L0808K06-SM	●	★	CC□B CC□H CC□T CC□W	0602□□	8	8	125	11	1.6	8	0	TS254	TKY08R
SCACR/L1010K06-SM	●	★		0602□□	10	10	125	—	—	10	0	TS254	TKY08R
SCACR/L1010K09-SM	●	★		09T3□□	10	10	125	16	3.5	10	0	TS43	TKY15R
SCACR/L1212M09-SM	●	★		09T3□□	12	12	150	14	1.5	12	0	TS43	TKY15R
SCACR/L1616M09-SM	●	★		09T3□□	16	16	150	—	—	16	0	TS43	TKY15R

★ Clamp Torque (N • m) : TS254=1.0, TS43=3.5

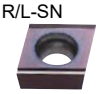
SCLC-SM

Without offset





Right hand tool holder shown.

Finish	Finish	Light	Light
SMG/FS	R/L-F	R/L-SS	LS
(06,09)	(06)	(06,09)	(06,09)
Medium	Medium	For nonferrous metals	Light
R/L-SN	R/L-SR	AZ	LS-P
 (06,09)	(06,09)	(06,09)	(06,09)

Order Number	Stock		Insert Number		Dimensions (mm)							*	
	R	L			H	B	LF	LH	HBKW	HF	WF2	Clamp Screw	Wrench
SCLCR/L0808K06-SM	●	★	CC□B CC□H CC□T CC□W	0602□□	8	8	125	11	2.1	8	0	TS254	TKY08R
SCLCR/L1010K06-SM	●	★		0602□□	10	10	125	—	—	10	0	TS254	TKY08R
SCLCR/L1010K09-SM	●	★		09T3□□	10	10	125	20	4	10	0	TS43	TKY15R
SCLCR/L1212M09-SM	●	★		09T3□□	12	12	150	18	2	12	0	TS43	TKY15R
SCLCR/L1616M09-SM	●	★		09T3□□	16	16	150	—	—	16	0	TS43	TKY15R

★ Clamp Torque (N • m) : TS254=1.0, TS43=3.5

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

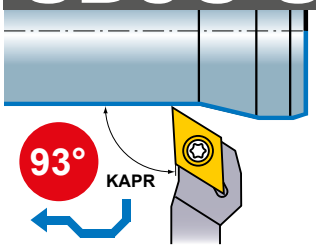
Note 2) Dimensions shown for insert corner RE 0.2.

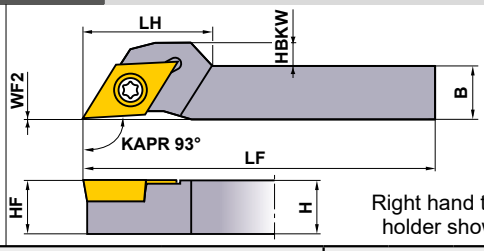
● : Inventory maintained. ★ : Inventory maintained in Japan.

SCAC-SM type inserts	➤ A140—A148
SCLC-SM type inserts	➤ A140—A148
CBN & PCD inserts	➤ B037, B038, B053

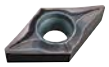
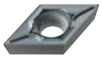
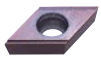
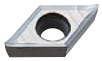
SDJC-SM

Without offset





Right hand tool holder shown.

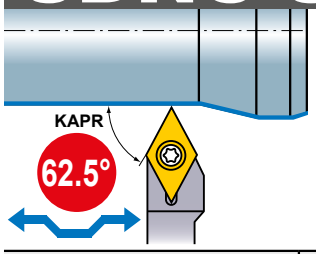
Finish	Finish	Light	Light
SMG/FS	R/L-F	R/L-SS	LS
			
(07, 11)	(07, 11)	(07, 11)	(07, 11)
Medium	Medium	For nonferrous metals	Light
R/L-SN	R/L-SR	AZ	LS-P
			
(07, 11)	(07, 11)	(07, 11)	(07, 11)

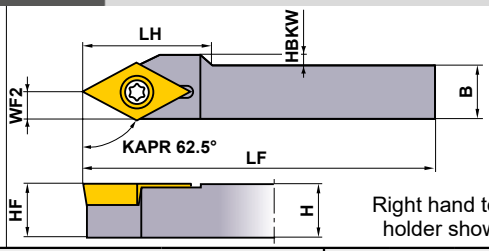
Order Number	Stock		Insert Number		Dimensions (mm)							* Clamp Screw	Wrench
	R	L			H	B	LF	LH	HBKW	HF	WF2		
SDJCR/L0808K07-SM	●	★	DCMT DCMW DCET DCGT DCGW	0702○○	8	8	125	15	2	8	0	TS254	TKY08R
SDJCR/L1010K07-SM	●	★		0702○○	10	10	125	—	—	10	0	TS254	TKY08R
SDJCR/L1010K11-SM	●	★		11T3○○	10	10	125	24	4	10	0	TS43	TKY15R
SDJCR/L1212M11-SM	●	★		11T3○○	12	12	150	22	2	12	0	TS43	TKY15R
SDJCR/L1616M11-SM	●	★		11T3○○	16	16	150	—	—	16	0	TS43	TKY15R

★ Clamp Torque (N • m) : TS254=1.0, TS43=3.5

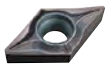
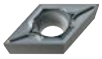
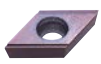
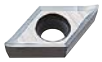
SDNC-SM

Neutral insert with handed holder
Without offset





Right hand tool holder shown.

Finish	Finish	Light	Light
SMG/FS	R/L-F	R/L-SS	LS
			
(07, 11)	(07, 11)	(07, 11)	(07, 11)
Medium	Medium	For nonferrous metals	Light
R/L-SN	R/L-SR	AZ	LS-P
			
(07, 11)	(07, 11)	(07, 11)	(07, 11)

Order Number	Stock		Insert Number		Dimensions (mm)							* Clamp Screw	Wrench
	R	L			H	B	LF	LH	HBKW	HF	WF2		
SDNCR/L0808K07-SM	●	★	DCMT DCMW DCET DCGT DCGW	0702○○	8	8	125	—	—	8	3	TS254	TKY08R
SDNCR/L1010K07-SM	●	★		0702○○	10	10	125	—	—	10	3	TS254	TKY08R
SDNCR/L1010K11-SM	●	★		11T3○○	10	10	125	24	2	10	5	TS43	TKY15R
SDNCR/L1212M11-SM	●	★		11T3○○	12	12	150	—	—	12	5	TS43	TKY15R
SDNCR/L1616M11-SM	●	★		11T3○○	16	16	150	—	—	16	5	TS43	TKY15R

★ Clamp Torque (N • m) : TS254=1.0, TS43=3.5

RECOMMENDED CUTTING CONDITIONS

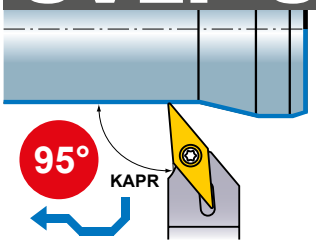
	Material	Hardness	Grade	Cutting Speed (m/min)	Feed (mm/rev)
P	Carbon Steel · Alloy Steel	180HB–280HB	**MS6015/VP15TF**	100 (50–150)	0.08 (0.01–0.15)
P	Free Cutting Steel	–	**MS6015**	110 (30–180)	0.08 (0.01–0.15)
P			**NX2525**	150 (50–250)	0.08 (0.01–0.15)
M	Stainless Steel	≤200HB	**VP15TF/MP9005/MP9015**	80 (50–120)	0.06 (0.02–0.1)
M		230HB	**MS9025**	100 (50–180)	0.08 (0.01–0.15)
N	Non-Ferrous Metal	–	**HTi10/MT9005**	150 (70–230)	0.09 (0.03–0.15)
S	Titanium Alloy	–	**MT9005**	60 (40–80)	0.08 (0.04–0.12)
S	Heat Resistant Alloy	–	**MP9015/MS9025**	50 (20–75)	0.08 (0.04–0.12)

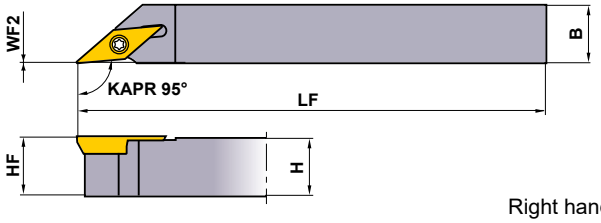
SDJC-SM type inserts ➤ **A152–A158**
SDNC-SM type inserts ➤ **A152–A158**
CBN & PCD inserts ➤ **B040, B041, B054**
SPARE PARTS ➤ **N001**
TECHNICAL DATA ➤ **P001**

EXTERNAL FRONT TURNING

SVLP-SM

Without offset





Right hand tool holder shown.

Finish
R/L-SRF

(08,11)

Finish
SMG

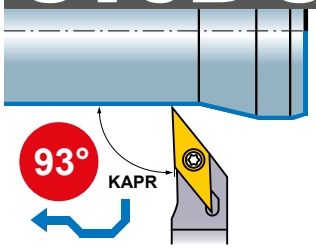
(08,11)

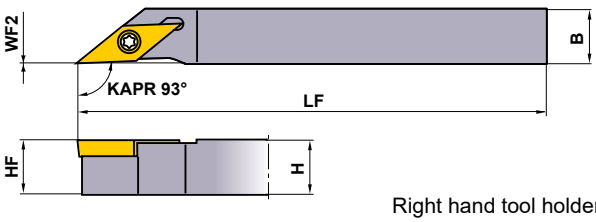
Order Number	Stock		Insert Number		Dimensions (mm)					*	
	R	L			H	B	LF	HF	WF2	Clamp Screw	Wrench
SVLPR/L1010K08-SM	●	★	VPET VPGT	0802○○	10	10	125	10	0	TS202	TKY06R
SVLPR/L1212M08-SM	●	★		0802○○	12	12	150	12	0	TS202	TKY06R
SVLPR/L1010K11-SM	●	★		1103○○	10	10	125	10	0	TS255	TKY08R
SVLPR/L1212M11-SM	●	★		1103○○	12	12	150	12	0	TS255	TKY08R
SVLPR/L1616M11-SM	●	★		1103○○	16	16	150	16	0	TS255	TKY08R

* Clamp Torque (N • m) : TS202=0.6, TS255=1.0

SVJB-SM

Without offset





Right hand tool holder shown.

Finish
R/L-F

(11)

Medium
R/L-SN

(11)

Medium
R/L-SR

(11)

Order Number	Stock		Insert Number		Dimensions (mm)					*	
	R	L			H	B	LF	HF	WF2	Clamp Screw	Wrench
SVJBR/L1010K11-SM	●	★	VBMT VBET VBGT VBGW	1103○○	10	10	125	10	0	TS255	TKY08R
SVJBR/L1212M11-SM	●	★		1103○○	12	12	150	12	0	TS255	TKY08R
SVJBR/L1616M11-SM	●	★		1103○○	16	16	150	16	0	TS255	TKY08R

* Clamp Torque (N • m) : TS255=1.0

RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Grade	Cutting Speed (m/min)	Feed (mm/rev)
P	Carbon Steel · Alloy Steel	180HB–280HB	**MS6015/VP15TF**	100 (50–150)	0.08 (0.01–0.15)
P	Free Cutting Steel	–	**MS6015**	110 (30–180)	0.08 (0.01–0.15)
P			**NX2525**	150 (50–250)	0.08 (0.01–0.15)
M	Stainless Steel	≤200HB	**VP15TF/MP9005/MP9015**	80 (50–120)	0.06 (0.02–0.1)
M		230HB	**MS9025**	100 (50–180)	0.08 (0.01–0.15)
N	Non-Ferrous Metal	–	**HTi10/MT9005**	150 (70–230)	0.09 (0.03–0.15)
S	Titanium Alloy	–	**MT9005**	60 (40–80)	0.08 (0.04–0.12)
S	Heat Resistant Alloy	–	**MP9015/MS9025**	50 (20–75)	0.08 (0.04–0.12)

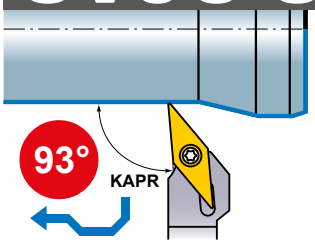
Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.2.

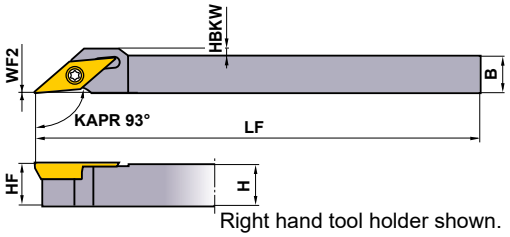
● : Inventory maintained. ★ : Inventory maintained in Japan.

SVLP-SM type inserts	**➤ A182**
SVJB-SM type inserts	**➤ A174—A176**
CBN & PCD inserts	**➤ B045, B057**

SVJC-SM

Without offset





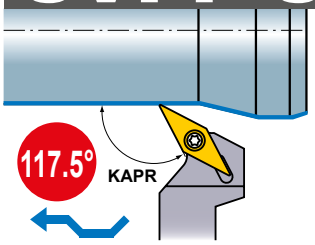
Right hand tool holder shown.

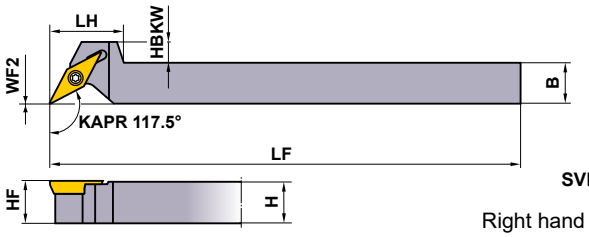
Finish	Finish	Light	Light
FP	FM	LS	LS-P
(11)	(11)	(11,13)	(11,13)
Light	**Light**	**Light**	
LP	LM	LS	
(11)	(11)	(11)	

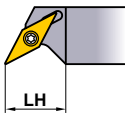
Order Number	Stock		Insert Number		Dimensions (mm)						*	
	R	L			H	B	LF	HBKW	HF	WF2	Clamp Screw	Wrench
SVJCR/L1010JX11-SM	●	●	VCMW VCMT VCGT	1103○○	10	10	120	—	10	0	TS255	TKY08R
SVJCR/L1212JX11-SM	●	●		1103○○	12	12	120	—	12	0	TS255	TKY08R
SVJCR/L1616JX11-SM	●	●		1103○○	16	16	120	—	16	0	TS255	TKY08R
SVJCR/L1010JX13-SM	●	●		1303○○	10	10	120	2	10	0	TS32	TKY08R
SVJCR/L1212JX13-SM	●	●		1303○○	12	12	120	—	12	0	TS32	TKY08R
SVJCR/L1616JX13-SM	●	●		1303○○	16	16	120	—	16	0	TS32	TKY08R

* Clamp Torque (N • m) : TS255=1.0, TS32=1.0

SVPP-SM







SVPPR/L1616M11-SM

Right hand tool holder shown.

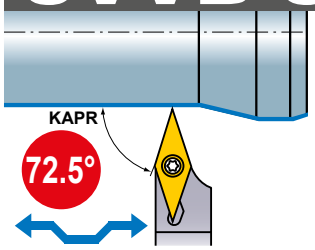
Finish
R/L-SRF
(11)
Finish
SMG
(11)

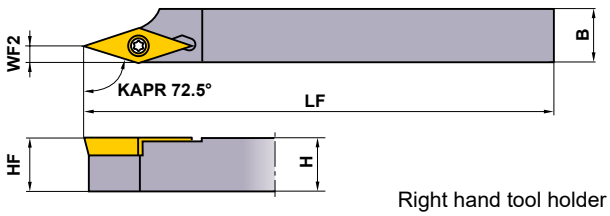
Order Number	Stock		Insert Number		Dimensions (mm)							*	
	R	L			H	B	LF	LH	HBKW	HF	WF2	Clamp Screw	Wrench
SVPPR/L1010K11-SM	●	★	VPET VPGT	1103○○	10	10	125	20	8	10	0	TS255	TKY08R
SVPPR/L1212M11-SM	●	★		1103○○	12	12	150	20	6	12	0	TS255	TKY08R
SVPPR/L1616M11-SM	●	★		1103○○	16	16	150	17	—	16	0	TS255	TKY08R

* Clamp Torque (N • m) : TS255=1.0

SVVB-SM

Neutral edge with handed holder





Right hand tool holder shown.

Finish	Medium
R/L-F	R/L-SN
(11)	(11)
Medium	
R/L-SR	
(11)	

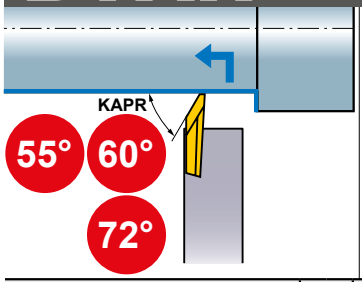
Order Number	Stock		Insert Number		Dimensions (mm)					*	
	R	L			H	B	LF	HF	WF2	Clamp Screw	Wrench
SVVBR/L1010K11-SM	●	★	VBET VBGT VBMT VBGW	1103○○	10	10	125	10	3	TS255	TKY08R
SVVBR/L1212M11-SM	●	★		1103○○	12	12	150	12	3	TS255	TKY08R
SVVBR/L1616M11-SM	●	★		1103○○	16	16	150	16	3	TS255	TKY08R

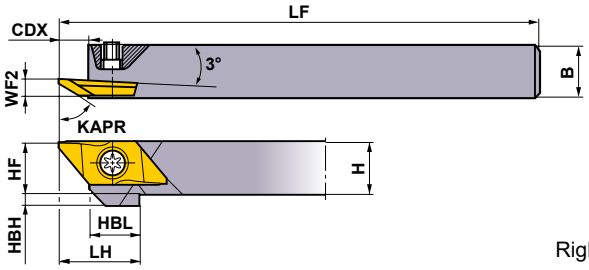
* Clamp Torque (N • m) : TS255=1.0

SVJC-SM type inserts	**➤ A177—A180**	**CBN & PCD inserts**	**➤ B045, B046, B057**
SVPP-SM type inserts	**➤ A182**	**SPARE PARTS**	**➤ N001**
SVVB-SM type inserts	**➤ A174—A176**	**TECHNICAL DATA**	**➤ P001**

EXTERNAL BACK TURNING

BTAH





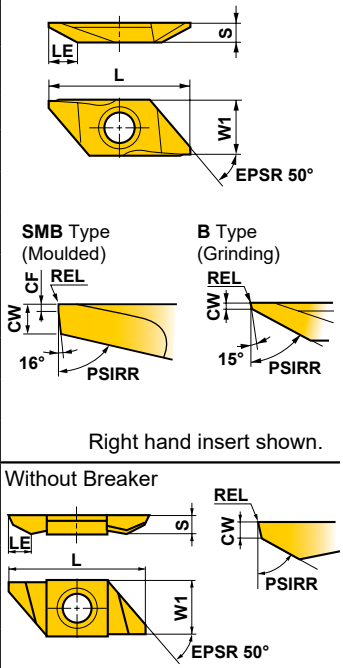
Right hand tool holder shown.

Order Number	Stock		Insert Number		Dimensions (mm)									*	
	R	L			H	B	LF	LH	HF	WF2	HBH	HBL	CDX	Clamp Screw	Wrench
BTAHR/L0810-50	●	★	BTAT	5528○○R/L-B	8	10	120	15	8	3.5	4	9.5	5.5	NS402W	NKY15S
BTAHR/L1010-50	●	★		6035○○R/L-B	10	10	120	15	10	3.5	2	9.5	5.5	NS402W	NKY15S
BTAHR/L1212-50	●	★		605000RX	12	12	120	15	12	3.5	—	9.5	5.5	NS403W	NKY15S
BTAHR/L1616-50	●			7235○○R-SMB	16	16	120	15	16	3.5	—	9.5	5.5	NS403W	NKY15S

Note 1) Please use right hand inserts for right hand holders and left hand inserts for left hand holders.
Note 2) Set the maximum depth of cut at under 60% of the effective cutting edge length (LE).
* Clamp Torque (N • m) : NS402W=1.4, NS403W=1.4

INSERTS

Order Number	Hand	Coated		Dimensions (mm)							LE* (mm)	Geometry
		VP15TF	MS6015	PSIRR/L*	RER/L	CF	L	W1	CW	S		
BTAT7235V5R-SMB	R	●		72°	0.05	0.3	20	8	1.4	2.5	3.5	With Breaker
BTAT723501MR-SMB	R	●		72°	0.08	0.3	20	8	1.4	2.5	3.5	
BTAT723502MR-SMB	R	●		72°	0.18	0.3	20	8	1.4	2.5	3.5	
BTAT552800R-B	R	●	●	55°	0	0	20	8	0.5	2.5	2.8	
BTAT552800L-B	L	★		55°	0	0	20	8	0.5	2.5	2.8	
BTAT552801R-B	R	●	●	55°	0.1	0	20	8	0.5	2.5	2.8	
BTAT552801L-B	L	★		55°	0.1	0	20	8	0.5	2.5	2.8	
BTAT603500R-B	R	●	●	60°	0	0	20	8	0.5	2.5	3.5	
BTAT603500L-B	L	★		60°	0	0	20	8	0.5	2.5	3.5	
BTAT603501MR-B	R		●	60°	0.08	0	20	8	0.5	2.5	3.5	
BTAT603501R-B	R	●	●	60°	0.1	0	20	8	0.5	2.5	3.5	
BTAT603501L-B	L	★		60°	0.1	0	20	8	0.5	2.5	3.5	
BTAT605000RX	R	●		60°	0	0	20	8	1.25	2.5	5.0	Without Breaker



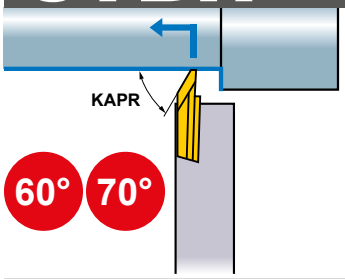
Note 1) REL, PSIRR dimensions for Right Hand Tool and RER. PSIRL dimensions for Left Hand Tool.
* Numeric value set insert on holder.

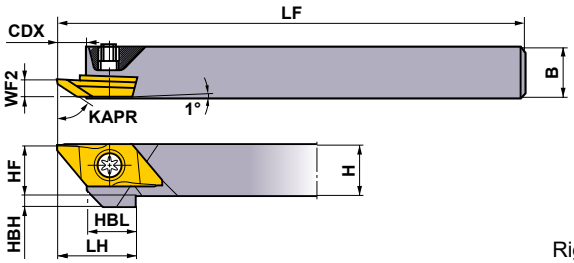
RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Grade	Cutting Speed (m/min)	Feed (mm/rev)
P	Carbon Steel · Alloy Steel	180HB–280HB	**MS6015/VP15TF**	100 (50–150)	0.08 (0.01–0.15)
	Free Cutting Steel	–	**MS6015**	110 (30–180)	0.08 (0.01–0.15)
M	Stainless Steel	≤200HB	**VP15TF**	80 (50–120)	0.06 (0.02–0.1)
N	Non-Ferrous Metal	–	**MS6015**	150 (70–230)	0.09 (0.03–0.15)

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

CTBH





Right hand tool holder shown.

Order Number	Stock		Insert Number		Dimensions (mm)									*	
	R	L			H	B	LF	LH	HF	WF2	HBH	HBL	CDX	Clamp Screw	Wrench
CTBHR/L1010-160	●	●	BTBT	60450○R/L-B	10	10	120	19.5	10	3.4	2	12	7.5	NS402W	NKY15S
CTBHR/L1212-160	●	●		606000R/L	12	12	120	19.5	12	3.4	—	12	7.5	NS403W	NKY15S
CTBHR/L1616-160	●	●		7055○○R-SMB	16	16	120	19.5	16	3.4	—	12	7.5	NS403W	NKY15S

Note 1) Please use right hand inserts for right hand holders and left hand inserts for left hand holders.
Note 2) Set the maximum depth of cut at under 60% of the effective cutting edge length (LE).
* Clamp Torque (N • m) : NS402W=1.4, NS403W=1.4

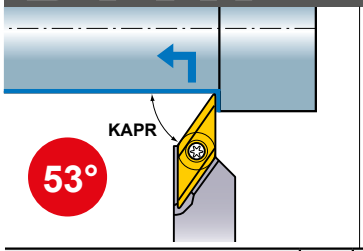
INSERTS

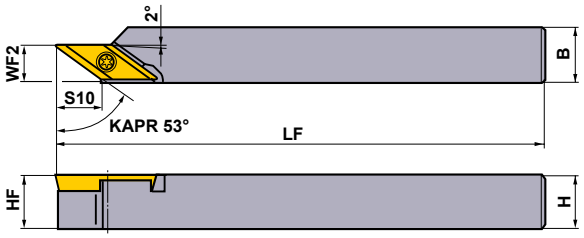
Order Number	Hand	Coated		Dimensions (mm)								* LE (mm)	Geometry
		VP15TF	MS6015	PSIRR/L*	RER/L	CF	L	W1	CW	S	CDX		
BTBT7055V5R-SMB	R	●		70°	0.05	0.3	25	9.4	1.35	3.5	6.5	5.5	With Breaker
BTBT705501MR-SMB	R	●		70°	0.08	0.3	25	9.4	1.35	3.5	6.5	5.5	
BTBT705502MR-SMB	R	●		70°	0.18	0.3	25	9.4	1.35	3.5	6.5	5.5	
BTBT604500R-B	R	●	●	60°	0	0.2	25	9.4	0.7	3.5	5.5	4.5	
BTBT604500L-B	L	★		60°	0	0.2	25	9.4	0.7	3.5	5.5	4.5	**SMB** Type (Moulded) **B** Type (Grinding)
BTBT604501MR-B	R		●	60°	0.08	0.3	25	9.4	0.7	3.5	5.5	4.5	
BTBT604501R-B	R	●	●	60°	0.1	0.3	25	9.4	0.7	3.5	5.5	4.5	
BTBT604501L-B	L	★		60°	0.1	0.3	25	9.4	0.7	3.5	5.5	4.5	Right hand insert shown.
BTBT606000R	R	●		60°	0	0.2	25	9.4	0.7	3.5	7	6.0	Without Breaker
BTBT606000L	L	★		60°	0	0.2	25	9.4	0.7	3.5	7	6.0	Right hand insert shown.

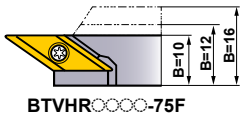
Note 1) REL, PSIRR dimensions for Right Hand Tool and RER. PSIRL dimensions for Left Hand Tool.
* Numeric value set insert on holder.

EXTERNAL BACK TURNING

BTVH







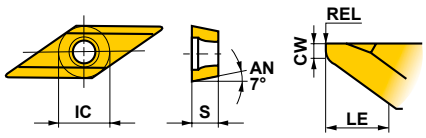
Right hand tool holder only.

Order Number	Stock	Insert Number		Dimensions (mm)						*	
	R			H	B	LF	HF	WF2	S10	Clamp Screw	Wrench
BTVHR1010-75	●	BTVT	5375□□R-B	10	10	120	10	7.5	8.5	NS251	NKY15S
BTVHR1212-75	●			12	12	120	12	7.5	8.5	NS251	NKY15S
BTVHR1616-75	●			16	16	120	16	7.5	8.5	NS251	NKY15S
BTVHR1010-75F	●			10	10	120	10	10.0	8.5	NS251	NKY15S
BTVHR1212-75F	●			12	12	120	12	10.0	8.5	NS251	NKY15S
BTVHR1616-75F	●			16	16	120	16	10.0	8.5	NS251	NKY15S

Note 1) Set the maximum depth of cut at under 30% of the effective cutting edge length (LE).
Note 2) For high load machining, F type is recommended.
* Clamp Torque (N • m) : NS251=1.4

INSERTS

Order Number	Hand	Coated	Dimensions (mm)				LE * (mm)	Geometry
		VP15TF	IC	S	REL	CW		
BTVT5375V5R-B	R	●	6.35	3.18	0.05	0.5	7.5	With Breaker
BTVT537501R-B	R	●	6.35	3.18	0.1	0.5	7.5	



* Numeric value set insert on holder.

RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Grade	Cutting Speed (m/min)	Feed (mm/rev)
P	Carbon Steel · Alloy Steel	180HB−280HB	**VP15TF**	100 (50−150)	0.08 (0.01−0.15)
	Free Cutting Steel	–	**VP15TF**	110 (30−180)	0.08 (0.01−0.15)
M	Stainless Steel	≤200HB	**VP15TF**	80 (50−120)	0.06 (0.02−0.1)
N	Non-Ferrous Metal	–	**VP15TF**	150 (70−230)	0.09 (0.03−0.15)

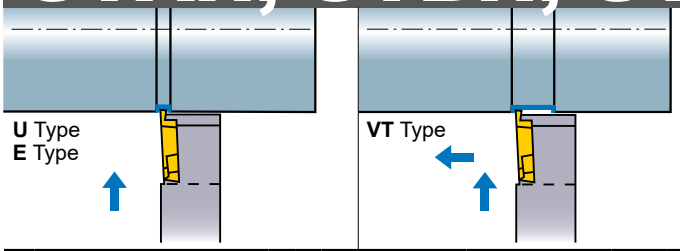
● : Inventory maintained.
(5 inserts in one case)

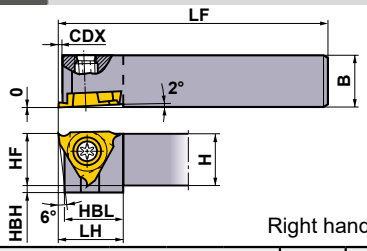
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

Memo

EXTERNAL GROOVING

GTAH, GTBH, GTCH





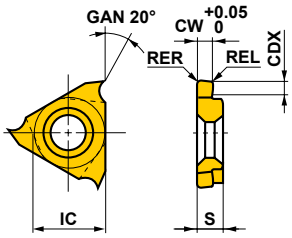
Right hand tool holder shown.

	Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) H	B	HF	LF	CDX*1	LH	HBH	HBL	Cutting Width (mm)	*2 Clamp Screw	Wrench
Standard Shank	GTAHR/L0808-20S	●	★	GTAT GTBT *1 GTCT *1	○○○○	8	8	8	80	2	15	5	12.9	0.3 — 3.0	NS404W	NKY15S
	GTAHR/L1010-20S	●	★		○○○○	10	10	10	80	2	15	3	12.9	0.3 — 3.0	NS404W	NKY15S
	GTAHR/L1212-20S	●	★		○○○○	12	12	12	80	2	15	1	12.9	0.3 — 3.0	NS404W	NKY15S
	GTBHR/L1010-30S	●	★	GTBT. GTCT	○○○○	10	10	10	80	3	15	3	13.4	1.45 — 3.0	NS404W	NKY15S
	GTCHR/L1010-30S	★	★	GTCT	○○○○	10	10	10	80	3	15	3	13.4	2.5 — 3.0	NS404W	NKY15S
Long Shank	GTAHR/L0808-20	●	★	GTAT GTBT *1 GTCT *1	○○○○	8	8	8	120	2	15	5	12.9	0.3 — 3.0	NS404W	NKY15S
	GTAHR/L1010-20	●	★		○○○○	10	10	10	120	2	15	3	12.9	0.3 — 3.0	NS404W	NKY15S
	GTAHR/L1212-20	●	★		○○○○	12	12	12	120	2	15	1	12.9	0.3 — 3.0	NS404W	NKY15S
	GTAHR/L1616-20	●	★		○○○○	16	16	16	120	2	15	—	12.9	0.3 — 3.0	NS404W	NKY15S
	GTBHR/L1010-30	●	★	GTBT. GTCT	○○○○	10	10	10	120	3	15	3	13.4	1.45 — 3.0	NS404W	NKY15S
	GTBHR/L1212-30	●	★		○○○○	12	12	12	120	3	15	1	13.4	1.45 — 3.0	NS404W	NKY15S
	GTBHR/L1616-30	●	★		○○○○	16	16	16	120	3	15	—	13.4	1.45 — 3.0	NS404W	NKY15S
	GTCHR/L1010-30	★	★	GTCT	○○○○	10	10	10	120	3	15	3	13.4	2.5 — 3.0	NS404W	NKY15S

Note 1) Please use right hand inserts for right hand holders and left hand inserts for left hand holders.
*1 It is not possible to machine depths over **CDX** dimensions (Max. Groove Depth).
*2 Clamp Torque (N • m) : NS404W=1.4

INSERTS

Order Number	Hand	Coated NEW MS7025	Coated VP15TF	Carbide NEW MT2015	Carbide	Dimensions (mm) CW	CDX*1	RER/L	IC	S	Geometry
GTAT03006V3R-U	R		●			0.3	0.6	0.03	9.525	3.18	U Type Breaker (General purpose Grooving)
GTAT03006V3L-U	L		★			0.3	0.6	0.03	9.525	3.18	
GTAT05012V5R-U	R		●			0.5	1.2	0.05	9.525	3.18	
GTAT05012V5L-U	L		★			0.5	1.2	0.05	9.525	3.18	
GTAT07520V5R-U	R		●			0.75	2.0	0.05	9.525	3.18	
GTAT07520V5L-U	L		★			0.75	2.0	0.05	9.525	3.18	
GTAT09520V5R-U	R		●			0.95	2.0	0.05	9.525	3.18	
GTAT09520V5L-U	L		★			0.95	2.0	0.05	9.525	3.18	
GTAT10020V5R-U	R		●			1.0	2.0	0.05	9.525	3.18	
GTAT10020V5L-U	L		★			1.0	2.0	0.05	9.525	3.18	
GTAT10320V5R-U	R		●			1.03	2.0	0.05	9.525	3.18	
GTAT12520V5R-U	R		●			1.25	2.0	0.05	9.525	3.18	
GTAT12520V5L-U	L		★			1.25	2.0	0.05	9.525	3.18	
GTBT14530V5R-U	R	●	●	●		1.45	3.0	0.05	9.525	3.18	
GTBT14530V5L-U	L	●	★	●		1.45	3.0	0.05	9.525	3.18	
GTBT15030V5R-U	R	●	●	●		1.5	3.0	0.05	9.525	3.18	
GTBT15030V5L-U	L	●	★	●		1.5	3.0	0.05	9.525	3.18	
GTBT17530V5R-U	R	●	●	●		1.75	3.0	0.05	9.525	3.18	
GTBT17530V5L-U	L	●	★	●		1.75	3.0	0.05	9.525	3.18	
GTBT20030V5R-U	R	●	●	●		2.0	3.0	0.05	9.525	3.18	
GTBT20030V5L-U	L	●	★	●		2.0	3.0	0.05	9.525	3.18	
GTCT25030V5R-U	R	●	★	●		2.5	3.0	0.05	9.525	3.18	
GTCT25030V5L-U	L	●	★	●		2.5	3.0	0.05	9.525	3.18	



Right hand insert shown.

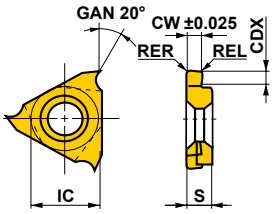
*1 It is not possible to machine depths over **CDX** dimensions (Max. Groove Depth).

● = NEW

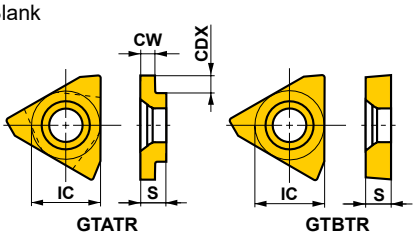
● : Inventory maintained. ★ : Inventory maintained in Japan.
(5 inserts in one case)

INSERTS

Order Number	Hand	Coated		Carbide		Dimensions (mm)					Geometry
		NEW MS7025	VP15TF	NEW MT2015	TF15	CW	CDX	RER/L	IC	S	
GTAT03306V3R-E	R		●			0.33	0.6	0.03	9.525	3.18	**E** Type Breaker (Ring processing Grooving)
GTAT03306V3L-E	L		★			0.33	0.6	0.03	9.525	3.18	
GTAT04312V3R-E	R		●			0.43	1.2	0.03	9.525	3.18	
GTAT04312V3L-E	L		★			0.43	1.2	0.03	9.525	3.18	
GTAT05312V5R-E	R		●			0.53	1.2	0.05	9.525	3.18	
GTAT05312V5L-E	L		★			0.53	1.2	0.05	9.525	3.18	
GTAT07520V5R-E	R		●			0.75	2.0	0.05	9.525	3.18	
GTAT07520V5L-E	L		★			0.75	2.0	0.05	9.525	3.18	
GTAT09520V5R-E	R		●			0.95	2.0	0.05	9.525	3.18	
GTAT09520V5L-E	L		★			0.95	2.0	0.05	9.525	3.18	
GTAT10020V5R-E	R		●			1.0	2.0	0.05	9.525	3.18	
GTAT10020V5L-E	L		★			1.0	2.0	0.05	9.525	3.18	
GTAT1002001R-E	R		●			1.0	2.0	0.1	9.525	3.18	
GTAT1002001L-E	L		★			1.0	2.0	0.1	9.525	3.18	
GTAT12020V5R-E	R		●			1.2	2.0	0.05	9.525	3.18	
GTAT12020V5L-E	L		★			1.2	2.0	0.05	9.525	3.18	
GTAT1202001R-E	R		●			1.2	2.0	0.1	9.525	3.18	
GTAT1202001L-E	L		★			1.2	2.0	0.1	9.525	3.18	
GTAT14020V5R-E	R		●			1.4	2.0	0.05	9.525	3.18	
GTAT14020V5L-E	L		★			1.4	2.0	0.05	9.525	3.18	
NEW GTBT14530V5R-E	R	●		●		1.45	2.8	0.05	9.525	3.18	
NEW GTBT14530V5L-E	L	●		●		1.45	2.8	0.05	9.525	3.18	
GTBT15030V5R-E	R	●	●	●		1.5	3.0	0.05	9.525	3.18	
GTBT15030V5L-E	L	●	★	●		1.5	3.0	0.05	9.525	3.18	
GTBT1503001R-E	R		●			1.5	3.0	0.1	9.525	3.18	
GTBT1503001L-E	L		★			1.5	3.0	0.1	9.525	3.18	
NEW GTBT17030V5R-E	R	●		●		1.70	2.8	0.05	9.525	3.18	
NEW GTBT17030V5L-E	L	●		●		1.70	2.8	0.05	9.525	3.18	
NEW GTBT17530V5R-E	R	●		●		1.75	2.8	0.05	9.525	3.18	
NEW GTBT17530V5L-E	L	●		●		1.75	2.8	0.05	9.525	3.18	
GTBT18030V5R-E	R	●	●	●		1.8	3.0	0.05	9.525	3.18	
GTBT18030V5L-E	L	●	★	●		1.8	3.0	0.05	9.525	3.18	
GTBT20030V5R-E	R	●	●	●		2.0	3.0	0.05	9.525	3.18	
GTBT20030V5L-E	L	●	★	●		2.0	3.0	0.05	9.525	3.18	
GTBT2003001R-E	R	●	●			2.0	3.0	0.1	9.525	3.18	
GTBT2003001L-E	L	●	★			2.0	3.0	0.1	9.525	3.18	
GTBT22530V5R-E	R	●	●	●		2.25	3.0	0.05	9.525	3.18	
GTBT22530V5L-E	L	●	★	●		2.25	3.0	0.05	9.525	3.18	
NEW GTBT2253001R-E	R	●				2.25	2.8	0.1	9.525	3.18	
NEW GTBT2253001L-E	L	●				2.25	2.8	0.1	9.525	3.18	
GTCT25030V5R-E	R	●	★	●		2.5	3.0	0.05	9.525	3.18	
GTCT25030V5L-E	L	●	★	●		2.5	3.0	0.05	9.525	3.18	
NEW GTCT2503001R-E	R	●				2.5	2.8	0.1	9.525	3.18	
NEW GTCT2503001L-E	L	●				2.5	2.8	0.1	9.525	3.18	
GTCT27530V5R-E	R	●	★	●		2.75	3.0	0.05	9.525	3.18	
GTCT27530V5L-E	L	●	★	●		2.75	3.0	0.05	9.525	3.18	
GTCT30030V5R-E	R	●	★	●		3.0	3.0	0.05	9.525	3.18	
GTCT30030V5L-E	L	●	★	●		3.0	3.0	0.05	9.525	3.18	
NEW GTCT3003001R-E	R	●				3.0	2.8	0.1	9.525	3.18	
NEW GTCT3003001L-E	L	●				3.0	2.8	0.1	9.525	3.18	
GTATR	R				**	1.76	3.0	—	9.525	3.18	Blank
GTATL	L				**	1.76	3.0	—	9.525	3.18	
GTBTR	R				**	—	0	—	9.525	3.18	
GTBTL	L				**	—	0	—	9.525	3.18	



Right hand insert shown.



Right hand insert shown.

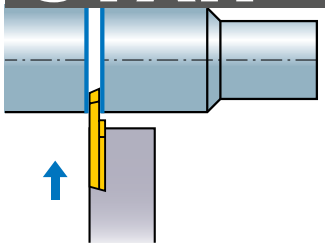
* 10 inserts in one case.

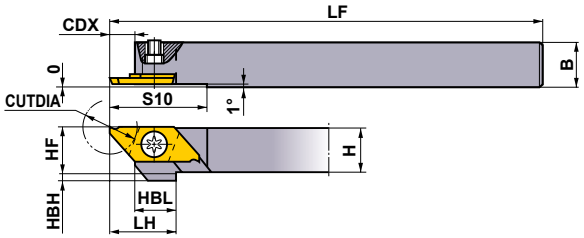
● = NEW

CUTTING CONDITIONS ➤ D020
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

EXTERNAL CUTTING OFF

CTAH



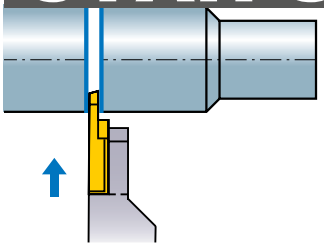


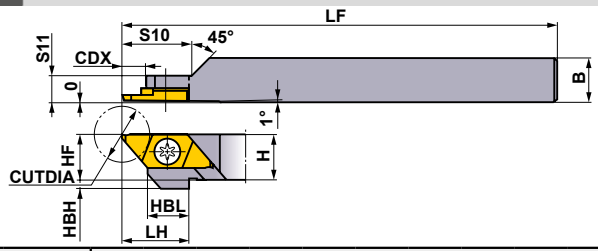
Right hand tool holder shown.

Order Number	Stock		Insert Number		Dimensions (mm)									CUTDIA (mm)	*2	
	R	L			H	B	HF	LF	LH	CDX	HBH	HBL	S10		Clamp Screw	Wrench
CTAHR/L0810-120	●	●	CTAT	○○○○	8	10	8	120	15	5.5	4	9.5	22	12 (8)*1	NS402W	NKY15S
CTAHR/L1010-120	●	●		○○○○	10	10	10	120	15	5.5	2	9.5	22		NS402W	NKY15S
CTAHR/L1212-120	●	●		○○○○	12	12	12	120	15	5.5	—	9.5	22		NS403W	NKY15S
CTAHR/L1616-120	●	●		○○○○	16	16	16	120	15	5.5	—	9.5	22		NS403W	NKY15S

*1 When the width of cutting off (CW) is 0.7mm.
*2 Clamp Torque (N • m) : NS402W=1.4, NS403W=1.4

CTAH-S





Right hand tool holder only.

Order Number	Stock	Insert Number		Dimensions (mm)										CUTDIA (mm)	*2	
	R			H	B	HF	LF	LH	CDX	HBH	HBL	S10	S11		Clamp Screw	Wrench
CTAHR1010-120S	●	CTAT	○○○○	10	10	10	80	15	16	2	9.5	16	5.5	12 (8)*1	NS401	NKY25R

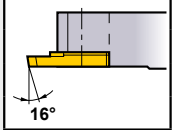
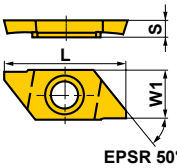
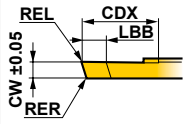
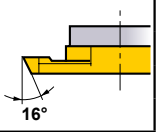
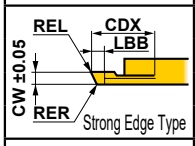
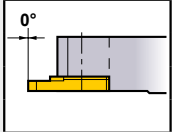
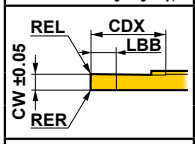
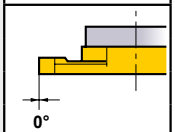
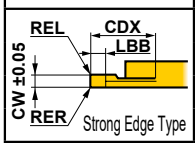
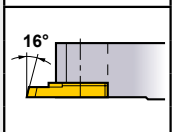
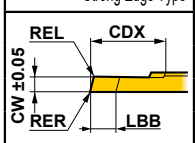
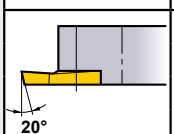
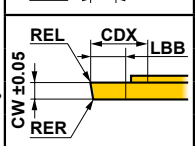
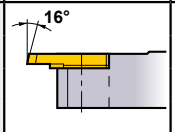
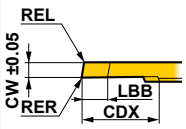
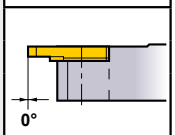
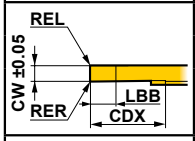
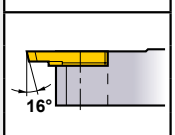
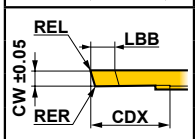
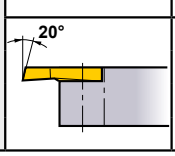
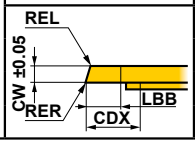
*1 When the width of cutting off (CW) is 0.7mm.
*2 Clamp Torque (N • m) : NS401=3.5

RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Grade	Cutting Speed (m/min)	Feed (mm/rev)
P	Carbon Steel · Alloy Steel	180HB—280HB	**MS6015/VP15TF**	100 (50—150)	0.05 (0.02—0.09)
	Free Cutting Steel	—	**MS6015**	110 (30—180)	0.05 (0.01—0.09)
M	Stainless Steel	≤200HB	**VP15TF**	80 (50—120)	0.03 (0.02—0.05)
N	Non-Ferrous Metal	—	**MS6015**	150 (70—230)	0.07 (0.03—0.11)

● : **Inventory maintained.**
(5 inserts in one case)

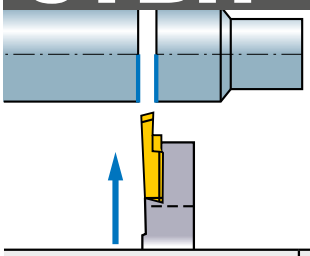
INSERTS

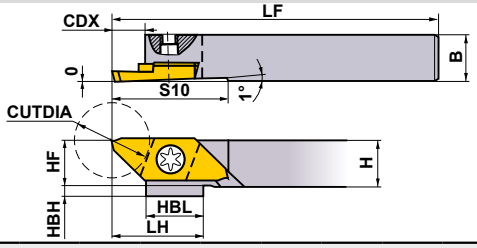
Holder	Setting Geometry	Breaker	Geometry	Insert Geometry	Order Number	Hand	Coated		Dimensions (mm)							CUTDIA (mm)
							VP15TF	MS6015	CW	CDX	RER/L	L	W1	S	LBB	
Right Hand (R)		With Breaker			**CTAT07080V5RR-B**	R	●		0.7	4.5	0.05	20	8	2.5	1.5	8
					CTAT10120V5RR-B	R	●	●	1.0	6.7	0.05	20	8	2.5	1.5	12
					CTAT15120V5RR-B	R	●	●	1.5	6.7	0.05	20	8	2.5	1.5	12
					CTAT20120V5RR-B	R	●	●	2.0	6.7	0.05	20	8	2.5	1.5	12
					**CTAT15120V5RR-BX**	R	●		1.5	6.7	0.05	20	8	2.5	1.5	12
					CTAT20120V5RR-BX	R	●		2.0	6.7	0.05	20	8	2.5	1.5	12
					**CTAT10120V5RN-B**	N	●	●	1.0	6.7	0.05	20	8	2.5	1.5	12
					CTAT15120V5RN-B	N	●	●	1.5	6.7	0.05	20	8	2.5	1.5	12
					CTAT20120V5RN-B	N	●	●	2.0	6.7	0.05	20	8	2.5	1.5	12
					**CTAT15120V5RN-BX**	N	●		1.5	6.7	0.05	20	8	2.5	1.5	12
					CTAT20120V5RN-BX	N	●		2.0	6.7	0.05	20	8	2.5	1.5	12
					**CTAT10110V5RL-B**	L	●		1.0	6.7	0.05	20	8	2.5	1.5	11
					CTAT15110V5RL-B	L	●		1.5	6.7	0.05	20	8	2.5	1.5	11
					CTAT20110V5RL-B	L	●		2.0	6.7	0.05	20	8	2.5	1.5	11
		Without Breaker			**CTAT1012000RR**	R	●	●	1.0	6.7	0	20	8	2.5	3.5	12
					CTAT1512000RR	R	●	●	1.5	6.7	0	20	8	2.5	3.5	12
					CTAT2012000RR	R	●	●	2.0	6.7	0	20	8	2.5	3.5	12
Left Hand (L)		With Breaker			**CTAT07080V5LL-B**	L	●		0.7	4.5	0.05	20	8	2.5	1.5	8
					CTAT10120V5LL-B	L	●		1.0	6.7	0	20	8	2.5	1.5	12
					CTAT15120V5LL-B	L	●		1.5	6.7	0	20	8	2.5	1.5	12
					CTAT20120V5LL-B	L	●		2.0	6.7	0	20	8	2.5	1.5	12
					**CTAT10120V5LN-B**	N	●	●	1.0	6.7	0.05	20	8	2.5	1.5	12
					CTAT15120V5LN-B	N	●	●	1.5	6.7	0.05	20	8	2.5	1.5	12
					CTAT20120V5LN-B	N	●	●	2.0	6.7	0.05	20	8	2.5	1.5	12
					**CTAT10110V5LR-B**	R	●	●	1.0	6.7	0.05	20	8	2.5	1.5	11
					CTAT15110V5LR-B	R	●	●	1.5	6.7	0.05	20	8	2.5	1.5	11
					CTAT20110V5LR-B	R	●	●	2.0	6.7	0.05	20	8	2.5	1.5	11
		Without Breaker	Right hand insert shown.		**CTAT1012000LL**	L	●		1.0	6.7	0	20	8	2.5	3.5	12
					CTAT1512000LL	L	●		1.5	6.7	0	20	8	2.5	3.5	12
					CTAT2012000LL	L	●		2.0	6.7	0	20	8	2.5	3.5	12

SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

EXTERNAL CUTTING OFF

CTBH



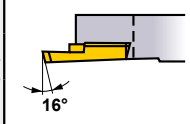
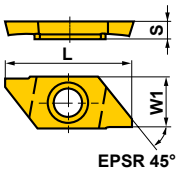
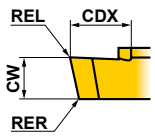
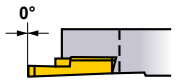
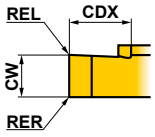
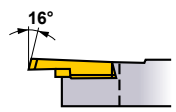
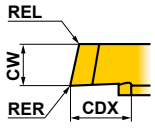
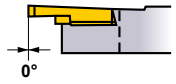
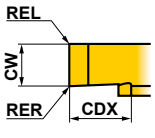
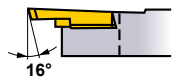
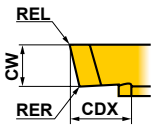


Right hand tool holder shown.

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) H	B	HF	LF	LH	CDX	HBH	HBL	S10	CUTDIA (mm)	Clamp Screw *	Wrench
CTBHR/L1010-160	●	●	CTBT	○○○○	10	10	10	120	19.5	7.5	2	9.5	25	16	NS402W	NKY15S
CTBHR/L1212-160	●	●		○○○○	12	12	12	120	19.5	7.5	—	9.5	25	16	NS403W	NKY15S
CTBHR/L1616-160	●	●		○○○○	16	16	16	120	19.5	7.5	—	9.5	25	16	NS403W	NKY15S

* Clamp Torque (N • m) : NS402W=1.4, NS403W=1.4

INSERTS

Holder	Setting Geometry	Breaker	Geometry	Insert Geometry	Order Number	Hand	Coated VP15TF	Coated MS6015	CW	CDX	RER/L	L	W1	S	CUTDIA (mm)
Right Hand (R)		With Breaker			**CTBT15160V5RR-B**	R	●	●	1.5	9.2	0.05	25	9.4	3.5	16
					CTBT20160V5RR-B	R	●	●	2.0	9.2	0.05	25	9.4	3.5	16
					**CTBT20160V5RN-B**	N	●	●	2.0	9.2	0.05	25	9.4	3.5	16
Left Hand (L)					**CTBT20160V5LL-B**	L	●		2.0	9.2	0.05	25	9.4	3.5	16
					**CTBT20160V5LN-B**	N	●	●	2.0	9.2	0.05	25	9.4	3.5	16
			Right hand insert shown.		**CTBT20145V5LR-B**	R	●	●	2.0	9.2	0.05	25	9.4	3.5	14.5

RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Grade	Cutting Speed (m/min)	Feed (mm/rev)
P	Carbon Steel · Alloy Steel	180HB–280HB	**MS6015/VP15TF**	100 (50–150)	0.05 (0.02–0.09)
	Free Cutting Steel	–	**MS6015**	110 (30–180)	0.05 (0.01–0.09)
M	Stainless Steel	≤200HB	**VP15TF**	80 (50–120)	0.03 (0.02–0.05)
N	Non-Ferrous Metal	–	**MS6015**	150 (70–230)	0.07 (0.03–0.11)

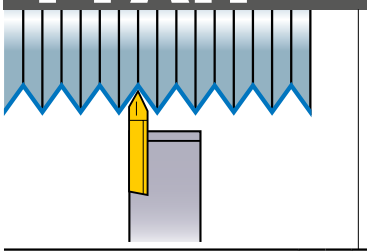
● : Inventory maintained.
(5 inserts in one case)

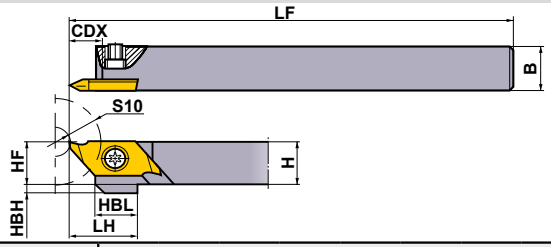
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

Memo

EXTERNAL THREADING

TTAH



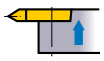
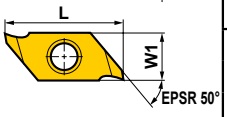
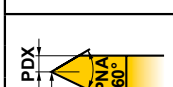
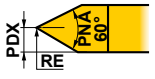
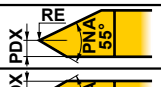
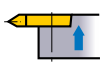
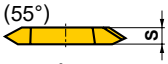
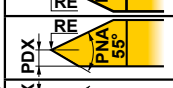
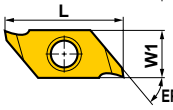


Right hand tool holder shown.

Order Number	Stock		Insert Number		Dimensions (mm)									*	
	R	L			H	B	HF	LF	LH	HBH	HBL	CDX	S10	Clamp Screw	Wrench
TTAHR/L0810	●	★	TTAT	○○○○	8	10	8	120	15	4	9.5	7	6.5	NS402W	NKY15S
TTAHR/L1010	●	★		○○○○	10	10	10	120	15	2	9.5	7	6.5	NS402W	NKY15S
TTAHR/L1212	●	★		○○○○	12	12	12	120	15	—	9.5	7	6.5	NS403W	NKY15S
TTAHR/L1616	●	★		○○○○	16	16	16	120	15	—	9.5	7	6.5	NS403W	NKY15S

* Clamp Torque (N • m) : NS402W=1.4, NS403W=1.4

INSERTS

Holder	Setting Geometry	Breaker	Geometry	Insert Geometry	Order Number	Hand	Coated	Dimensions (mm)					Pitch of Screw mm (thread/inch)
							VP15TF	PDX	RE	L	W1	S	
Right Hand (R)		With Breaker	General Purpose Partial Profile (60°)		**TTAT60075F5RR-B**	R	●	0.4	0.05 Flat	20.0	8.0	2.5	0.2—0.75 (80—36)
					TTAT60125V5RR-B	R	●	0.8	0.05	20.0	8.0	2.5	0.5—1.25 (40—16)
					TTAT60075F5RL-B	L	●	0.4	0.05 Flat	20.0	8.0	2.5	0.2—0.75 (80—36)
					TTAT60125V5RL-B	L	●	0.8	0.05	20.0	8.0	2.5	0.5—1.25 (40—16)
					TTAT6015001RN-B	N	●	1.25	0.1	20.0	8.0	2.5	1.0—1.5 (24—18)
Left Hand (L)					**TTAT60075F5LR-B**	R	●	0.4	0.05 Flat	20.0	8.0	2.5	0.2—0.75 (80—36)
					TTAT60125V5LR-B	R	●	0.8	0.05	20.0	8.0	2.5	0.5—1.25 (40—16)
					**TTAT60075F5LL-B**	L	●	0.4	0.05 Flat	20.0	8.0	2.5	0.2—0.75 (80—36)
					TTAT60125V5LL-B	L	●	0.8	0.05	20.0	8.0	2.5	0.5—1.25 (40—16)
			Right hand insert shown.		**TTAT6015001LN-B**	N	●	1.25	0.1	20.0	8.0	2.5	1.0—1.5 (24—18)
Right Hand (R)			General Purpose Partial Profile (55°)		**TTAT55158V5RR-B**	R	●	0.8	0.05	20.0	8.0	2.5	(40—16)
					TTAT55158V5RL-B	L	●	0.8	0.05	20.0	8.0	2.5	(40—16)
Left Hand (L)					**TTAT55158V5LR-B**	R	●	0.8	0.05	20.0	8.0	2.5	(40—16)
			 Right hand insert shown.		**TTAT55158V5LL-B**	L	●	0.8	0.05	20.0	8.0	2.5	(40—16)

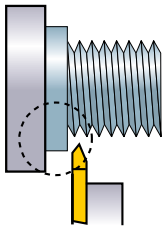
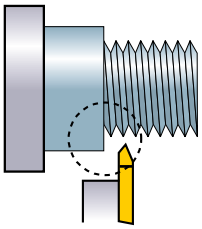
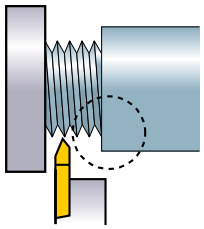
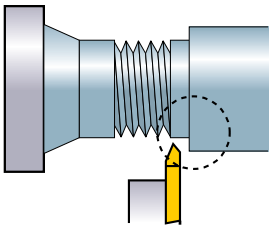
RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Cutting Speed (m/min)
P	Carbon Steel · Alloy Steel	180HB—280HB	100 (50—150)
	Free Cutting Steel	—	110 (30—180)

	Material	Hardness	Cutting Speed (m/min)
M	Stainless Steel	≤200HB	80 (50—120)
N	Non-Ferrous Metal	—	150 (70—230)

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

HOLDER APPLICATION

	Right Hand Holder	Left Hand Holder
Right Hand Insert		
Left Hand Insert		

*The above combinations enable to machine the side of ◌.

THREAD RANGE

Application range

Pitch (mm)	Pitch Diameter of Thread (mm)										Number of Passes
	≥Ø1.0	≥Ø1.2	≥Ø1.6	≥Ø2.0	≥Ø2.5	≥Ø3.0	≥Ø4.0	≥Ø5.0	≥Ø6.0	≥Ø7.0	
0.2											2 – 4
0.25											
0.3											3 – 5
0.35											
0.4											4 – 6
0.45											
0.5											5 – 7
0.6											
0.7											
0.75											
0.8		Threading impossible									
1											
1.25											6 – 8
1.5											

*Metric Thread (60°)

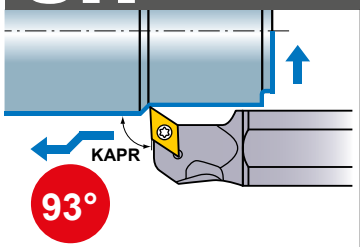
Pitch(thread/inch)	Pitch Diameter of Thread								Number of Passes
Inch	≥Ø0.060	≥Ø0.073	≥Ø0.086	≥Ø0.099	≥Ø0.112	≥Ø0.164	≥Ø0.190	≥Ø0.250	≥Ø0.313	
mm	≥Ø1.524	≥Ø1.854	≥Ø2.184	≥Ø2.515	≥Ø2.845	≥Ø4.166	≥Ø4.826	≥Ø6.350	≥Ø7.938	
80										3 – 5
72										
64										4 – 6
56										
48										5 – 7
44										
40										
32										
28										
26			Threading impossible							
24										
20										6 – 8
18										
16										

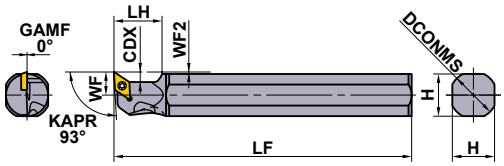
*American UN, Whitworth

SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

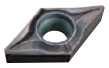
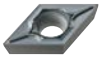
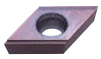
EXTERNAL FRONT TURNING, COPYING, FACING (FOR OPPOSITE TOOL POSTS)

SH





Left hand tool holder shown.

Finish	Finish	Light	Light
SMG/FS	R-F	R-SS	LS
			
(07, 11)	(07, 11)	(07, 11)	(07, 11)
Medium	**Medium**	**For nonferrous metals**	**Light**
R-SN	R-SR	AZ	LS-P
			
(07, 11)	(07, 11)	(07, 11)	(07, 11)

Order Number	Stock	Insert Number		Dimensions (mm)							*	
	L			DCONMS	LF	LH	H	WF	CDX	WF2	Clamp Screw	Wrench
SH16H-FSDUCL07	★	DCMT DCMW DCET DCGT DCGW	0702○○	15.875	100	20	14	7.75	4.2	0.75	TS254	TKY08R
SH19K-FSDUCL07	★			19.05	125	20	17	9.25	4.2	0.75	TS254	TKY08R
SH20K-FSDUCL07	★			20	125	20	18	9.75	4.2	0.75	TS254	TKY08R
SH22K-FSDUCL07	★			22	125	20	20	10.75	4.2	0.75	TS254	TKY08R
SH25M-FSDUCL07	★			25.4	150	20	23	12.25	4.2	0.75	TS254	TKY08R
SH16H-FSDUCL11	★	DCMT DCMW DCET DCGT DCGW	11T3○○	15.875	100	20	15	7.75	6.4	0.75	TS43	TKY15R
SH19K-FSDUCL11	★			19.05	125	20	17	9.25	6.4	0.75	TS43	TKY15R
SH20K-FSDUCL11	★			20	125	20	18	9.75	6.4	0.75	TS43	TKY15R
SH22K-FSDUCL11	★			22	125	20	20	10.75	6.4	0.75	TS43	TKY15R
SH25M-FSDUCL11	★			25.4	150	20	23	12.25	6.4	0.75	TS43	TKY15R

Note 1) When using insert with right and left hand chipbreaker, please use right hand insert.
Note 2) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
* Clamp Torque (N • m) : TS254=1.0, TS43=3.5

RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Grade	Cutting Speed (m/min)	Feed (mm/rev)
P	Carbon Steel · Alloy Steel	180HB–280HB	**MS6015/VP15TF**	100 (50–150)	0.08 (0.01–0.15)
P	Free Cutting Steel	–	**MS6015**	110 (30–180)	0.08 (0.01–0.15)
P			**NX2525**	150 (50–250)	0.08 (0.01–0.15)
M	Stainless Steel	≤200HB	**VP15TF/MP9005/MP9015**	80 (50–120)	0.06 (0.02–0.1)
M		230HB	**MS9025**	100 (50–180)	0.08 (0.01–0.15)
N	Non-Ferrous Metal	–	**HTi10/MT9005**	150 (70–230)	0.09 (0.03–0.15)
S	Titanium Alloy	–	**MT9005**	60 (40–80)	0.08 (0.04–0.12)
S	Heat Resistant Alloy	–	**MP9015/MS9025**	50 (20–75)	0.08 (0.04–0.12)

★ : **Inventory maintained in Japan.**

SH○○○ type inserts ➤ **A152–A158**
CBN & PCD inserts ➤ **B040, B041, B054**

Memo

HOW TO READ THE STANDARD OF BORING BARS

●How this section page is organised

①Organised by product series.
(Refer to the index on the next page.)

TYPE OF BORING BAR
Indicates the initial letters for the order number, as well as applicable insert types.

TITLE OF PRODUCT SERIES

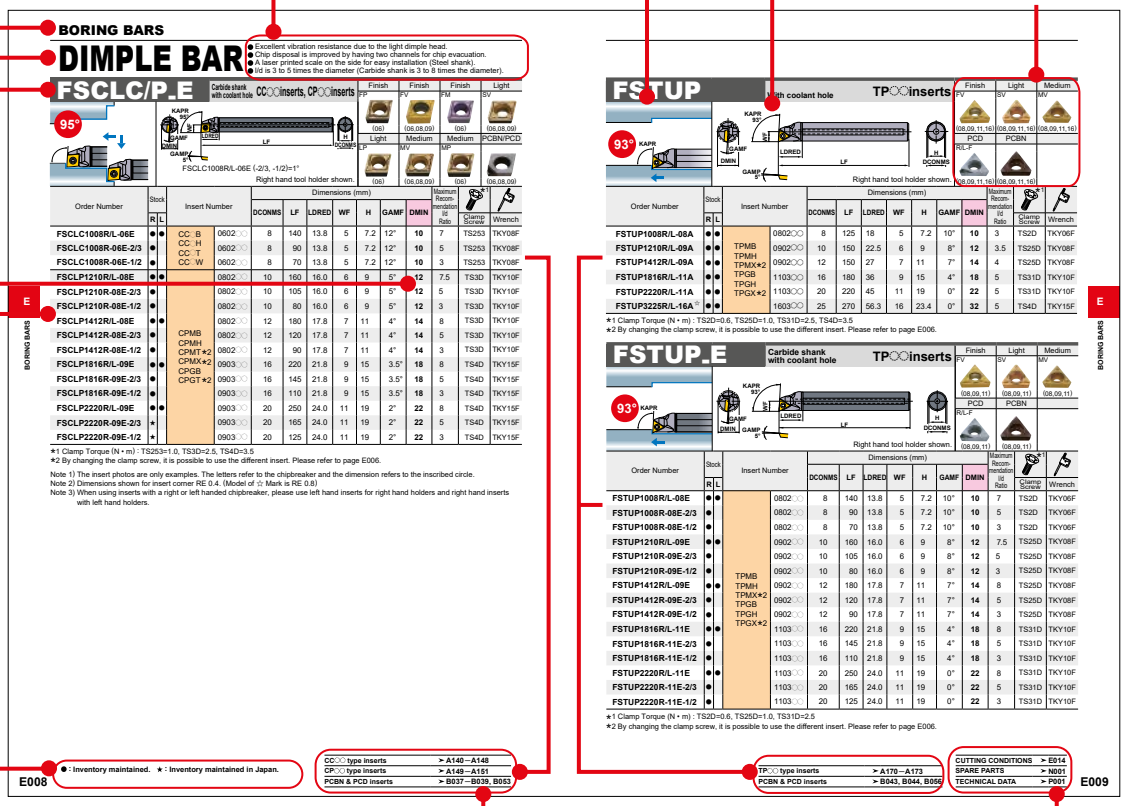
PRODUCT SECTION

PRODUCT FEATURES

FIGURE SHOWING THE TOOLING APPLICATION
Uses illustrations and arrows to depict available machining applications along with cutting edge lead angles.

GEOMETRY

CHIPBREAKER BY CUTTING APPLICATION



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

REFERENCE PAGE FOR APPLICABLE INSERTS
Indicates reference pages for details of inserts that are applicable to the title product.

PRODUCT STANDARDS
Indicates order numbers, stock status (per right/left hand), applicable inserts, dimensions, minimum cutting diameters, standard corner radius, recommended l/d ratios, and spare parts.

PAGE REFERENCE
- SPARE PARTS
- TECHNICAL DATA

Indicates reference pages, including the above, on the right hand page of each double-page spread.

MIN. CUTTING DIAMETER
Is colour-coded to let you find, at a glance, the maximum / minimum cutting diameters for internal machining.

TURNING TOOLS

BORING BARS

CLASSIFICATION OF BORING TOOLS **E002**
IDENTIFICATION **E004**

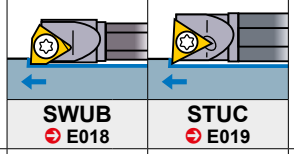
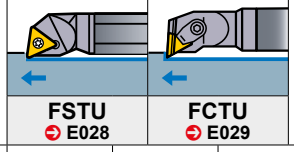
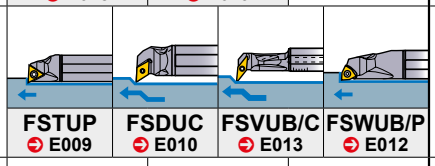
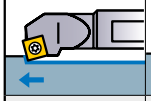
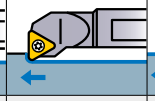
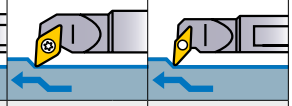
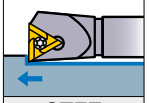
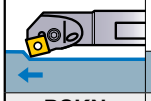
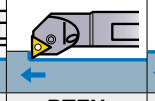
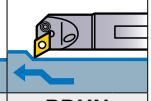
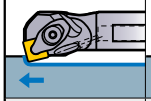
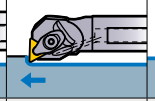
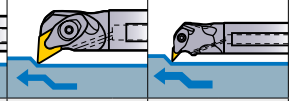
STANDARD OF BORING BARS
FEATURES OF DIMPLE BAR **E006**
DIMPLE BAR **E007**
DOUBLE CLAMP DIMPLE BAR **E015**
MICRO-DEX BORING BARS **E018**
MICRO-MINI TWIN BORING BARS **E021**
F TYPE BORING BARS **E028**
S TYPE BORING BARS **E031**
P TYPE BORING BARS **E038**
M TYPE BORING BARS **E042**
AL TYPE BORING BARS **E043**

BORING BAR FOR MACHINING SMALL PARTS
FEATURES **E045**
IDENTIFICATION **E045**
SELECTION STANDARD **E046**
BORING BARS **E047**

*Alphabetical order index

E015 **A○○○-DCLN**
E015 **A○○○-DDUN**
E016 **A○○○-DSKN**
E016 **A○○○-DTFN**
E017 **A○○○-DVUN**
E017 **A○○○-DWLN**
E042 **A○○○MWLN**
E039 **A○○○PCLN**
E040 **A○○○PDQN**
E039 **A○○○PDUN**
E041 **A○○○PDZN**
E038 **A○○○PSKN**
E038 **A○○○PTFN**
E040 **A○○○PWLN**
E018 **C○○○SCLC**
E033 **C○○○SCLC**
E034 **C○○○SDQC**
E032 **C○○○SDUC**
E031 **C○○○STFC**
E019 **C○○○STUC**
E035 **C○○○SVQC**
E018 **C○○○SWUB**
E021 **CB**
E023 **CR**
E047 **C-SCLC**
E047 **C-SCLC-C**
E048 **C-SCLP-C**
E053 **C-SDQC-C**
E052 **C-SDUC-C**
E049 **C-STUC**
E050 **C-STUC-C**
E051 **C-STUP-C**
E054 **C-SWUC**
E054 **C-SWUC-C**
E029 **FCTU1**
E029 **FCTU2**
E007 **FSCLC/P**
E011 **FSDQC**
E010 **FSDUC**
E028 **FSTU1**
E028 **FSTU2**
E009 **FSTUP**
E014 **FSVJB/C**
E013 **FSVPB/C**
E013 **FSVUB/C**
E030 **FSWL1**
E030 **FSWL2**
E012 **FSWUB/P**
E020 **RBH**
E026 **RBH**
E033 **S○○○SCLC**
E037 **S○○○SCZC**
E034 **S○○○SDQC**
E032 **S○○○SDUC**
E036 **S○○○SSKC**
E031 **S○○○STFC**
E043 **S○○○STFE**
E035 **S○○○SVQC**
E036 **S○○○SVUC**
E027 **SBH**
E025 **SLV**
E048 **S-SCLC-C**
E049 **S-SCLP-C**
E053 **S-SDQC-C**
E052 **S-SDUC-C**
E050 **S-STUC-C**
E051 **S-STUP-C**
E054 **S-SWUC-C**

CLASSIFICATION

Name of Tool Holder	DMIN Minimum Cutting Diameter	Features	KAPR=75°	KAPR=91°	KAPR=93°
MICRO-MINI TWIN Boring Bars	Ø2.2 – Ø8.2	● Solid carbide type with two cutting edges. ● Continuous cutting from boring to facing. ● With or without a chipbreaker.			
MICRO-DEX Boring Bars (Carbide Shank)	Ø5 – Ø8	● 5°, 7°positive insert. ● Carbide shank type. ● Easy-to-use tool geometries. ● Suitable for small workpieces. ● l/d is 5 times the diameter.			 SWUB E018 STUC E019
F Type Boring Bars	Ø5.8 – Ø40	● 11°positive insert. ● Screw-on type and Clamp-on type. ● l/d is 3 to 5 times the diameter. ● FSWL type is 7°positive insert.			 FSTU E028 FCTU E029
DIMPLE BAR	Ø10 – Ø40	● 5°, 7°, 11° positive inserts. ● Excellent vibration resistance due to a light dimple head. ● l/d is 3 to 5 times the diameter (Carbide shank is 3 to 8 times the diameter).			 FSTUP E009 FSDUC E010 FSVUB/C E013 FSWUB/P E012
S Type Boring Bars	Ø11 – Ø50	● ISO standard. ● 7°positive insert. ● Screw-on type. ● l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).	 SSKC E036	 STFC E031	 SDUC E032 SVUC E036
AL Type Boring Bars (For Aluminium Alloy)	Ø20 – Ø32	● Suitable for non-ferrous metal. ● 20°positive insert. ● Screw-on type. ● l/d is 6 times the diameter. ● Excellent vibration resistance.		 STFE E042	
P Type Boring Bars	Ø20 – Ø70	● ISO standard. ● Economical negative insert. ● Lever lock type, and pin lock type. ● l/d is 3 times the diameter.	 PSKN E038	 PTFN E038	 PDUN E039
DOUBLE CLAMP DIMPLE BAR	Ø32 – Ø50	● Economical negative insert. ● Single action type. ● Excellent vibration resistance due to a light dimple head. (With coolant hole.) ● l/d is 3 to 4 times the diameter.	 DSKN E016	 DTFN E016	 DDUN E015 DVUN E017
M Type Boring Bars	Ø63	● Negative trigon shape insert. ● Double clamp type. ● l/d is 3 times the diameter.			

Note 1) Holders with blue colour symbol have an anti-vibration carbide shank. (Micro-dex boring bars are carbide shank only.)
Note 2) l/d represents the ratio of the projection length L to the cutting edge and the shank diameter d.

	KAPR=94°	KAPR=95°		KAPR=107.5°—117.5°		KAPR=142°	KAPR=93°,95°	Selection Standard							
	KAPR 94°	KAPR 95°		KAPR 107.5°		KAPR 142°	KAPR 93°,95° KAPR 93° 95°	Economical	Low Cutting Resistance (Sharp edge)	Clamp Rigidity	Vibration Resistance	Operation Efficiency	Coolant Hole	Specialized	Small Diameter Cutting
		CB○○RS(-B) E021				CR E023			◎		◎*				◎
		SCLC E018									◎*				◎
		FSWL E030							○		○*				○
		FSCLC/P E007		FSDQC E011	FSVPB/C E013	FSVJB/C E014			◎		◎*	◎	◎*		
		SCLC E033		SDQC E034	SVQC E035		SCZC E037		○		○*				
									◎		○			◎	
		PCLN E039	PWLN E040	PDQN E040			PDZN E041	◎		○		◎	◎		
		DCLN E015	DWLN E017					◎		◎		◎	◎		
			MWLN E042					◎		◎		○	◎		

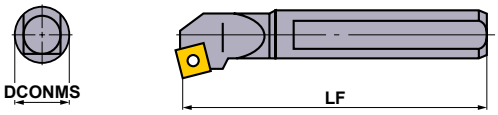
Note 3) ◎: 1st recommendation. ○: 2nd recommendation.
Note 4) * Indicates that the shank material is carbide.

IDENTIFICATION

■ ISO CODES KEY-Boring Tools for Internal Machining

A	●Tool Holder with Coolant Hole ●Steel Shank
C	●Carbide Shank
E	●Tool Holder with Coolant Hole ●Carbide Shank
S	●Steel Shank

① Shank Material



08	Ø 8
10	Ø10
12	Ø12
16	Ø16
20	Ø20
25	Ø25
32	Ø32
40	Ø40
50	Ø50

② Shank Diameter DCONMS (mm)

F	80
H	100
K	125
M	150
Q	180
R	200
S	250
T	300
U	350
V	400

③ Tool Length LF (mm)

M	
P	
S	

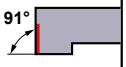
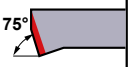
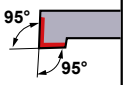
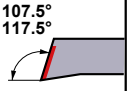
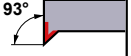
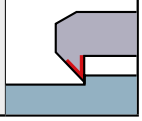
④ Clamping Method

S	①	16	②	M	③	S	④	C	⑤	L	⑥	C	⑦	R	⑧	09	⑨

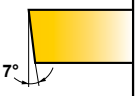
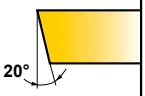
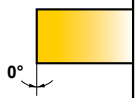
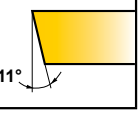
⑤ Insert Shape

C	
D	
S	
T	
V	
W	

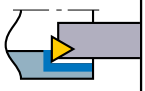
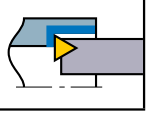
⑥ Tool Style

F	
K	
L	
Q	
U	
Z	

⑦ Insert Normal Clearance

C	
E	
N	
P	

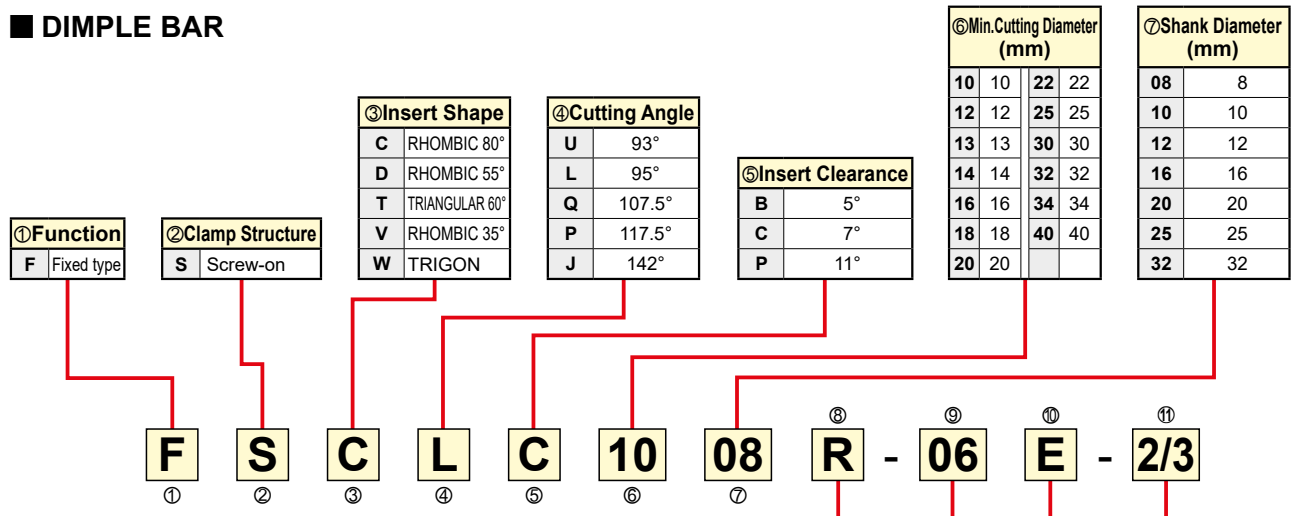
⑧ Hand of Tool

R	
L	

⑨ Insert Size

Inscribed Circle of Insert (mm)	C	D	S	T	V	W
3.97	—	—	—	—	—	02
4.76	—	—	—	—	—	—
5.56	—	—	—	09	—	L3
6.35	06	07	—	11	11	04
7.94	08	—	—	—	—	—
9.525	09	11	09	16	16	06
12.70	12	15	12	22	—	08
15.875	16	—	—	—	—	—
19.05	19	—	19	—	—	—

■ DIMPLE BAR



①Function	
F	Fixed type

②Clamp Structure	
S	Screw-on

③Insert Shape	
C	RHOMBIC 80°
D	RHOMBIC 55°
T	TRIANGULAR 60°
V	RHOMBIC 35°
W	TRIGON

④Cutting Angle	
U	93°
L	95°
Q	107.5°
P	117.5°
J	142°

⑤Insert Clearance	
B	5°
C	7°
P	11°

⑥Min.Cutting Diameter (mm)			
10	10	22	22
12	12	25	25
13	13	30	30
14	14	32	32
16	16	34	34
18	18	40	40
20	20		

⑦Shank Diameter (mm)	
08	8
10	10
12	12
16	16
20	20
25	25
32	32

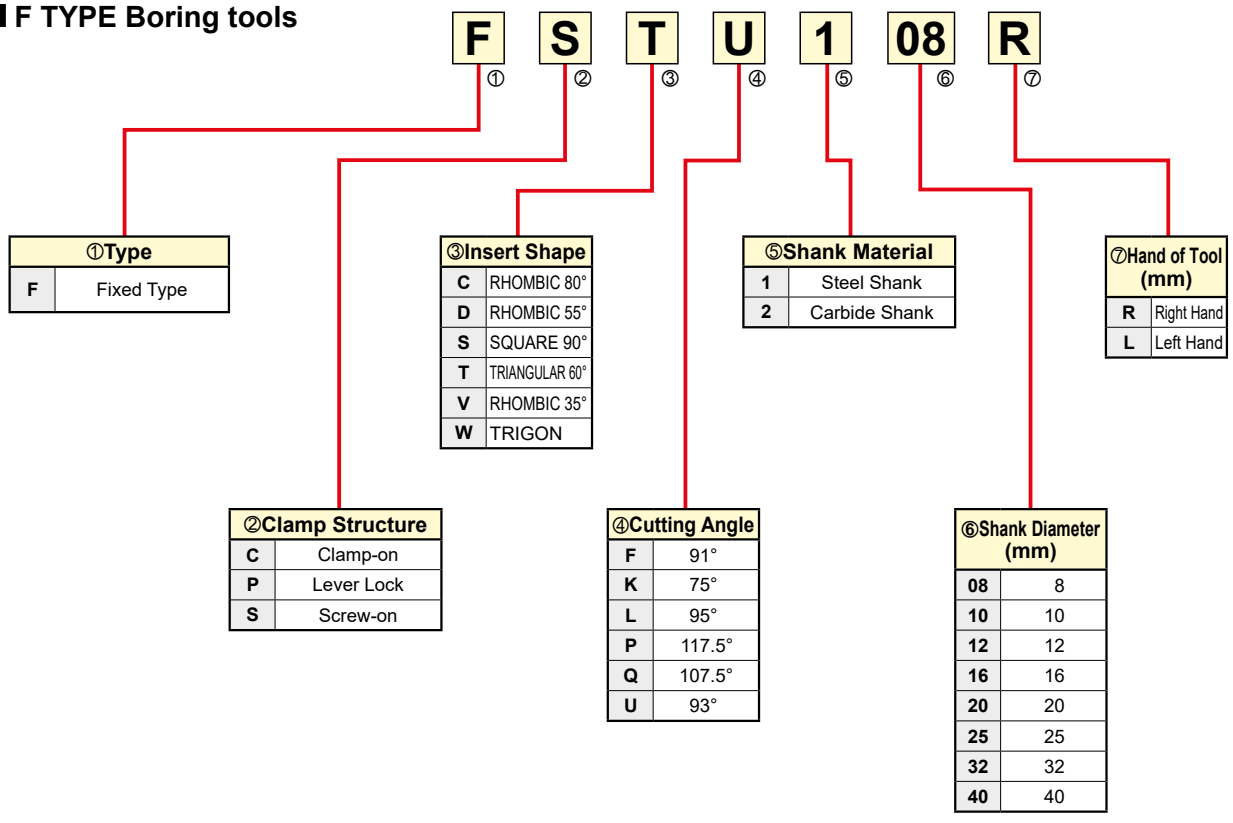
⑧Hand of Tool	
R	Right Hand
L	Left Hand

⑨Cutting Edge Length (mm)					
Inscribed circle of insert	4.76	5.56	6.35	7.94	9.525
RHOMBIC 80°	—	—	**06**	**0.8**	**09**
RHOMBIC 55°	—	—	**07**	—	**11**
TRIANGULAR 60°	**08**	**09**	**11**	—	**16**
RHOMBIC 35°	**08**	—	**11**	—	**16**
TRIGON	**L3**	—	**04**	—	**06**

⑩Shank Material	
A	• Tool Holder with Coolant Hole • Steel Shank
E	• Tool Holder with Coolant Hole • Carbide Shank
S	Steel Shank

⑪Tool Length (Carbide shank only) (mm)					
Shank Dia.	8	10	12	16	20
No symbol	140	160	180	220	250
2/3	90	105	120	145	165
1/2	70	80	90	110	125

■ F TYPE Boring tools



①Type	
F	Fixed Type

②Clamp Structure	
C	Clamp-on
P	Lever Lock
S	Screw-on

③Insert Shape	
C	RHOMBIC 80°
D	RHOMBIC 55°
S	SQUARE 90°
T	TRIANGULAR 60°
V	RHOMBIC 35°
W	TRIGON

④Cutting Angle	
F	91°
K	75°
L	95°
P	117.5°
Q	107.5°
U	93°

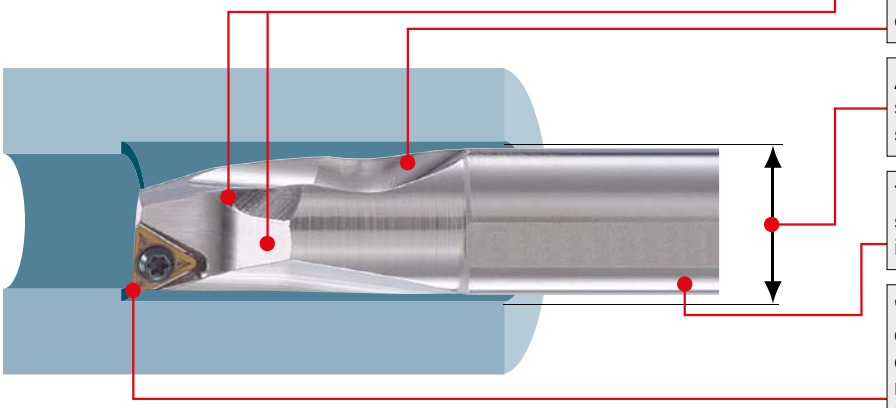
⑤Shank Material	
1	Steel Shank
2	Carbide Shank

⑥Shank Diameter (mm)	
08	8
10	10
12	12
16	16
20	20
25	25
32	32
40	40

⑦Hand of Tool (mm)	
R	Right Hand
L	Left Hand

FEATURES OF DIMPLE BAR

Highly rigid steel shank and a lightweight head configuration. Designed by computer simulation analysis to reduce chatter and improve the vibration damping properties.



- Chip disposal is improved by having two channels for chip evacuation.
- The lightweight head with its large dimple reduces chatter.
- Available in sizes smaller than the ISO standard. Therefore the boring of small diameter holes is possible.
- The boring bar has a laser printed scale on the shank to facilitate easy installation.
- "F and FS" chipbreakers improve the quality of the surface finish, "MV" chipbreaker offers excellent chip disposal. High wear resistant PCBN inserts are also available for the machining of hardened materials.

■ VIBRATION RESISTANCE

● **DIMPLE BAR**

Weight of the Head	Damping Time
49.7g	15.8ms

By reducing the weight of the head, the damping properties are increased.

● **Conventional Product**

Weight of the Head	Damping Time
70.1g	20ms

* The simulation data stated above was conducted with a FSCLP1816R-09A holder, under the following conditions; l/d=5, depth of cut=0.5mm, and feed=0.05mm/rev.

■ How to use CCG/MT•CPG/MT•CPMX•TPG/MX type inserts

By changing the clamp screw, it is possible to use the inserts listed in the table below.

Holder : FSCLC/P•FSCLC/P...E

Insert Number	Clamp Screw
CCG/MT0602○○ (Ø6.35)	Can be used as it is.
CPG/MT0802○○ (Ø7.94)	Change to **TS3**
CPG/MT0903○○ (Ø9.525)	Change to **TS4**
CPMX0802○○ (Ø7.94)	Can be used as it is.
CPMX0903○○ (Ø9.525)	Can be used as it is.

Holder : FSTUP•FSTUP...E

Insert Number	Clamp Screw
TPG/MX0802○○ (Ø4.76)	Change to **CS200T**
TPG/MX0902○○ (Ø5.56)	Change to **CS250T**
TPG/MX1103○○ (Ø6.35)	Change to **CS300890T**

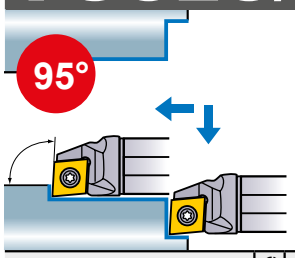
* If the screw is too long the please shorten as necessary.
Note 1) TPMT/W09, W11 types cannot be used due to a different clamp screw size.

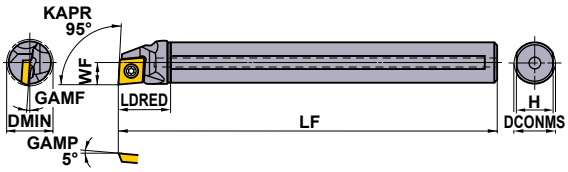
DIMPLE BAR

- Excellent vibration resistance due to the light dimple head.
- Chip disposal is improved by having two channels for chip evacuation.
- A laser printed scale on the side for easy installation (Steel shank).
- l/d is 3 to 5 times the diameter (Carbide shank is 3 to 8 times the diameter).

FSCLC/P

CC○○inserts, CP○○inserts





FSCLC1008R/L-06A=1°

Right hand tool holder shown.

Finish	Finish	Finish	Light
FP	FV	FM	SV
(06)	(06,08,09)	(06)	(06,08,09)
Light	**Medium**	**Medium**	**PCBN/PCD**
LP	MV	MP	
(06)	(06,08,09)	(06)	(06,08,09)

Order Number	Coolant Hole	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Maximum Recommendation l/d Ratio	★1 Clamp Screw	Wrench
FSCLC1008R/L-06A	○	●	●	CC○B/H/T/W	0602○○	8	125	18	5	7.2	12°	**10**	3	TS253	TKY08F
FSCLP1210R/L-08A	○	●	●	CPMB CPMH CPMT★2 CPMX★2 CPGB CPGT★2	0802○○	10	150	22.5	6	9	5°	**12**	3.5	TS3D	TKY10F
FSCLP1210R/L-08S	–	★	★		0802○○	10	150	22.5	6	9	5°	**12**	3.5	TS3D	TKY10F
FSCLP1412R/L-08A	○	●	●		0802○○	12	150	27	7	11	4°	**14**	4	TS3D	TKY10F
FSCLP1816R/L-09A	○	●	●		0903○○	16	180	36	9	15	3.5°	**18**	5	TS4D	TKY15F
FSCLP2220R/L-09A	○	●	●		0903○○	20	220	45	11	19	2°	**22**	5	TS4D	TKY15F
FSCLP2220R-09S	–	★			0903○○	20	220	45	11	19	2°	**22**	5	TS4D	TKY15F
FSCLP3025R/L-09A	○	●	●		0903○○	25	250	56.3	15	23.4	0°	**30**	5	TS4D	TKY15F
FSCLP3025R-09S	–	★			0903○○	25	250	56.3	15	23.4	0°	**30**	5	TS4D	TKY15F

★1 Clamp Torque (N • m) : TS253=1.0, TS3D=2.5, TS4D=3.5

★2 By changing the clamp screw, it is possible to use the different insert. Please refer to page E006.

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

Note 2) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

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

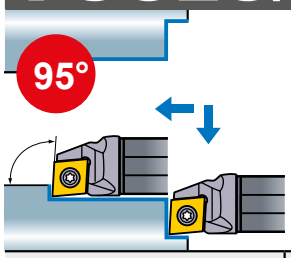
CC○○ type inserts	➤ A140—A148
CP○○ type inserts	➤ A149—A151
PCBN & PCD inserts	➤ B037—B039, B053
CUTTING CONDITIONS	➤ E014
SPARE PARTS	➤ N001
TECHNICAL DATA	➤ P001

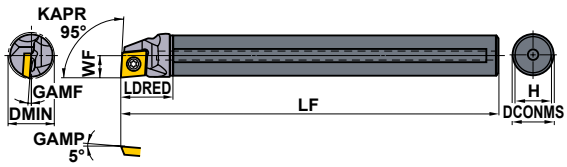
DIMPLE BAR

- Excellent vibration resistance due to the light dimple head.
- Chip disposal is improved by having two channels for chip evacuation.
- A laser printed scale on the side for easy installation (Steel shank).
- l/d is 3 to 5 times the diameter (Carbide shank is 3 to 8 times the diameter).

FSCLC/P_E

Carbide shank with coolant hole CC○○inserts, CP○○inserts





FSCLC1008R/L-06E (-2/3, -1/2)=1°

Right hand tool holder shown.

Finish	Finish	Finish	Light
FP	FV	FM	SV
(06)	(06,08,09)	(06)	(06,08,09)
Light	**Medium**	**Medium**	**PCBN/PCD**
LP	MV	MP	
(06)	(06,08,09)	(06)	(06,08,09)

Order Number	Stock		Insert Number		Dimensions (mm)							Maximum Recommendation l/d Ratio	✶1 Clamp Screw	Wrench
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	DMIN			
FSCLC1008R/L-06E	●	●	CC○B CC○H CC○T CC○W	0602○○	8	140	13.8	5	7.2	12°	**10**	7	TS253	TKY08F
FSCLC1008R-06E-2/3	●			0602○○	8	90	13.8	5	7.2	12°	**10**	5	TS253	TKY08F
FSCLC1008R-06E-1/2	●			0602○○	8	70	13.8	5	7.2	12°	**10**	3	TS253	TKY08F
FSCLP1210R/L-08E	●	●		0802○○	10	160	16.0	6	9	5°	**12**	7.5	TS3D	TKY10F
FSCLP1210R-08E-2/3	●			0802○○	10	105	16.0	6	9	5°	**12**	5	TS3D	TKY10F
FSCLP1210R-08E-1/2	●			0802○○	10	80	16.0	6	9	5°	**12**	3	TS3D	TKY10F
FSCLP1412R/L-08E	●	●		0802○○	12	180	17.8	7	11	4°	**14**	8	TS3D	TKY10F
FSCLP1412R-08E-2/3	●		CPMB CPMH CPMT✶2 CPMX✶2 CPGB CPGT✶2	0802○○	12	120	17.8	7	11	4°	**14**	5	TS3D	TKY10F
FSCLP1412R-08E-1/2	●			0802○○	12	90	17.8	7	11	4°	**14**	3	TS3D	TKY10F
FSCLP1816R/L-09E	●	●		0903○○	16	220	21.8	9	15	3.5°	**18**	8	TS4D	TKY15F
FSCLP1816R-09E-2/3	●			0903○○	16	145	21.8	9	15	3.5°	**18**	5	TS4D	TKY15F
FSCLP1816R-09E-1/2	●			0903○○	16	110	21.8	9	15	3.5°	**18**	3	TS4D	TKY15F
FSCLP2220R/L-09E	●	●		0903○○	20	250	24.0	11	19	2°	**22**	8	TS4D	TKY15F
FSCLP2220R-09E-2/3	★			0903○○	20	165	24.0	11	19	2°	**22**	5	TS4D	TKY15F
FSCLP2220R-09E-1/2	★			0903○○	20	125	24.0	11	19	2°	**22**	3	TS4D	TKY15F

✶1 Clamp Torque (N • m) : TS253=1.0, TS3D=2.5, TS4D=3.5

✶2 By changing the clamp screw, it is possible to use the different insert. Please refer to page E006.

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.4. (Model of ☆ Mark is RE 0.8)

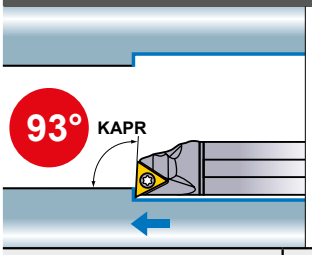
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

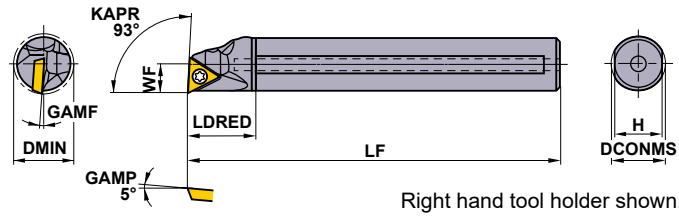
● : Inventory maintained. ★ : Inventory maintained in Japan.

CC○○ type inserts	**➤ A140—A148**
CP○○ type inserts	**➤ A149—A151**
PCBN & PCD inserts	**➤ B037—B039, B053**

FSTUP

With coolant hole **TP○○inserts**





Right hand tool holder shown.

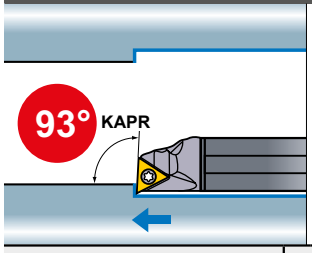
Finish	Light	Medium
FV	SV	MV
(08,09,11,16)	(08,09,11,16)	(08,09,11,16)
PCD	**PCBN**	
R/L-F		
(08,09,11,16)	(08,09,11,16)	

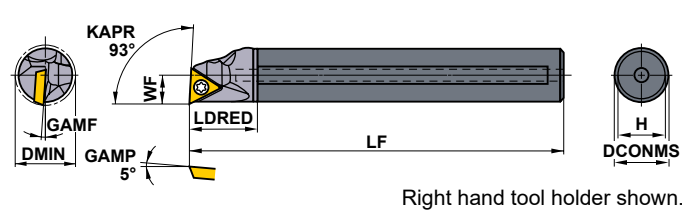
Order Number	Stock		Insert Number		Dimensions (mm)							Maximum Recommendation l/d Ratio	✶1 Clamp Screw	Wrench
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	DMIN			
FSTUP1008R/L-08A	●	●	TPMB TPMH TPMX✶2 TPGB TPGH TPGX✶2	0802○○	8	125	18	5	7.2	10°	**10**	3	TS2D	TKY06F
FSTUP1210R/L-09A	●	●		0902○○	10	150	22.5	6	9	8°	**12**	3.5	TS25D	TKY08F
FSTUP1412R/L-09A	●	●		0902○○	12	150	27	7	11	7°	**14**	4	TS25D	TKY08F
FSTUP1816R/L-11A	●	●		1103○○	16	180	36	9	15	4°	**18**	5	TS31D	TKY10F
FSTUP2220R/L-11A	●	●		1103○○	20	220	45	11	19	0°	**22**	5	TS31D	TKY10F
FSTUP3225R/L-16A ☆	●	●		1603○○	25	270	56.3	16	23.4	0°	**32**	5	TS4D	TKY15F

✶1 Clamp Torque (N • m) : TS2D=0.6, TS25D=1.0, TS31D=2.5, TS4D=3.5
✶2 By changing the clamp screw, it is possible to use the different insert. Please refer to page E006.

FSTUP_E

Carbide shank with coolant hole **TP○○inserts**





Right hand tool holder shown.

Finish	Light	Medium
FV	SV	MV
(08,09,11)	(08,09,11)	(08,09,11)
PCD	**PCBN**	
R/L-F		
(08,09,11)	(08,09,11)	

Order Number	Stock		Insert Number		Dimensions (mm)							Maximum Recommendation l/d Ratio	✶1 Clamp Screw	Wrench
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	DMIN			
FSTUP1008R/L-08E	●	●	TPMB TPMH TPMX✶2 TPGB TPGH TPGX✶2	0802○○	8	140	13.8	5	7.2	10°	**10**	7	TS2D	TKY06F
FSTUP1008R-08E-2/3	●			0802○○	8	90	13.8	5	7.2	10°	**10**	5	TS2D	TKY06F
FSTUP1008R-08E-1/2	●			0802○○	8	70	13.8	5	7.2	10°	**10**	3	TS2D	TKY06F
FSTUP1210R/L-09E	●	●		0902○○	10	160	16.0	6	9	8°	**12**	7.5	TS25D	TKY08F
FSTUP1210R-09E-2/3	●			0902○○	10	105	16.0	6	9	8°	**12**	5	TS25D	TKY08F
FSTUP1210R-09E-1/2	●			0902○○	10	80	16.0	6	9	8°	**12**	3	TS25D	TKY08F
FSTUP1412R/L-09E	●	●		0902○○	12	180	17.8	7	11	7°	**14**	8	TS25D	TKY08F
FSTUP1412R-09E-2/3	●			0902○○	12	120	17.8	7	11	7°	**14**	5	TS25D	TKY08F
FSTUP1412R-09E-1/2	●			0902○○	12	90	17.8	7	11	7°	**14**	3	TS25D	TKY08F
FSTUP1816R/L-11E	●	●		1103○○	16	220	21.8	9	15	4°	**18**	8	TS31D	TKY10F
FSTUP1816R-11E-2/3	●			1103○○	16	145	21.8	9	15	4°	**18**	5	TS31D	TKY10F
FSTUP1816R-11E-1/2	●			1103○○	16	110	21.8	9	15	4°	**18**	3	TS31D	TKY10F
FSTUP2220R/L-11E	●	●		1103○○	20	250	24.0	11	19	0°	**22**	8	TS31D	TKY10F
FSTUP2220R-11E-2/3	●			1103○○	20	165	24.0	11	19	0°	**22**	5	TS31D	TKY10F
FSTUP2220R-11E-1/2	●			1103○○	20	125	24.0	11	19	0°	**22**	3	TS31D	TKY10F

✶1 Clamp Torque (N • m) : TS2D=0.6, TS25D=1.0, TS31D=2.5
✶2 By changing the clamp screw, it is possible to use the different insert. Please refer to page E006.

TP○○ type inserts	➤ A170—A173
PCBN & PCD inserts	➤ B043, B044, B056

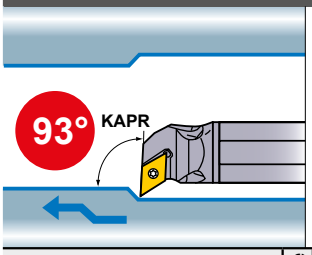
CUTTING CONDITIONS	➤ E014
SPARE PARTS	➤ N001
TECHNICAL DATA	➤ P001

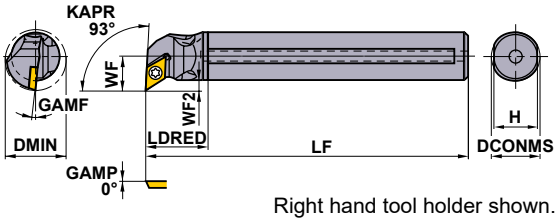
DIMPLE BAR

- Excellent vibration resistance due to the light dimple head.
- Chip disposal is improved by having two channels for chip evacuation.
- A laser printed scale on the side for easy installation (Steel shank).
- l/d is 3 to 5 times the diameter (Carbide shank is 3 to 8 times the diameter).

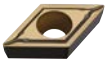
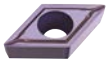
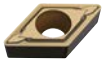
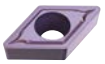
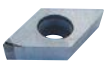
FSDUC

DC○○inserts





Right hand tool holder shown.

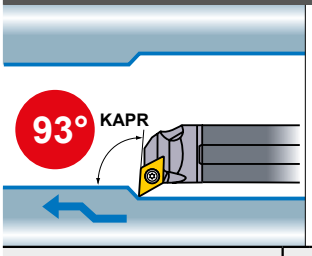
Finish	Finish	Light	Light
FP	FM	LP	LM
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	**Medium**	**PCD**	**PCBN**
MP	MM	R/L-F	
			
(07,11)	(07,11)	(07,11)	(07,11)

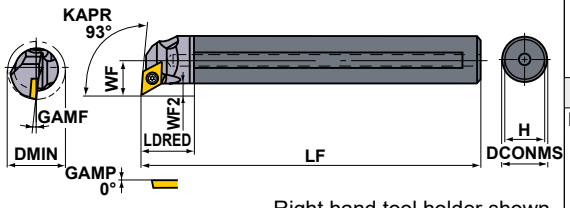
Order Number	Coolant Hole	Stock R	Stock L	Insert Number		DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN	Maximum Recommendation l/d Ratio	Clamp Screw *	Wrench
FSDUC1410R/L-07A	○	●	●	DCMT DCMW DCGT DCGW DCET	0702○○	10	150	18	8.3	3.3	9	7.5°	**14**	3.5	TS25	TKY08F
FSDUC1410L-07S	–		★		0702○○	10	150	18	8.3	3.3	9	7.5°	**14**	3.5	TS25	TKY08F
FSDUC1612R/L-07A	○	●	●		0702○○	12	150	20	9.3	3.3	11	6°	**16**	4	TS25	TKY08F
FSDUC2016R/L-07A	○	●	●		0702○○	16	180	20	11.3	3.3	15	5°	**20**	5	TS25	TKY08F
FSDUC3220R/L-11A☆	○	●	●		11T3○○	20	180	22.5	16.1	6.1	19	5°	**32**	5	TS43	TKY15F

* Clamp Torque (N • m) : TS25=1.0, TS43=3.5

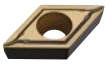
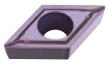
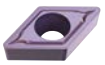
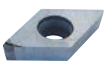
FSDUC_E

Carbide shank with coolant hole **DC○○inserts**





Right hand tool holder shown.

Finish	Finish	Light	Light
FP	FM	LP	LM
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	**Medium**	**PCD**	**PCBN**
MP	MM	R/L-F	
			
(07,11)	(07,11)	(07,11)	(07,11)

Order Number	Stock R	Stock L	Insert Number		DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN	Maximum Recommendation l/d Ratio	Clamp Screw *	Wrench
FSDUC1410R/L-07E	●	★	DCMT DCMW DCGT DCGW DCET	0702○○	10	160	16.0	8.3	3.3	9	7.5°	**14**	7.5	TS25	TKY08F
FSDUC1612R/L-07E	●	★		0702○○	12	180	17.8	9.3	3.3	11	6.0°	**16**	8	TS25	TKY08F
FSDUC2016R/L-07E	●	★		0702○○	16	220	21.8	11.3	3.3	15	5.0°	**20**	8	TS25	TKY08F
FSDUC3220R/L-11E☆	★	★		11T3○○	20	250	24.0	16.1	6.1	19	5.0°	**32**	8	TS43	TKY15F

* Clamp Torque (N • m) : TS25=1.0, TS43=3.5

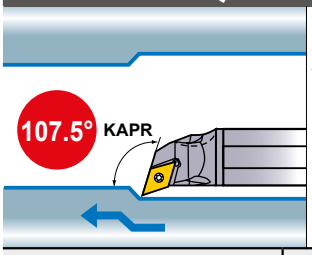
Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.4. (Model of ☆ Mark is RE 0.8)
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

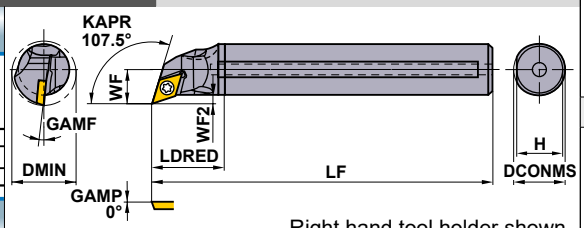
● : Inventory maintained. ★ : Inventory maintained in Japan.

DC○○ type inserts	**➤ A152—A158**
PCBN & PCD inserts	**➤ B040, B041, B054**

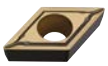
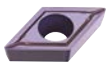
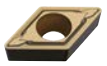
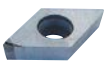
FSDQC

With coolant hole **DC○○inserts**





Right hand tool holder shown.

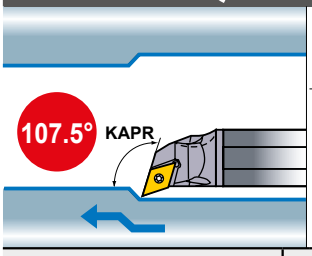
Finish	Finish	Light	Light
FP	FM	LP	LM
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	Medium	PCD	PCBN
MP	MM	R/L-F	
			
(07,11)	(07,11)	(07,11)	(07,11)

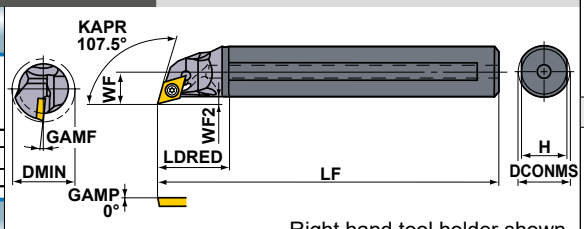
Order Number	Stock		Insert Number		Dimensions (mm)								Maximum Recommendation l/d Ratio	* Clamp Screw	Wrench
	R	L			DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN			
FSDQC1310R/L-07A	●	●	DCMT DCMW DCGT DCGW DCET	0702○○	10	150	20.5	7.6	2.6	9	8°	**13**	3.5	TS25	TKY08F
FSDQC1612R/L-07A	●	●		0702○○	12	150	22.5	8.6	2.6	11	6°	**16**	4	TS25	TKY08F
FSDQC2016R/L-07A	●	●		0702○○	16	180	22.5	10.6	2.6	15	5°	**20**	5	TS25	TKY08F
FSDQC2520R/L-11A☆	●	●		11T3○○	20	180	26	13.7	3.7	19	7°	**25**	5	TS43	TKY15F

* Clamp Torque (N • m) : TS25=1.0, TS43=3.5

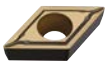
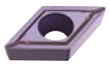
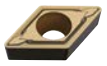
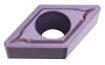
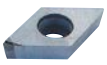
FSDQC_E

Carbide shank with coolant hole **DC○○inserts**





Right hand tool holder shown.

Finish	Finish	Light	Light
FP	FM	LP	LM
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	Medium	PCD	PCBN
MP	MM	R/L-F	
			
(07,11)	(07,11)	(07,11)	(07,11)

Order Number	Stock		Insert Number		Dimensions (mm)								Maximum Recommendation l/d Ratio	* Clamp Screw	Wrench
	R	L			DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN			
FSDQC1310R/L-07E	●	●	DCMT DCMW DCGT DCGW DCET	0702○○	10	162	18.4	7.6	2.6	9	8°	**13**	7.5	TS25	TKY08F
FSDQC1612R/L-07E	●	●		0702○○	12	182	20.2	8.6	2.6	11	6°	**16**	8	TS25	TKY08F
FSDQC2016R/L-07E	●	●		0702○○	16	222	24.2	10.6	2.6	15	5°	**20**	8	TS25	TKY08F
FSDQC2520R/L-11E☆	●	●		11T3○○	20	254	28.0	13.7	3.7	19	7°	**25**	8	TS43	TKY15F

* Clamp Torque (N • m) : TS25=1.0, TS43=3.5

DC○○ type inserts	➤ A152—A158
PCBN & PCD inserts	➤ B040, B041, B054

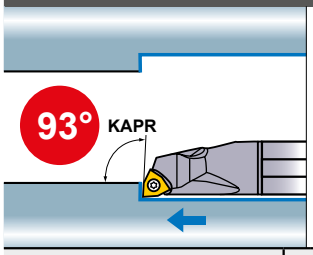
CUTTING CONDITIONS	➤ E014
SPARE PARTS	➤ N001
TECHNICAL DATA	➤ P001

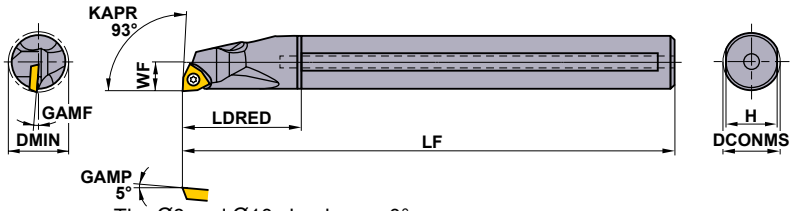
DIMPLE BAR

- Excellent vibration resistance due to the light dimple head.
- Chip disposal is improved by having two channels for chip evacuation.
- A laser printed scale on the side for easy installation (Steel shank).
- l/d is 3 to 5 times the diameter (Carbide shank is 3 to 8 times the diameter).

FSWUB/P

With coolant hole — **WB○○inserts, WP○○inserts**





The Ø8 and Ø10 shanks are 0°

Right hand tool holder shown.

Finish
R/L-F·FS

(L3,04,06)

Medium
MV

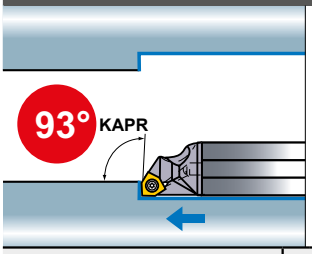
(L3,04,06)

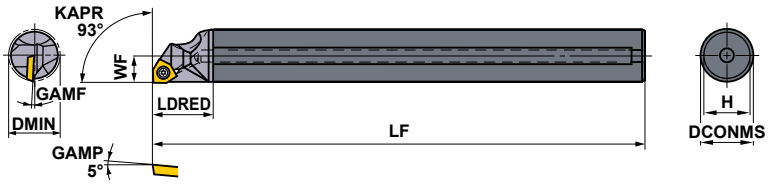
Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Maximum Recommendation l/d Ratio	* Clamp Screw	Wrench
FSWUB1008R/L-L3A ☆1	●	●	WBMT WBGT	L302○○	8	125	18	5	7.2	14°	**10**	3	TS2	TKY06F
FSWUB1210R/L-L3A ☆1	●	●		L302○○	10	150	22.5	6	9	11°	**12**	3.5	TS2	TKY06F
FSWUP1412R/L-04A	●	●	WPMT WPGT	0402○○	12	150	27	7	11	4°	**14**	4	TS253	TKY08F
FSWUP1816R/L-04A	●	●		0402○○	16	180	36	9	15	1°	**18**	5	TS253	TKY08F
FSWUP2220R/L-06A ☆2	●	●		0603○○	20	220	45	11	19	2°	**22**	5	TS4	TKY15F
FSWUP3025R/L-06A ☆2	●	●		0603○○	25	250	56.3	15	23.4	0°	**30**	5	TS4	TKY15F

* Clamp Torque (N • m) : TS2=0.6, TS253=1.0, TS4=3.5

FSWUB/P_E

Carbide shank with coolant hole — **WB○○inserts, WP○○inserts**





The Ø8 and Ø10 shanks are 0°

Right hand tool holder shown.

Finish
R/L-F·FS

(L3,04,06)

Medium
MV

(L3,04,06)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Maximum Recommendation l/d Ratio	* Clamp Screw	Wrench
FSWUB1008R/L-L3E ☆1	★	★	WBMT WBGT	L302○○	8	140	13.8	5	7.2	14°	**10**	7	TS2	TKY06F
FSWUB1008R-L3E-2/3 ☆1	★			L302○○	8	90	13.8	5	7.2	14°	**10**	5	TS2	TKY06F
FSWUB1008R-L3E-1/2 ☆1	★			L302○○	8	70	13.8	5	7.2	14°	**10**	3	TS2	TKY06F
FSWUB1210R/L-L3E ☆1	★	★		L302○○	10	160	16.0	6	9	11°	**12**	7.5	TS2	TKY06F
FSWUB1210R-L3E-2/3 ☆1	★			L302○○	10	105	16.0	6	9	11°	**12**	5	TS2	TKY06F
FSWUB1210R-L3E-1/2 ☆1	★			L302○○	10	80	16.0	6	9	11°	**12**	3	TS2	TKY06F
FSWUP1412R/L-04E	★	★	WPMT WPGT	0402○○	12	180	17.8	7	11	4°	**14**	8	TS253	TKY08F
FSWUP1412R-04E-2/3	★			0402○○	12	120	17.8	7	11	4°	**14**	5	TS253	TKY08F
FSWUP1412R-04E-1/2	★			0402○○	12	90	17.8	7	11	4°	**14**	3	TS253	TKY08F
FSWUP1816R/L-04E	★	★		0402○○	16	220	21.8	9	15	1°	**18**	8	TS253	TKY08F
FSWUP1816R-04E-2/3	★			0402○○	16	145	21.8	9	15	1°	**18**	5	TS253	TKY08F
FSWUP1816R-04E-1/2	★			0402○○	16	110	21.8	9	15	1°	**18**	3	TS253	TKY08F
FSWUP2220R/L-06E ☆2	★	★		0603○○	20	250	24.0	11	19	2°	**22**	8	TS4	TKY15F
FSWUP 2220R-06E-2/3 ☆2	★			0603○○	20	165	24.0	11	19	2°	**22**	5	TS4	TKY15F
FSWUP 2220R-06E-1/2	★			0603○○	20	125	24.0	11	19	2°	**22**	3	TS4	TKY15F

* Clamp Torque (N • m) : TS2=0.6, TS253=1.0, TS4=3.5

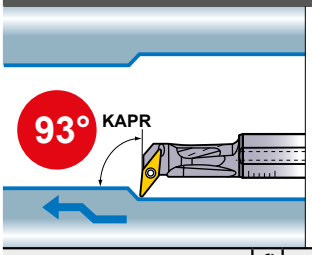
Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.4. (Model of ☆1 Mark is RE 0.2 , Model of ☆2 Mark is RE 0.8)
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

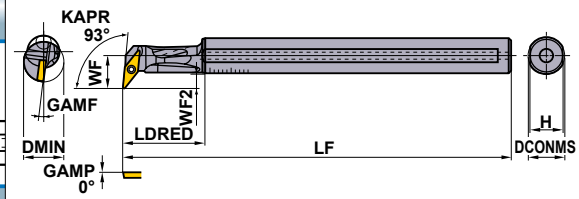
● : Inventory maintained. ★ : Inventory maintained in Japan.

WB○○ type inserts ➤ A183
WP○○ type inserts ➤ A185
PCD inserts ➤ B058

FSVUB/C

VC○○inserts, VB○○inserts





Right hand tool holder shown.

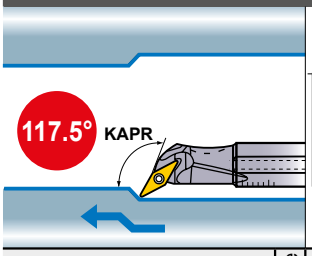
Finish	Finish	Light	Light
FP	FM	LP	LM
(11,16)	(11,16)	(11,16)	(11,16)
Medium	Medium	Medium	PCBN
MP	MM	Standard	
(16)	(16)	(16)	(11,16)

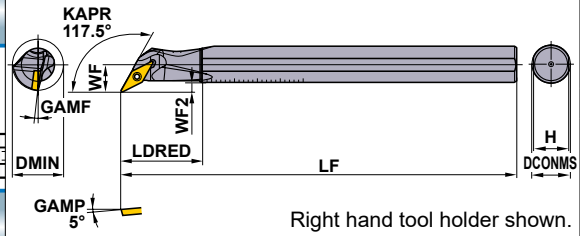
Order Number	Coolant Hole	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN	Maximum Recommendation l/d Ratio	Shim	Shim Pin	Clamp Screw*	Wrench
FSVUC1612R/L-08A	○	●	●	VCGT VCMT	0802○○	12	150	25	11	5.5	11	8°	**16**	4	—	—	TS202	TKY06F
FSVUB2016R/L-11A	○	●	●		1103○○	16	180	32.5	15.5	8	15	8°	**20**	5	—	—	TS255	TKY08F
FSVUB2520R/L-11A	○	●	●	VBMT	1103○○	20	200	40.5	17.5	8	19	7°	**25**	5	—	—	TS255	TKY08F
FSVUB2520R-11S	–	★		VBMW VBET	1103○○	20	200	40.5	17.5	8	19	7°	**25**	5	—	—	TS255	TKY08F
FSVUB3425R/L-16A☆2	○	●	●	VBGW	1604○○	25	220	50	20.5	8.5	23.4	13°	**34**	5	SPSVN32	BCP141	TS35D	TKY15F
FSVUB4032R/L-16A☆2	○	●	●		1604○○	32	250	84.0	27.5	12	30.4	9°	**40**	5	SPSVN32	BCP141	TS35D	TKY15F

* Clamp Torque (N • m) : TS202=0.6, TS255=1.0, TS35D=3.5

FSVPB/C

VC○○inserts, VB○○inserts





Right hand tool holder shown.

Finish	Finish	Light	Light
FP	FM	LP	LM
(11,16)	(11,16)	(11,16)	(11,16)
Medium	Medium	Medium	PCBN
MP	MM	Standard	
(16)	(16)	(16)	(11,16)

Order Number	Coolant Hole	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN	Maximum Recommendation l/d Ratio	Shim	Shim Pin	Clamp Screw*	Wrench
FSVPC1610R/L-08A	○	●	●	VCGT VCMT	0802○○	10	150	25	8	3	9	8°	**16**	3.5	—	—	TS202	TKY06F
FSVPB2012R/L-11A	○	●	●		1103○○	12	150	28	10	4.5	11	8°	**20**	4	—	—	TS255	TKY08F
FSVPB2516R/L-11A	○	●	●	VBMT	1103○○	16	180	35	12.5	5	15	5°	**25**	5	—	—	TS255	TKY08F
FSVPB3020R-11S	–	★		VBMW VBET	1103○○	20	200	40	15	5	19	5°	**30**	5	—	—	TS255	TKY08F
FSVPB3425R/L-16A☆2	○	●	●	VBGW	1604○○	25	220	50	17	5	23.4	13°	**34**	5	SPSVN32	BCP141	TS35D	TKY15F
FSVPB4032R/L-16A☆2	○	●	●		1604○○	32	250	55	22	6.5	30.4	9°	**40**	5	SPSVN32	BCP141	TS35D	TKY15F

* Clamp Torque (N • m) : TS202=0.6, TS255=1.0, TS35D=3.5

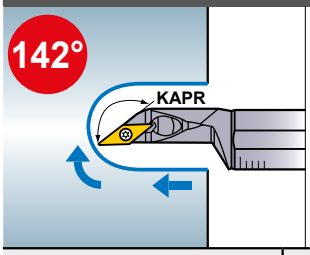
VB○○ type inserts	➤ A174—A176	CUTTING CONDITIONS	➤ E014
VC○○ type inserts	➤ A177—A180	SPARE PARTS	➤ N001
PCBN & PCD inserts	➤ B045, B057	TECHNICAL DATA	➤ P001

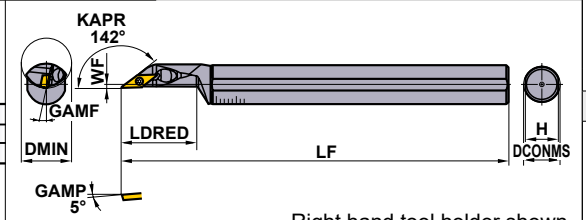
DIMPLE BAR

- Excellent vibration resistance due to the light dimple head.
- Chip disposal is improved by having two channels for chip evacuation.
- A laser printed scale on the side for easy installation (Steel shank).
- l/d is 3 to 5 times the diameter.

FSVJB/C

VC○○inserts, VB○○inserts





Right hand tool holder shown.

Finish	Finish	Light	Light
FP	FM	LP	LM
(11)	(11)	(11)	(11)
Medium			
MV			
(08,11)			

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Maximum Recommendation l/d Ratio	* Clamp Screw	Wrench
FSVJC1612R/L-08S ☆	●	●	VCGT VCMT	0802○○	12	150	26	2	11	5°	**16**	4	TS202	TKY06F
FSVJC2016R/L-08S ☆	●	●	VCGT VCMT	0802○○	16	180	36	2	15	5°	**20**	5	TS202	TKY06F
FSVJB2520R/L-11S ☆	●	●	VBMT VBMW	1103○○	20	200	37.5	2	19	5°	**25**	5	TS255	TKY08F
FSVJB3025R/L-11S ☆	●	●	VBET VBGW	1103○○	25	250	45	3.5	23.4	5°	**30**	5	TS255	TKY08F

* Clamp Torque (N • m) : TS202=0.6, TS255=1.0

RECOMMENDED CUTTING CONDITIONS

	Material	Properties	Cutting Mode	Chipbreaker		Recommendation	Cutting Speed (m/min)	L/D ≤ 3 (Steel shank) Feed (mm/rev)	L/D ≤ 3 (Steel shank) Depth of Cut (mm)	L/D ≤ 4—5 (Steel shank) Feed (mm/rev)	L/D ≤ 4—5 (Steel shank) Depth of Cut (mm)
P	Mild Steel	≤180HB	Finish	FP	FV	NX2525	170 (120—220)	0.10 (0.05—0.15)	—0.5	0.10 (0.05—0.15)	—0.5
			Light	LP	SV	MP3025	150 (100—200)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
				LP	SV	NX2525	160 (110—210)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
				SV	—	NX3035	150 (100—200)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
			Medium	MP	MV	MP3025	140 (90—190)	0.25 (0.15—0.35)	—2.0	0.20 (0.15—0.25)	—1.5
				MP	MV	NX2525	150 (100—200)	0.25 (0.15—0.35)	—2.0	0.20 (0.15—0.25)	—1.5
				MV	—	NX3035	140 (90—190)	0.25 (0.15—0.35)	—2.0	0.20 (0.15—0.25)	—1.5
	Carbon Steel Alloy Steel	180-350HB	Finish	FP	—	MC6115	140 (90—190)	0.10 (0.05—0.15)	—0.5	0.10 (0.05—0.15)	—0.5
				FV	—	VP15TF	140 (90—190)	0.10 (0.05—0.15)	—0.5	0.10 (0.05—0.15)	—0.5
				FP	FV	NX2525	130 (80—180)	0.10 (0.05—0.15)	—0.5	0.10 (0.05—0.15)	—0.5
			Light	LP	SV	MC6125	140 (90—190)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
				LP	SV	MP3025	110 (60—160)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
				SV	—	NX3035	110 (60—160)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
			Medium	MP	MV	MC6125	130 (80—180)	0.25 (0.15—0.35)	—2.0	0.20 (0.15—0.25)	—1.5
				MP	MV	MP3025	100 (60—150)	0.25 (0.15—0.35)	—2.0	0.20 (0.15—0.25)	—1.5
				MV	—	NX3035	100 (60—150)	0.25 (0.15—0.35)	—2.0	0.20 (0.15—0.25)	—1.5
M	Stainless Steel	≤200HB	Finish	FM	FV	VP15TF	150 (110—190)	0.10 (0.05—0.15)	—0.5	0.10 (0.05—0.15)	—0.5
			Light	LM	—	MC7025	125 (85—165)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
				SV	—	US735	125 (85—165)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
				LM	SV	VP15TF	130 (90—170)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
			Medium	MM	—	MC7025	105 (70—135)	0.20 (0.10—0.25)	—2.0	0.20 (0.15—0.25)	—1.0
				MV	—	US735	125 (85—165)	0.20 (0.10—0.25)	—1.0	0.15 (0.05—0.20)	—1.0
				MM	MV	VP15TF	120 (80—160)	0.20 (0.10—0.25)	—2.0	0.20 (0.15—0.25)	—1.0
K	Gray Cast Iron	Tensile Strength ≤350MPa	Finish	F	FS	HTi10	130 (90—160)	0.15 (0.10—0.20)	—0.5	0.15 (0.05—0.20)	—0.5
			Medium	MK	—	MC5015	90 (60—120)	0.20 (0.15—0.25)	—2.0	0.20 (0.15—0.25)	—1.5
				MV	—	VP15TF	90 (60—120)	0.20 (0.10—0.25)	—2.0	0.20 (0.15—0.25)	—1.5
N	Aluminium Alloy	—	Finish	F	FS	HTi10	300 (200—400)	0.10 (0.05—0.15)	—0.5	0.10 (0.05—0.15)	—0.5
				Flat Top	—	MD220	200 (150—250)	0.10 (0.05—0.15)	—2.0	0.10 (0.05—0.15)	—1.0
H	Hardened Steel	35-65HRC	Finish	Flat Top	—	MB8120	100 (80—200)	0.10 (0.05—0.15)	—0.15	0.10 (0.05—0.15)	—0.1

Note 1) When vibrations occur, reduce cutting speed by 30%.
Note 2) The depth of cut needs to be less than the corner diameter when using the FSVJ type.
Note 3) The recommended pressure for the internal coolant is 1MPa.
Note 4) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 5) Dimensions shown for insert corner RE 0.4. (Model of ☆ Mark is RE 0.8)
Note 6) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

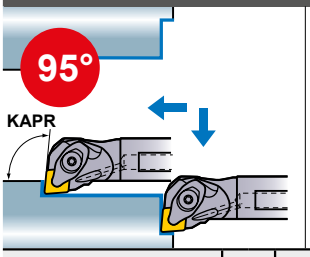
● : Inventory maintained. ★ : Inventory maintained in Japan.

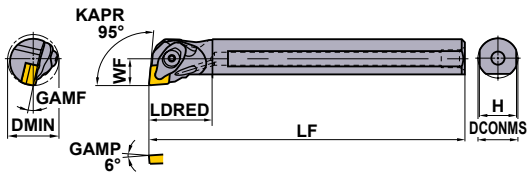
VB○○ type inserts	**➤ A174—A176**
VC○○ type inserts	**➤ A177—A180**
PCBN & PCD inserts	**➤ B045, B057**

DOUBLE CLAMP DIMPLE BAR

- Economical negative insert.
- Single action type.
- Excellent vibration resistance due to a light dimple head. (With coolant hole.)
- l/d is 3 to 4 times the diameter.

A○○○-DCLN With coolant hole CN○○inserts





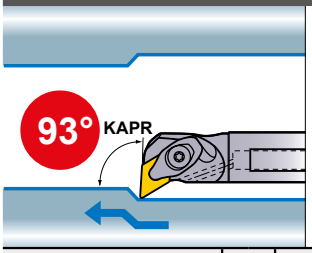
Right hand tool holder shown.

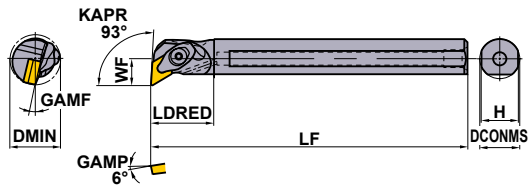
Finish	Light	Light	Medium
FP	SA	LP	LM
(12)	(12)	(12)	(12)
Medium	**Medium**	**Stainless**	**PCBN/PCD**
MP	Standard	MM	
(12)	(12)	(12)	(12)

Order Number	Stock		Insert Number		Dimensions (mm)							Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	DMIN						
A25R-DCLNR/L12	●	●	CN○A CN○G CN○M	1204○○	25	200	40	17	23	13°	32	LLSCP42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A32S-DCLNR/L12	●	●		1204○○	32	250	50	22	30	13°	40	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A40T-DCLNR/L12	●	●		1204○○	40	300	63	27	37	10°	50	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

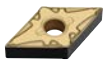
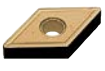
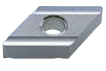
* Clamp Torque (N • m) : DC0621T=5.0

A○○○-DDUN With coolant hole DN○○inserts





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MH
			
(15)	(15)	(15)	(15)
Medium	**Stainless**	**G Class**	**PCBN/PCD**
Standard	MM	R/L	
			
(15)	(15)	(15)	(15)

Order Number	Stock		Insert Number		Dimensions (mm)							Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	DMIN						
A25R-DDUNR/L15	●	★	DN○A DN○G DN○M	1504○○	25	200	40	17	23	13°	35	LLSDP42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A32S-DDUNR/L15	●	●		1504○○	32	250	50	22	30	13°	40	LLSDN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A40T-DDUNR/L15	●	●		1504○○	40	300	63	27	37	10°	50	LLSDN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

* Clamp Torque (N • m) : DC0621T=5.0

RECOMMENDED CUTTING CONDITIONS

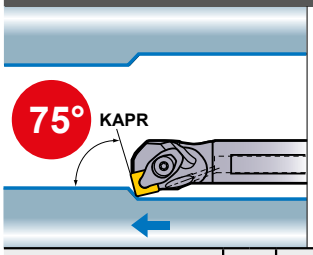
	Material	Hardness	Cutting Mode	l/d≤3			l/d=3—4		
				Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Carbon Steel Alloy Steel	180—350HB	Medium	110 (80—140)	0.25 (0.1—0.4)	—5.0	110 (80—140)	0.2 (0.1—0.3)	—4.0
M	Stainless Steel	≤200HB	Medium	80 (60—100)	0.2 (0.1—0.3)	—4.0	70 (50—100)	0.15 (0.1—0.25)	—3.0
K	Gray Cast Iron	Tensile Strength ≤350MPa	Medium	80 (60—100)	0.25 (0.1—0.4)	—5.0	80 (60—100)	0.2 (0.1—0.3)	—4.0

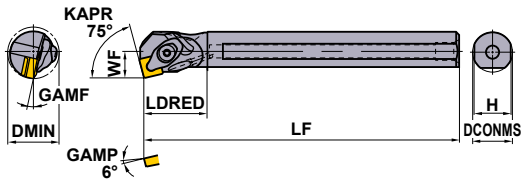
CN○○ type inserts	➤ A098—A105
DN○○ type inserts	➤ A106—A112
PCBN & PCD inserts	➤ B022—B028, B049
SPARE PARTS	➤ N001
TECHNICAL DATA	➤ P001

DOUBLE CLAMP DIMPLE BAR

- Economical negative insert.
- Single action type.
- Good vibration resistance due to the light dimple head. (With coolant hole)
- l/d is 3 to 4 times the diameter.

A○○○-DSKN With coolant hole SN○○inserts





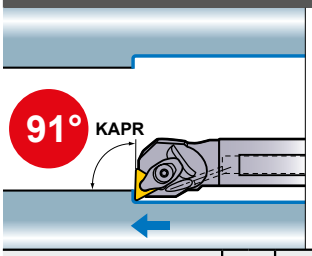
Right hand tool holder shown.

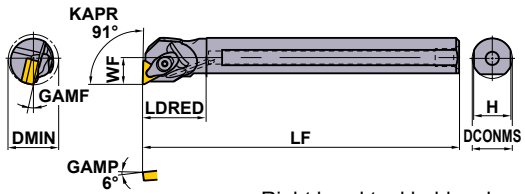
Finish	Light	Medium	Medium
FP	LP	MP	MH
(12)	(12)	(12)	(12)
Medium	**Stainless**	**G Class**	**PCBN/PCD**
Standard	MM	R/L	
(12)	(12)	(12)	(12)

Order Number	Stock R	Stock L	Insert Number	DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
A25R-DSKNR/L12	★	★	SNMA SNMG SNMM SNGA SNGG 1204○○	25	200	40	17	23	13°	32	LLSSP42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A32S-DSKNR/L12	★	★		32	250	50	22	30	13°	40	LLSSN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

* Clamp Torque (N • m) : DC0621T=5.0

A○○○-DTFN With coolant hole TN○○inserts





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MH
(16)	(16)	(16)	(16)
Medium	**Stainless**	**G Class**	**PCBN/PCD**
Standard	MM	R/L	
(16)	(16)	(16)	(16)

Order Number	Stock R	Stock L	Insert Number	DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
A25R-DTFNR/L16	●	●	TN○A TN○G TN○M 1604○○	25	200	40	17	23	13°	32	LLSTP32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
A32S-DTFNR/L16	★	★		32	250	50	22	30	13°	40	LLSTN32	LLP23	DCK2211	DCS2	DC0520T	TKY15F

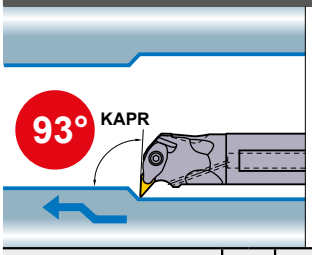
* Clamp Torque (N • m) : DC0520T=3.5

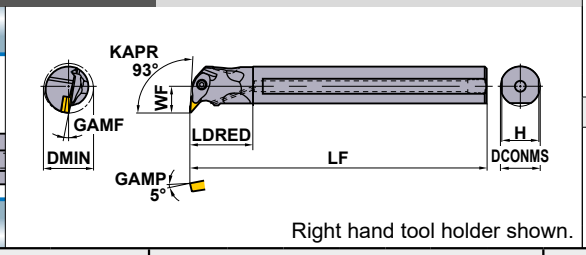
Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.8.
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

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

SN○○ type inserts	➤ A114—A119
TN○○ type inserts	➤ A120—A126
PCBN & PCD inserts	➤ B029—B031, B050

A○○○-DVUN With coolant hole VN○○inserts





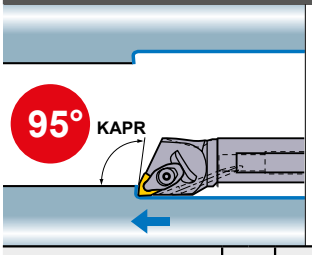
Right hand tool holder shown.

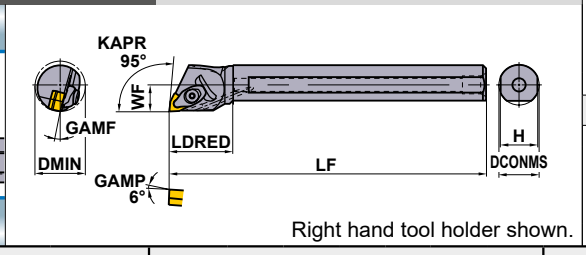
Finish	Light	Medium	Medium
FP	LP	MP	MH
(16)	(16)	(16)	(16)
Medium	**Stainless**	**G Class**	**PCBN/PCD**
Standard	MM	R/L	
(16)	(16)	(16)	(16)

Order Number	Stock		Insert Number		Dimensions (mm)							Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	DMIN						
A40T-DVUNR/L16	●	★	VN○A VN○G VN○M	1604○○	40	300	63	27	37	9°	50	DCSVN32	LLP13	DCK3113	DCS2	DC0520T	TKY15F

* Clamp Torque (N • m) : DC0520T=3.5

A○○○-DWLN With coolant hole WN○○inserts





Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MK
(08)	(06,08)	(06,08)	(08)
Medium	**Medium—Rough**	**Stainless**	
Standard	RP	MM	
(08)	(08)	(06,08)	

Order Number	Stock		Insert Number		Dimensions (mm)							Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *	Wrench
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	DMIN						
A25R-DWLNR/L06	●	★	WNMA WNMG	0604○○	25	200	40	17	23	13°	35	LLSWP32	LLP23	DCK2211	DCS2	DC0520T	TKY15F
A25R-DWLNR/L08	●	●	WNMA	0804○○	25	200	40	17	23	13°	35	LLSWP42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A32S-DWLNR/L08	●	●	WNMG	0804○○	32	250	50	22	30	13°	40	LLSWN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
A40T-DWLNR/L08	●	●	WNGA	0804○○	40	300	63	27	37	10°	50	LLSWN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

* Clamp Torque (N • m) : DC0520T=3.5, DC0621T=5.0

RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Cutting Mode	l/d≤3			l/d=3—4		
				Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Carbon Steel Alloy Steel	180—350HB	Medium	110 (80—140)	0.25 (0.1—0.4)	—5.0	110 (80—140)	0.2 (0.1—0.3)	—4.0
M	Stainless Steel	≤200HB	Medium	80 (60—100)	0.2 (0.1—0.3)	—4.0	70 (50—100)	0.15 (0.1—0.25)	—3.0
K	Gray Cast Iron	Tensile Strength ≤350MPa	Medium	80 (60—100)	0.25 (0.1—0.4)	—5.0	80 (60—100)	0.2 (0.1—0.3)	—4.0

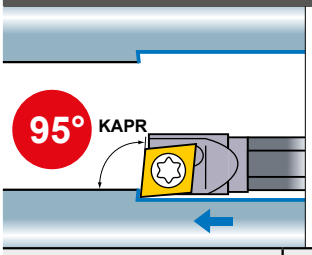
VN○○ type inserts	**➤ A127—A130**
WN○○ type inserts	**➤ A131—A135**
PCBN & PCD inserts	**➤ B032—B034, B052**

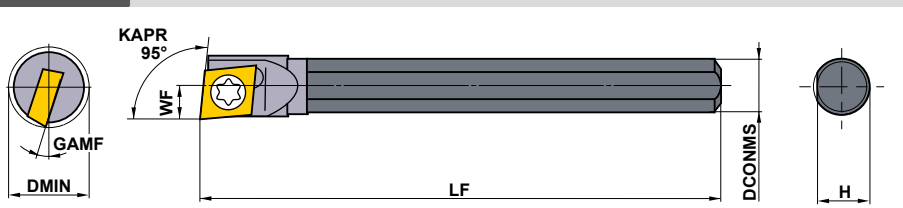
SPARE PARTS	**➤ N001**
TECHNICAL DATA	**➤ P001**

MICRO-DEX BORING BARS

- The minimum cutting diameter is from Ø5.
- l/d is 5 times the diameter.
- 5°, 7° positive insert, carbide shank type.
- Easy-to-use tool geometries.
- Suitable for small workpieces.

C○○○SCLC — Carbide shank — CC○○inserts





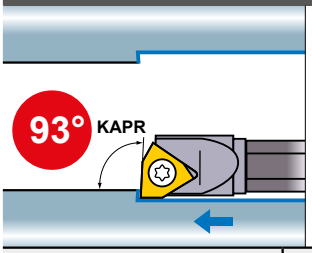
Right hand tool holder only.

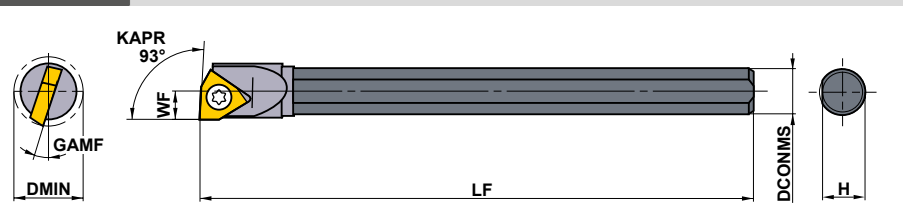
Finish: L-F (03,04) / PCD/PCBN (03,04)

Order Number	Stock R	Insert Number		Dimensions (mm) DCONMS	LF	WF	H	GAMF	DMIN	*2 Clamp Screw	Wrench
C04GSCLCR03	●	*1 CCGT CCGW CCMW	03S1○○	4	90	2.5	3.7	15°	**5**	TS16	TKY06F
C05HSCLCR03	●		03S1○○	5	100	3.0	4.7	13°	**6**	TS16	TKY06F
C06JSCLCR04	●		04T0○○	6	110	3.5	5.7	13°	**7**	TS21	TKY08F
C07KSCLCR04	●		04T0○○	7	125	4.0	6.7	11°	**8**	TS21	TKY08F

*1 Diameter of inscribed circle is special. (For SCLC type)
*2 Clamp Torque (N • m) : TS16=0.6, TS21=0.6

C○○○SWUB — Carbide shank — WB○○inserts





Right hand tool holder only.

Finish: L-F (02,L3)

Order Number	Stock R	Insert Number		Dimensions (mm) DCONMS	LF	WF	H	GAMF	DMIN	* Clamp Screw	Wrench
C05HSWUBR02	●	WBGT WBMT	0201○○L-F	5	100	3.0	4.7	15°	**6**	TS21	TKY06F
C06JSWUBR02	●		0201○○L-F	6	110	3.5	5.7	13°	**7**	TS2C	TKY06F
C07KSWUBRL3	●		L302○○L-F	7	125	4.0	6.7	15°	**8**	TS2	TKY06F

* Clamp Torque (N • m) : TS21=0.6, TS2C=0.6, TS2=0.6

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.2.
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

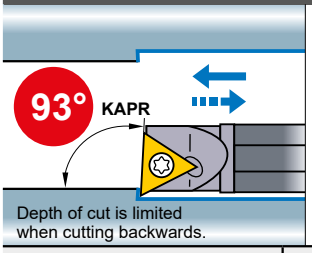
● : Inventory maintained.

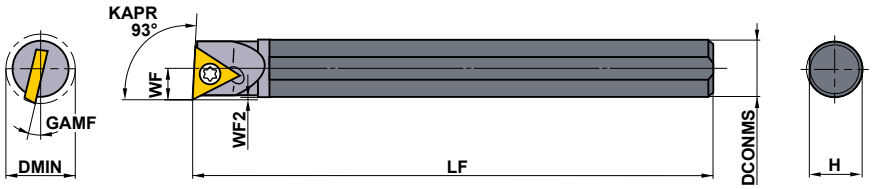
CC○○ type inserts	➤ A141
WB○○ type inserts	➤ A183
PCBN & PCD inserts	➤ B037, B053

MICRO-DEX BORING BARS

C○○○STUC — Carbide shank — TCGT inserts

Finish: R/L-F





Right hand tool holder only.

Order Number	Stock	Insert Number		Dimensions (mm)							* Clamp Screw	Wrench
	R			DCONMS	LF	WF	WF2	H	GAMF	DMIN		
C07KSTUCR06	●	TCGT	0601○○L-F	7	125	4.0	0.35	6.7	12°	**8**	TS2C	TKY06F

* Clamp Torque (N • m) : TS2C=0.6

E

BORING BARS

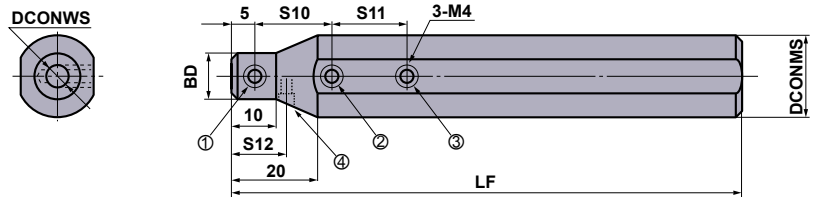
RECOMMENDED CUTTING CONDITIONS

	Material	Grade	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	l/d
P	Carbon Steel, Alloy Steel 180–350HB	**NX2525**	80 (40–120)	0.03 (0.01–0.05)	0.2 (0.1–0.3)	3–5
M	Stainless Steel ≤200HB	**VP15TF**	80 (40–120)	0.03 (0.01–0.05)	0.2 (0.1–0.3)	3–5
K	Gray Cast Iron ≤350MPa	**VP15TF**	80 (40–120)	0.03 (0.01–0.05)	0.2 (0.1–0.3)	3–5
N	Non-Ferrous Material	**VP15TF**	120 (80–160)	0.05 (0.01–0.08)	0.4 (0.1–0.6)	3–5
		MD220	120 (80–160)	0.05 (0.01–0.08)	0.4 (0.1–0.6)	3–5
H	Hardened Steel 35–65HRC	**MB8110**	80 (40–120)	0.03 (0.01–0.05)	0.1 (0.03–0.2)	3–5

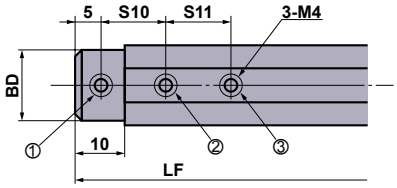
TCGT type inserts ➤ **A165**
SPARE PARTS ➤ **N001**
TECHNICAL DATA ➤ **P001**

MICRO-DEX BORING BARS

STANDARD HOLDER



RBH22○○N has a temporary set screw for different machine specifications.
(Represented by number 4)



RBH158○○N, RBH16○○N,
RBH190○○N

Order Number	Stock	Dimensions (mm)							MICRO-DEX	✶1 Clamp Screw				Wrench	Torque (N • m)
		DCONMS	DCONWS	BD	LF	S10	S11	S12		①	②	③	④		
RBH15840N	★	15.875	4	15	100	15	15	—	C04GS○○○R○○	A	A	A	—	HKY20F	2.0
RBH15850N	★	15.875	5	15	100	15	15	—	C05HS○○○R○○	A	A	A	—	HKY20F	2.0
RBH15860N	★	15.875	6	15	100	15	15	—	C06JS○○○R○○	A	A	A	—	HKY20F	2.0
RBH15870N	★	15.875	7	15	100	20	20	—	C07KS○○○R○○	A	A	A	—	HKY20F	2.0
RBH1640N	●	16	4	15	100	15	15	—	C04GS○○○R○○	A	A	A	—	HKY20F	2.0
RBH1650N	●	16	5	15	100	15	15	—	C05HS○○○R○○	A	A	A	—	HKY20F	2.0
RBH1660N	●	16	6	15	100	15	15	—	C06JS○○○R○○	A	A	A	—	HKY20F	2.0
RBH1670N	●	16	7	15	100	20	20	—	C07KS○○○R○○	A	A	A	—	HKY20F	2.0
✶2 **RBH19040N**	★	19.05	4	18	125	15	15	—	C04GS○○○R○○	B	B	B	—	HKY20F	2.0
✶2 **RBH19050N**	★	19.05	5	18	125	15	15	—	C05HS○○○R○○	B	B	B	—	HKY20F	2.0
✶2 **RBH19060N**	★	19.05	6	18	125	15	15	—	C06JS○○○R○○	B	B	B	—	HKY20F	2.0
✶2 **RBH19070N**	★	19.05	7	18	125	20	20	—	C07KS○○○R○○	B	B	B	—	HKY20F	2.0
RBH2040N	★	20	4	13	125	15	15	—	C04GS○○○R○○	A	B	B	—	HKY20F	2.0
RBH2050N	★	20	5	14	125	15	15	—	C05HS○○○R○○	A	B	B	—	HKY20F	2.0
RBH2060N	★	20	6	15	125	15	15	—	C06JS○○○R○○	A	B	B	—	HKY20F	2.0
RBH2070N	★	20	7	16	125	20	20	—	C07KS○○○R○○	A	B	B	—	HKY20F	2.0
RBH2240N	★	22	4	13	125	15	15	12.5	C04GS○○○R○○	A	B	B	A	HKY20F	2.0
RBH2250N	★	22	5	14	125	15	15	12.5	C05HS○○○R○○	A	B	B	A	HKY20F	2.0
RBH2260N	★	22	6	15	125	15	15	15	C06JS○○○R○○	A	B	B	A	HKY20F	2.0
RBH2270N	★	22	7	16	125	20	20	15	C07KS○○○R○○	A	B	B	A	HKY20F	2.0
RBH2540N	★	25	4	13	150	15	15	—	C04GS○○○R○○	A	C	C	—	HKY20F	2.0
RBH2550N	★	25	5	14	150	15	15	—	C05HS○○○R○○	A	C	C	—	HKY20F	2.0
RBH2560N	★	25	6	15	150	15	15	—	C06JS○○○R○○	A	C	C	—	HKY20F	2.0
RBH2570N	★	25	7	16	150	20	20	—	C07KS○○○R○○	A	C	C	—	HKY20F	2.0
RBH25440N	★	25.4	4	13	150	15	15	—	C04GS○○○R○○	A	C	C	—	HKY20F	2.0
RBH25450N	★	25.4	5	14	150	15	15	—	C05HS○○○R○○	A	C	C	—	HKY20F	2.0
RBH25460N	★	25.4	6	15	150	15	15	—	C06JS○○○R○○	A	C	C	—	HKY20F	2.0
RBH25470N	★	25.4	7	16	150	20	20	—	C07KS○○○R○○	A	C	C	—	HKY20F	2.0

✶1 Order number of clamp screw A=HSS04004, B=HSS04006, C=HSS04008
✶2 Revised order number.

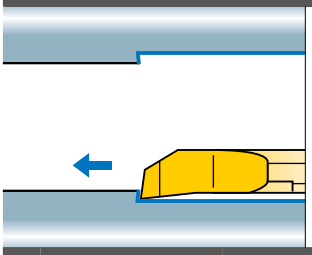
Conventional Order Number	Revised Order Number
RBH1940N	**RBH19040N**
RBH1950N	**RBH19050N**
RBH1960N	**RBH19060N**
RBH1970N	**RBH19070N**

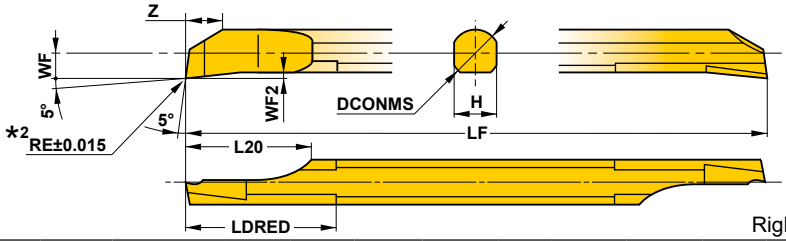
● : Inventory maintained. ★ : Inventory maintained in Japan.

MICRO-MINI TWIN

CB

For internal machining





Right hand tool only.

Order Number	Stock				Chipbreaker	Dimensions (mm)									
	Coated			Micro Grain		DMIN *1		RE	DCONMS	LF	L20	LDRED	WF	WF2	H	Z
	NEW MS7025	NEW MS9025	VP15TF	TF15		l/d ≤ 3	l/d>3									
CB02RS			●	●	without	2.2	3.6	0.05	2.0	50	5.0	6.0	1.0	0.25	1.8	1.4
CB02RS-B	●	●	●	●	with	2.2	4.6	0.05	2.0	50	5.0	6.0	1.0	0.25	1.8	1.4
CB02RS-01			●	●	without	2.2	3.6	0.1	2.0	50	5.0	6.0	1.0	0.25	1.8	1.4
CB02RS-01B	●	●	●	●	with	2.2	4.6	0.1	2.0	50	5.0	6.0	1.0	0.25	1.8	1.4
NEW CB02RS-015B	●	●			with	2.2	4.6	0.15	2.0	50	5.0	6.0	1.0	0.25	1.8	1.4
CB02RS-02			●	●	without	2.2	3.6	0.2	2.0	50	5.0	6.0	1.0	0.25	1.8	1.4
CB02RS-02B	●	●	●	●	with	2.2	4.6	0.2	2.0	50	5.0	6.0	1.0	0.25	1.8	1.4
NEW CB025RS-B	●	●			with	2.7	4.7	0.05	2.5	50	6.25	7.5	1.25	0.30	2.25	1.8
NEW CB025RS-01B	●	●			with	2.7	4.7	0.1	2.5	50	6.25	7.5	1.25	0.30	2.25	1.8
NEW CB025RS-015B	●	●			with	2.7	4.7	0.15	2.5	50	6.25	7.5	1.25	0.30	2.25	1.8
NEW CB025RS-02B	●	●			with	2.7	4.7	0.2	2.5	50	6.25	7.5	1.25	0.30	2.25	1.8
CB03RS			●	●	without	3.2	4.2	0.05	3.0	50	7.5	9.0	1.5	0.35	2.7	2.3
CB03RS-B	●	●	●	●	with	3.2	4.8	0.05	3.0	50	7.5	9.0	1.5	0.35	2.7	2.3
CB03RS-01			●	●	without	3.2	4.2	0.1	3.0	50	7.5	9.0	1.5	0.35	2.7	2.3
CB03RS-01B	●	●	●	●	with	3.2	4.8	0.1	3.0	50	7.5	9.0	1.5	0.35	2.7	2.3
NEW CB03RS-015B	●	●			with	3.2	4.8	0.15	3.0	50	7.5	9.0	1.5	0.35	2.7	2.3
CB03RS-02			●	●	without	3.2	4.2	0.2	3.0	50	7.5	9.0	1.5	0.35	2.7	2.3
CB03RS-02B	●	●	●	●	with	3.2	4.8	0.2	3.0	50	7.5	9.0	1.5	0.35	2.7	2.3
NEW CB035RS-B	●	●			with	3.7	5.2	0.05	3.5	60	8.75	10.5	1.75	0.40	3.15	2.6
NEW CB035RS-01B	●	●			with	3.7	5.2	0.1	3.5	60	8.75	10.5	1.75	0.40	3.15	2.6
NEW CB035RS-015B	●	●			with	3.7	5.2	0.15	3.5	60	8.75	10.5	1.75	0.40	3.15	2.6
NEW CB035RS-02B	●	●			with	3.7	5.2	0.2	3.5	60	8.75	10.5	1.75	0.40	3.15	2.6
CB04RS			●	●	without	4.2	5.1	0.05	4.0	60	10.0	12.0	2.0	0.45	3.6	3.1
CB04RS-B	●	●	●	●	with	4.2	5.5	0.05	4.0	60	10.0	12.0	2.0	0.45	3.6	3.1
CB04RS-01			●	●	without	4.2	5.1	0.1	4.0	60	10.0	12.0	2.0	0.45	3.6	3.1
CB04RS-01B	●	●	●	●	with	4.2	5.5	0.1	4.0	60	10.0	12.0	2.0	0.45	3.6	3.1
NEW CB04RS-015B	●	●			with	4.2	5.5	0.15	4.0	60	10.0	12.0	2.0	0.45	3.6	3.1
CB04RS-02			●	●	without	4.2	5.1	0.2	4.0	60	10.0	12.0	2.0	0.45	3.6	3.1
CB04RS-02B	●	●	●	●	with	4.2	5.5	0.2	4.0	60	10.0	12.0	2.0	0.45	3.6	3.1
NEW CB045RS-B	●	●			with	4.7	6.0	0.05	4.5	70	11.25	13.5	2.25	0.50	4.05	3.4
NEW CB045RS-01B	●	●			with	4.7	6.0	0.1	4.5	70	11.25	13.5	2.25	0.50	4.05	3.4
NEW CB045RS-015B	●	●			with	4.7	6.0	0.15	4.5	70	11.25	13.5	2.25	0.50	4.05	3.4
NEW CB045RS-02B	●	●			with	4.7	6.0	0.2	4.5	70	11.25	13.5	2.25	0.50	4.05	3.4
CB05RS			●	●	without	5.2	6.0	0.05	5	70	12.5	15.0	2.5	0.55	4.5	3.9
CB05RS-B	●	●	●	●	with	5.2	6.4	0.05	5	70	12.5	15.0	2.5	0.55	4.5	3.9
NEW CB05RS-015B	●	●			with	5.2	6.4	0.15	5	70	12.5	15.0	2.5	0.55	4.5	3.9
CB05RS-02			●	●	without	5.2	6.0	0.2	5	70	12.5	15.0	2.5	0.55	4.5	3.9
CB05RS-02B	●	●	●	●	with	5.2	6.4	0.2	5	70	12.5	15.0	2.5	0.55	4.5	3.9
CB06RS			●	●	without	6.2	7.2	0.05	6	75	12.5	18.0	3.0	0.65	5.4	4.7
CB06RS-B	●	●	●	●	with	6.2	7.3	0.05	6	75	12.5	18.0	3.0	0.65	5.4	4.7
CB06RS-02			●	●	without	6.2	7.2	0.2	6	75	12.5	18.0	3.0	0.65	5.4	4.7
CB06RS-02B	●	●	●	●	with	6.2	7.8	0.2	6	75	12.5	18.0	3.0	0.65	5.4	4.7

*1 DMIN : Min. Cutting Diameter

*2 The RE dimension represents the size before grinding a chipbreaker.

● = NEW

MICRO-MINI TWIN

Order Number	Stock				Chipbreaker	Dimensions (mm)										
	Coated			Micro Grain		DMIN *1		RE	DCONMS	LF	L20	LDRED	WF	WF2	H	Z
	NEW MS7025	NEW MS9025	VP15TF	TF15		l/d ≤ 3	l/d>3									
CB07RS			●	●	without	**7.2**	**8.6**	0.05	7	85	12.5	21.0	3.5	0.75	6.3	5.5
CB07RS-B	●	●	●	●	with	**7.2**	**8.8**	0.05	7	85	12.5	21.0	3.5	0.75	6.3	5.5
CB07RS-02			●	●	without	**7.2**	**8.6**	0.2	7	85	12.5	21.0	3.5	0.75	6.3	5.5
CB07RS-02B	●	●	●	●	with	**7.2**	**9.2**	0.2	7	85	12.5	21.0	3.5	0.75	6.3	5.5
CB08RS			●	●	without	**8.2**	**9.5**	0.05	8	95	15.0	24.0	4.0	0.85	7.2	6.3
CB08RS-B	●	●	●	●	with	**8.2**	**9.6**	0.05	8	95	15.0	24.0	4.0	0.85	7.2	6.3
CB08RS-02			●	●	without	**8.2**	**9.5**	0.2	8	95	15.0	24.0	4.0	0.85	7.2	6.3
CB08RS-02B	●	●	●	●	with	**8.2**	**9.8**	0.2	8	95	15.0	24.0	4.0	0.85	7.2	6.3

*1 DMIN : Min. Cutting Diameter
*2 The RE dimension represents the size before grinding a chipbreaker.

● = NEW

RECOMMENDED CUTTING CONDITIONS

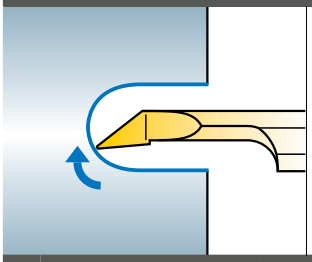
	Material	Micro-Mini Twin **CB**				Micro-Mini Twin **CR**		
		Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	l/d	Cutting Speed (m/min)	Feed (mm/rev) 03RS/04RS	Feed (mm/rev) 05RS
P	Carbon Steel, Alloy Steel 180–350HB	80 (40–120)	0.03 (0.01–0.05)	0.2 (0.1–0.3)	3–5	80 (40–120)	0.02 (0.01–0.03)	0.03 (0.01–0.05)
M	Stainless Steel ≤200HB	80 (40–120)	0.03 (0.01–0.05)	0.2 (0.1–0.3)	3–5	80 (40–120)	0.02 (0.01–0.03)	0.03 (0.01–0.05)
K	Gray Cast Iron ≤350MPa	80 (40–120)	0.03 (0.01–0.05)	0.2 (0.1–0.3)	3–5	80 (40–120)	0.03 (0.01–0.05)	0.03 (0.01–0.05)
N	Non-Ferrous Material	120 (80–160)	0.05 (0.01–0.08)	0.3 (0.1–0.5)	3–5	120 (80–160)	0.03 (0.01–0.05)	0.05 (0.01–0.08)
S	Heat Resistant Alloy	60 (40–80)	0.02 (0.01–0.03)	0.2 (0.1–0.3)	3–5	60 (40–80)	0.02 (0.01–0.03)	0.02 (0.01–0.03)

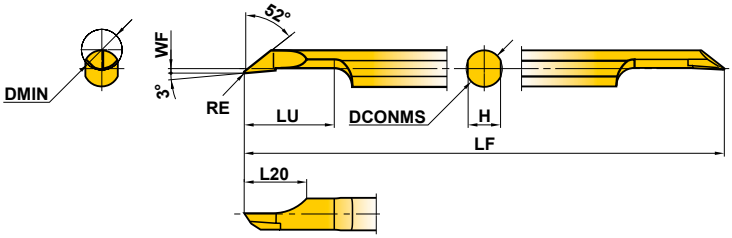
Note 1) Wet machining is recommended.
Note 2) The recommended tool overhang of CR type is LU+2mm.

● : **Inventory maintained.**

CR

For internal copying





Right hand tool only.

	Order Number	Stock				Chipbreaker	Dimensions (mm)							
		Coated			Micro Grain									
		NEW MS7025	NEW MS9025	VP15TF	TF15		DMIN	RE	DCONMS	LF	LU	L20	WF	H
	CR03RS-01			●	●	without	3.5	0.1	3.0	50	8	6.0	0.15	2.7
	CR03RS-01B	●	●	●	●	with	3.5	0.1	3.0	50	8	6.0	0.15	2.7
NEW	CR035RS-01B	●	●			with	4.0	0.1	3.5	60	8	6.5	0.15	3.15
	CR04RS-01			●	●	without	4.5	0.1	4.0	60	10	7.0	0.15	3.6
	CR04RS-01B	●	●	●	●	with	4.5	0.1	4.0	60	10	7.0	0.15	3.6
NEW	CR045RS-01B	●	●			with	5.0	0.1	4.5	70	10	7.5	0.15	4.05
	CR05RS-01			●	●	without	5.5	0.1	5.0	70	12	8.0	0.15	4.5
	CR05RS-01B	●	●	●	●	with	5.5	0.1	5.0	70	12	8.0	0.15	4.5

● = NEW

RECOMMENDED CUTTING CONDITIONS

	Material	Micro-Mini Twin **CB**				Micro-Mini Twin **CR**		
		Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	l/d	Cutting Speed (m/min)	Feed (mm/rev) 03RS/04RS	Feed (mm/rev) 05RS
P	Carbon Steel, Alloy Steel 180–350HB	80 (40–120)	0.03 (0.01–0.05)	0.2 (0.1–0.3)	3–5	80 (40–120)	0.02 (0.01–0.03)	0.03 (0.01–0.05)
M	Stainless Steel ≤200HB	80 (40–120)	0.03 (0.01–0.05)	0.2 (0.1–0.3)	3–5	80 (40–120)	0.02 (0.01–0.03)	0.03 (0.01–0.05)
K	Gray Cast Iron ≤350MPa	80 (40–120)	0.03 (0.01–0.05)	0.2 (0.1–0.3)	3–5	80 (40–120)	0.03 (0.01–0.05)	0.03 (0.01–0.05)
N	Non-Ferrous Material	120 (80–160)	0.05 (0.01–0.08)	0.3 (0.1–0.5)	3–5	120 (80–160)	0.03 (0.01–0.05)	0.05 (0.01–0.08)
S	Heat Resistant Alloy	60 (40–80)	0.02 (0.01–0.03)	0.2 (0.1–0.3)	3–5	60 (40–80)	0.02 (0.01–0.03)	0.02 (0.01–0.03)

Note 1) Wet machining is recommended.
Note 2) The recommended tool overhang of CR type is LU+2mm.

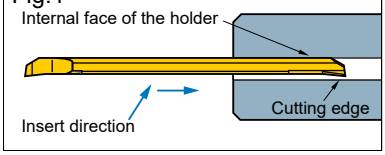
MICRO-MINI TWIN

■PRECAUTIONS WHEN USING THE MICRO-MINI TWIN

●When using a holder for general purpose / small automatic lathe:

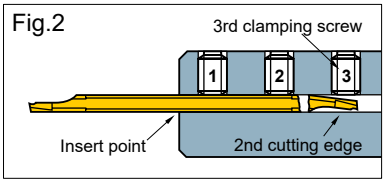
1 To avoid chipping of the 2nd cutting edge take care when inserting the boring bar into the holder. Refer to fig.1. If the 2nd edge contacts the internal face of the holder there is a possibility that it may chip.

Fig.1



2 When using this type of holder, there is a possibility that damage to the shank and the 2nd cutting edge can occur. Make sure that the clamping screws are tightened to the set torque value. Additionally make sure that there is no clamping screw near the 2nd cutting edge as this can break the boring bar.

Fig.2



◎When using Mitsubishi Materials holders
When using holders with a tool overhang of recommended quantity, ensure that the 3rd clamping screw is removed prior to machining. (RBH1620N, RBH19020N, RBH2020N and RBH2520N do not have the 3rd screw.) The set torque value for the clamping screw is 2.0 N▪m.

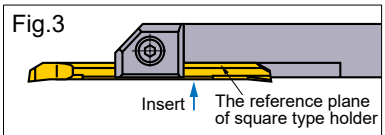
●When using a square type holder:

1 When installing the boring bar into the holder, tighten the clamp screws after ensuring the flats on the tool holder are parallel to the reference flats on the micro-mini bar. Refer to fig.3.

2 Make sure that the clamping screws are tightened to the recommended values.

3 Do not tighten the clamp screw without a bar in place, otherwise the bridge will be deformed.

Fig.3



Tighten the clamping screw ensuring making the micro-mini twin boring bars is in contact with the reference plane of square type holder.

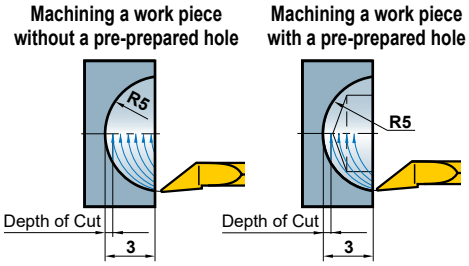
MACHINING METHODS OF THE CR TYPE

●Profile turning

By drilling a pre-prepared hole, the machining time will be shortened and chip control will be improved.

<Cutting Conditions>

Workpiece	: DIN S20C
Holder	: CR05RS-01B
Cutting Speed	: 80m/min
Feed	: 0.05mm/rev
Depth of Cut	: 0.05mm
Wet Cutting	

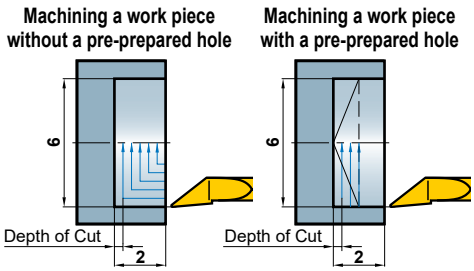


●Inner end facing

By drilling a pre-prepared hole, the machining time will be shortened and chip control will be improved.

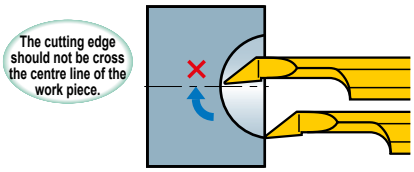
<Cutting Conditions>

Workpiece	: DIN S20C
Holder	: CR05RS-01B
Cutting Speed	: 80m/min
Feed	: 0.05mm/rev
Depth of Cut	: 0.05mm
Wet Cutting	



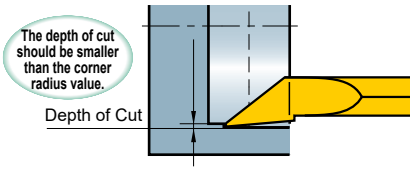
■NOTES FOR USE

Profile turning, Inner end facing



If the cutting edge crosses the centre line of a work piece, the cutting edge can fracture.

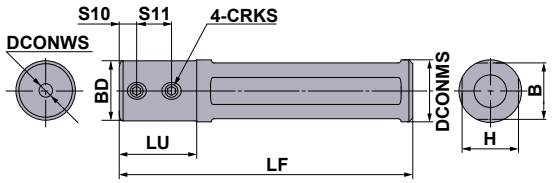
Copying



With depths of cut larger than the corner radius value, burrs will be formed.

■ROUND TYPE HOLDER

NEW



Order Number	Stock	Dimensions (mm)								
		DCONMS	DCONWS	BD	LF	LU	H	B	S10	S11
SLV190085025N	●	19.05	2.5	18.5	85	20	17.8	17.8	4.5	9
SLV190085035N	●	19.05	3.5	18.5	85	20	17.8	17.8	4.5	9
SLV190085045N	●	19.05	4.5	18.5	85	20	17.8	17.8	4.5	9
SLV190110025N	●	19.05	2.5	18.5	110	20	17.8	17.8	4.5	9
SLV190110035N	●	19.05	3.5	18.5	110	20	17.8	17.8	4.5	9
SLV190110045N	●	19.05	4.5	18.5	110	20	17.8	17.8	4.5	9
SLV200085025N	●	20.0	2.5	19.0	85	20	18.8	18.8	4.5	9
SLV200085035N	●	20.0	3.5	19.0	85	20	18.8	18.8	4.5	9
SLV200085045N	●	20.0	4.5	19.0	85	20	18.8	18.8	4.5	9
SLV220135025N	●	22.0	2.5	20.0	135	20	20.8	20.8	4.5	9
SLV220135035N	●	22.0	3.5	20.0	135	20	20.8	20.8	4.5	9
SLV220135045N	●	22.0	4.5	20.0	135	20	20.8	20.8	4.5	9
SLV250067025N	●	25.0	2.5	20.0	67	20	23.9	23.9	4.5	9
SLV250067035N	●	25.0	3.5	20.0	67	20	23.9	23.9	4.5	9
SLV250067045N	●	25.0	4.5	20.0	67	20	23.9	23.9	4.5	9
SLV250110025N	●	25.0	2.5	20.0	110	20	23.9	23.9	4.5	9
SLV250110035N	●	25.0	3.5	20.0	110	20	23.9	23.9	4.5	9
SLV250110045N	●	25.0	4.5	20.0	110	20	23.9	23.9	4.5	9
SLV254085025N	●	25.4	2.5	20.0	85	20	24.4	24.4	4.5	9
SLV254085035N	●	25.4	3.5	20.0	85	20	24.4	24.4	4.5	9
SLV254085045N	●	25.4	4.5	20.0	85	20	24.4	24.4	4.5	9
SLV254110025N	●	25.4	2.5	20.0	110	20	24.4	24.4	4.5	9
SLV254110035N	●	25.4	3.5	20.0	110	20	24.4	24.4	4.5	9
SLV254110045N	●	25.4	4.5	20.0	110	20	24.4	24.4	4.5	9

MOUNTING CHART

Series		Boring Bar Type		Holder Type
MICRO-MINI TWIN	Boring	CB	025RS(-B)	SLV○○○○○○025N
MICRO-MINI TWIN	Boring	CB	035RS(-B)	SLV○○○○○○035N
MICRO-MINI TWIN	Boring	CB	045RS(-B)	SLV○○○○○○045N
MICRO-MINI TWIN	Boring	CR	035RS(-B)	SLV○○○○○○035N
MICRO-MINI TWIN	Boring	CR	045RS(-B)	SLV○○○○○○045N

SPARE PARTS

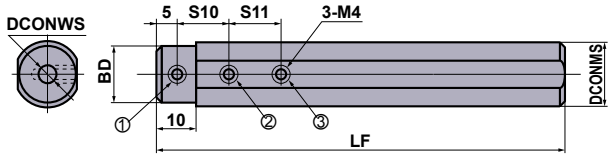
Holder Type	Clamp Screw	Wrench	Clamp Torque (N • m)
SLV○○○○○○025N	HSS04005	HKY20R	2.0
SLV○○○○○○035N	HSS04005	HKY20R	2.0
SLV○○○○○○045N	HSS04005	HKY20R	2.0

● : Inventory maintained.

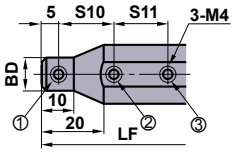
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

MICRO-MINI TWIN

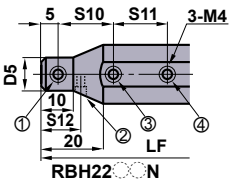
■ROUND TYPE HOLDER



RBH158□□N, RBH16□□N, RBH190□□N



RBH20□□N, RBH25□□N, RBH254□□N



RBH22□□N

Order Number		Stock	Dimensions (mm)							Micro-Mini C	Micro-Mini Twin		✱1 Clamp Screw				Wrench	Torque (N • m)
			DCONMS	DCONWS	BD	LF	S10	S11	S12		CB	CR	①	②	③	④		
	RBH15820N	★	15.875	2	15	100	10	—	—	—	02RS(-B) 02RS-0□(B)	—	B	B	—	—	HKY20F	2.0
	RBH15830N	★	15.875	3	15	100	10	10	—	03FR-BLS	03RS(-B) 03RS-0□(B)	03RS-01(B)	A	A	A	—	HKY20F	2.0
	RBH15840N	★	15.875	4	15	100	15	15	—	04FR-BLS	04RS(-B) 04RS-0□(B)	04RS-01(B)	A	A	A	—	HKY20F	2.0
	RBH15850N	★	15.875	5	15	100	15	15	—	05HR-BLS	05RS(-B) 05RS-0□(B)	05RS-01(B)	A	A	A	—	HKY20F	2.0
	RBH15860N	★	15.875	6	15	100	15	15	—	—	06RS(-B) 06RS-0□(B)	—	A	A	A	—	HKY20F	2.0
	RBH15870N	★	15.875	7	15	100	20	20	—	—	07RS(-B) 07RS-0□(B)	—	A	A	A	—	HKY20F	2.0
	RBH15880N	★	15.875	8	15	100	20	20	—	—	08RS(-B) 08RS-0□(B)	—	D	D	D	—	HKY20F	2.0
	RBH1620N	●	16	2	15	100	10	—	—	—	02RS(-B) 02RS-0□(B)	—	B	B	—	—	HKY20F	2.0
	RBH1630N	●	16	3	15	100	10	10	—	03FR-BLS	03RS(-B) 03RS-0□(B)	03RS-01(B)	A	A	A	—	HKY20F	2.0
	RBH1640N	●	16	4	15	100	15	15	—	04FR-BLS	04RS(-B) 04RS-0□(B)	04RS-01(B)	A	A	A	—	HKY20F	2.0
	RBH1650N	●	16	5	15	100	15	15	—	05HR-BLS	05RS(-B) 05RS-0□(B)	05RS-01(B)	A	A	A	—	HKY20F	2.0
	RBH1660N	●	16	6	15	100	15	15	—	—	06RS(-B) 06RS-0□(B)	—	A	A	A	—	HKY20F	2.0
	RBH1670N	●	16	7	15	100	20	20	—	—	07RS(-B) 07RS-0□(B)	—	A	A	A	—	HKY20F	2.0
	RBH1680N	★	16	8	15	100	20	20	—	—	08RS(-B) 08RS-0□(B)	—	D	D	D	—	HKY20F	2.0
✱2	RBH19020N	★	19.05	2	18	125	10	—	—	—	02RS(-B) 02RS-0□(B)	—	C	C	—	—	HKY20F	2.0
✱2	RBH19030N	★	19.05	3	18	125	10	10	—	03FR-BLS	03RS(-B) 03RS-0□(B)	03RS-01(B)	B	B	B	—	HKY20F	2.0
✱2	RBH19040N	★	19.05	4	18	125	15	15	—	04FR-BLS	04RS(-B) 04RS-0□(B)	04RS-01(B)	B	B	B	—	HKY20F	2.0
✱2	RBH19050N	★	19.05	5	18	125	15	15	—	05HR-BLS	05RS(-B) 05RS-0□(B)	05RS-01(B)	B	B	B	—	HKY20F	2.0
✱2	RBH19060N	★	19.05	6	18	125	15	15	—	—	06RS(-B) 06RS-0□(B)	—	B	B	B	—	HKY20F	2.0
✱2	RBH19070N	★	19.05	7	18	125	20	20	—	—	07RS(-B) 07RS-0□(B)	—	B	B	B	—	HKY20F	2.0
	RBH19080N	★	19.05	8	18	125	20	20	—	—	08RS(-B) 08RS-0□(B)	—	A	A	A	—	HKY20F	2.0
	RBH2020N	★	20	2	11	125	10	—	—	—	02RS(-B) 02RS-0□(B)	—	A	A	—	—	HKY20F	2.0
	RBH2030N	★	20	3	12	125	10	10	—	03FR-BLS	03RS(-B) 03RS-0□(B)	03RS-01(B)	A	A	B	—	HKY20F	2.0
	RBH2040N	★	20	4	13	125	15	15	—	04FR-BLS	04RS(-B) 04RS-0□(B)	04RS-01(B)	A	B	B	—	HKY20F	2.0
	RBH2050N	★	20	5	14	125	15	15	—	05HR-BLS	05RS(-B) 05RS-0□(B)	05RS-01(B)	A	B	B	—	HKY20F	2.0
	RBH2060N	★	20	6	15	125	15	15	—	—	06RS(-B) 06RS-0□(B)	—	A	B	B	—	HKY20F	2.0
	RBH2070N	★	20	7	16	125	20	20	—	—	07RS(-B) 07RS-0□(B)	—	A	B	B	—	HKY20F	2.0
	RBH2080N	★	20	8	17	125	20	20	—	—	08RS(-B) 08RS-0□(B)	—	A	A	A	—	HKY20F	2.0
	RBH2220N	★	22	2	11	125	10	—	10	—	02RS(-B) 02RS-0□(B)	—	A	B	—	A	HKY20F	2.0
	RBH2230N	★	22	3	12	125	10	10	10	03FR-BLS	03RS(-B) 03RS-0□(B)	03RS-01(B)	A	B	C	A	HKY20F	2.0
	RBH2240N	★	22	4	13	125	15	15	12.5	04FR-BLS	04RS(-B) 04RS-0□(B)	04RS-01(B)	A	B	B	A	HKY20F	2.0
	RBH2250N	★	22	5	14	125	15	15	12.5	05HR-BLS	05RS(-B) 05RS-0□(B)	05RS-01(B)	A	B	B	A	HKY20F	2.0
	RBH2260N	★	22	6	15	125	15	15	15	—	06RS(-B) 06RS-0□(B)	—	A	B	B	A	HKY20F	2.0
	RBH2270N	★	22	7	16	125	20	20	15	—	07RS(-B) 07RS-0□(B)	—	A	B	B	A	HKY20F	2.0
	RBH2280N	★	22	8	17	125	20	20	15	—	08RS(-B) 08RS-0□(B)	—	A	B	B	A	HKY20F	2.0
	RBH2520N	★	25	2	11	150	10	—	—	—	02RS(-B) 02RS-0□(B)	—	A	B	—	—	HKY20F	2.0
	RBH2530N	★	25	3	12	150	10	10	—	03FR-BLS	03RS(-B) 03RS-0□(B)	03RS-01(B)	A	B	C	—	HKY20F	2.0
	RBH2540N	★	25	4	13	150	15	15	—	04FR-BLS	04RS(-B) 04RS-0□(B)	04RS-01(B)	A	C	C	—	HKY20F	2.0
	RBH2550N	★	25	5	14	150	15	15	—	05HR-BLS	05RS(-B) 05RS-0□(B)	05RS-01(B)	A	C	C	—	HKY20F	2.0
	RBH2560N	★	25	6	15	150	15	15	—	—	06RS(-B) 06RS-0□(B)	—	A	C	C	—	HKY20F	2.0
	RBH2570N	★	25	7	16	150	20	20	—	—	07RS(-B) 07RS-0□(B)	—	A	C	C	—	HKY20F	2.0
	RBH2580N	★	25	8	17	150	20	20	—	—	08RS(-B) 08RS-0□(B)	—	A	B	B	—	HKY20F	2.0
	RBH25420N	★	25.4	2	11	150	10	—	—	—	02RS(-B) 02RS-0□(B)	—	A	B	—	—	HKY20F	2.0
	RBH25430N	★	25.4	3	12	150	10	10	—	03FR-BLS	03RS(-B) 03RS-0□(B)	03RS-01(B)	A	B	C	—	HKY20F	2.0
	RBH25440N	★	25.4	4	13	150	15	15	—	04FR-BLS	04RS(-B) 04RS-0□(B)	04RS-01(B)	A	C	C	—	HKY20F	2.0
	RBH25450N	★	25.4	5	14	150	15	15	—	05HR-BLS	05RS(-B) 05RS-0□(B)	05RS-01(B)	A	C	C	—	HKY20F	2.0
	RBH25460N	★	25.4	6	15	150	15	15	—	—	06RS(-B) 06RS-0□(B)	—	A	C	C	—	HKY20F	2.0
	RBH25470N	★	25.4	7	16	150	20	20	—	—	07RS(-B) 07RS-0□(B)	—	A	C	C	—	HKY20F	2.0
	RBH25480N	★	25.4	8	17	150	20	20	—	—	08RS(-B) 08RS-0□(B)	—	A	B	B	—	HKY20F	2.0

✱1 Order number of clamp screw A=HSS04004, B=HSS04006, C=HSS04008, D=HSS04003 ✱2 Revised order number.

Conventional Order Number	Revised Order Number
RBH1920N	RBH19020N
RBH1930N	RBH19030N

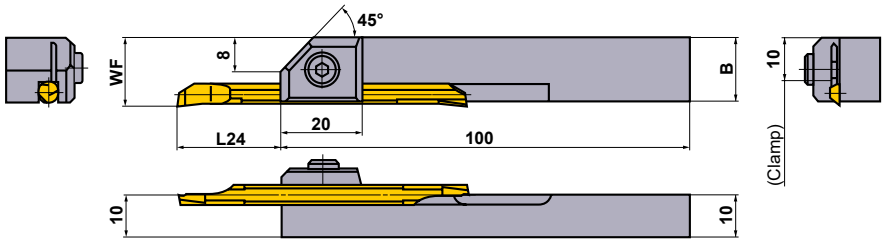
Conventional Order Number	Revised Order Number
RBH1940N	RBH19040N
RBH1950N	RBH19050N

Conventional Order Number	Revised Order Number
RBH1960N	RBH19060N
RBH1970N	RBH19070N

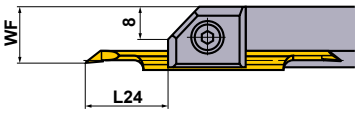
●: Inventory maintained. ★: Inventory maintained in Japan.

■ SQUARE TYPE HOLDER

CB type (Boring bar fits in a holder)



CR type (Boring bar fits in a holder)



Order Number	Stock	Dimensions (mm)						Micro-Mini Twin		Clamp Screw	Wrench	Torque (N • m)
		WF		L24 *		B						
		CB	CR	CB	CR	CB	CR	CB	CR			
SBH1020R	★	13	—	6—24 (6—10)	—	12.9		02RS(-B) 02RS-0□(B)	—	HSC04010	HKY30R	4.8
SBH1030R	★	14	12.65	8.5—22 (9—15)	11—19.5 (12)	13.8		03RS(-B) 03RS-0□(B)	03RS-01(B)	HSC05012	HKY40R	9.5
SBH1040R	★	15	13.15	11—29.5 (12—20)	13—27.5 (14)	14.7		04RS(-B) 04RS-0□(B)	04RS-01(B)	HSC05012	HKY40R	9.5
SBH1050R	★	16	13.65	13.5—37 (15—25)	15—35.5 (16)	15.6		05RS(-B) 05RS-0□(B)	05RS-01(B)	HSC05012	HKY40R	9.5
SBH1060R	★	17	—	13.5—42 (18—30)	—	16.5		06RS(-B) 06RS-0□(B)	—	HSC05012	HKY40R	9.5
SBH1070R	★	18	—	13.5—52 (21—35)	—	17.4		07RS(-B) 07RS-0□(B)	—	HSC05012	HKY40R	9.5

Note 1) The MICRO-DEX and the MICRO-MINI cannot be fit to square holders.

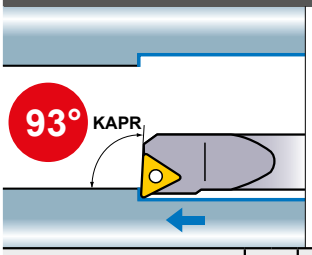
* L24 is the length of overhang for sufficient clamping, and ( ) is the recommended length for machining of carbon and alloy steel.

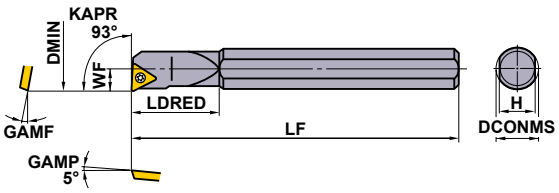
F TYPE BORING BARS

- The minimum cutting diameter is from Ø10.
- 11° positive insert.
- Screw-on type.
- l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).

FSTU1

TP○○inserts





Right hand tool holder shown.

Light	Flat Top
R/L	
(08,09,11)	(08,09,11)
PCD	PCD
R/L-F	
(09,11)	(08,09,11)

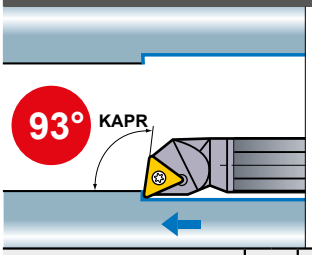
Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	DMIN	* Clamp Screw	Wrench
FSTU108R/L	●	●	TPGX TPMX	0802○○	8	125	18	5	7	15°	**10**	CS200T	TKY06F
FSTU110R/L	●	●		0902○○	10	150	22	6	9	13°	**12**	CS250T	TKY08F
FSTU112R/L	●	●		0902○○	12	180	25	8	11	10°	**16**	CS250T	TKY08F
FSTU116R/L	●	●		1103○○	16	200	30	11	14	7°	**22**	CS300890T	TKY08F

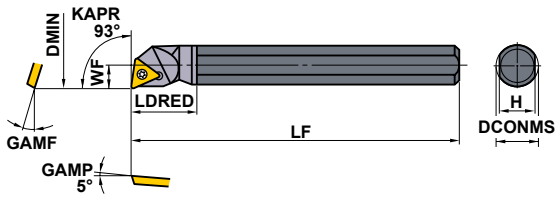
* Clamp Torque (N • m) : CS200T=0.6, CS250T=1.0, CS300890T=1.0

FSTU2

Carbide shank

TP○○inserts





Right hand tool holder shown.

Light	Flat Top
R/L	
(08,09,11)	(08,09,11)
PCD	PCD
R/L-F	
(09,11)	(08,09,11)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	DMIN	* Clamp Screw	Wrench
FSTU208R/L	●	●	TPGX TPMX	0802○○	8	125	13	5	7	15°	**10**	CS200T	TKY06F
FSTU210R/L	●	●		0902○○	10	150	16	6	9	13°	**12**	CS250T	TKY08F
FSTU212R/L	●	★		0902○○	12	180	19	8	11	10°	**16**	CS250T	TKY08F
FSTU216R/L	●	★		1103○○	16	200	26	11	14	7°	**22**	CS300890T	TKY08F

* Clamp Torque (N • m) : CS200T=0.6, CS250T=1.0, CS300890T=1.0

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.4.
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

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

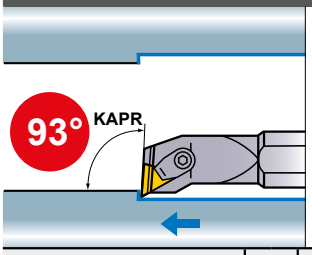
TP○○ type inserts ➤ A170—A173
PCD inserts ➤ B056

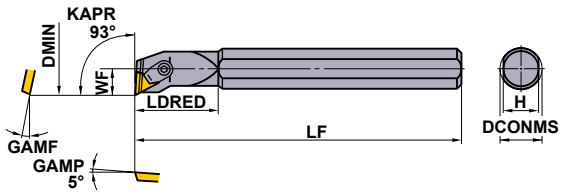
F TYPE BORING BARS

- The minimum cutting diameter is from Ø22.
- 11° positive insert.
- Clamp-on type.
- l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).

FCTU1

TP○○inserts





Right hand tool holder shown.

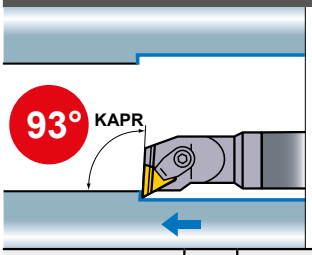
M Class Standard	M Class	G Class R/L
(11,16)	(11,16)	(11,16)
G Class	PCBN/PCD	
(11,16)	(11,16)	

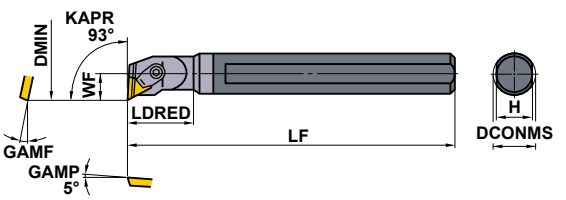
Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Set *	Breaker Piece	Wrench
FCTU116R/L	●	●	TPMN TPMR TPGN TPGR	1103○○	16	200	30	11	14	7°	**22**	—	—	C3	CBT2N	HKY25R
FCTU120R/L ☆	●	●		1603○○	20	200	37	13	18	5°	**26**	—	—	C4	CBT3F	HKY30R
FCTU125R/L ☆ (4 Side Flat Shank)	●	●		1603○○	25	250	40	16	22	5°	**32**	PT32	BCP202	C4	CBT3F	HKY30R
FCTU132R/L ☆ (4 Side Flat Shank)	●	●		1603○○	32	300	45	20	29	0°	**40**	PT32	BCP201	C4	CBT3F	HKY30R

* Clamp Torque (N • m) : C3=2.2, C4=3.3

FCTU2

Carbide shank **TP○○inserts**





Right hand tool holder only.

M Class	M Class	G Class R/L
(11,16)	(11,16)	(11,16)
G Class	PCBN/PCD	
(11,16)	(11,16)	

Order Number	Stock R	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Set *	Breaker Piece	Wrench
FCTU216R	★	TPMN TPMR TPGN TPGR	1103○○	16	200	26	11	14	7°	**22**	—	—	C3	CBT2N	HKY25R
FCTU220R ☆	★		1603○○	20	200	33	13	18	5°	**26**	—	—	C4	CBT3F	HKY30R
FCTU225R ☆	★		1603○○	25	250	37	16	22	5°	**32**	PT32	BCP202	C4	CBT3F	HKY30R

* Clamp Torque (N • m) : C3=2.2, C4=3.3

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.4. (Model of ☆ Mark is RE 0.8)
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

RECOMMENDED CUTTING CONDITIONS

Steel Shank				l/d≤3			l/d=3—4 (Shank Diameter≥25mm)		
Carbide Shank				l/d≤5			l/d=6—7		
	Material	Hardness	Cutting Mode	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Carbon Steel Alloy Steel	180—350HB	Light Cutting	130 (90—160)	0.1 (0.05—0.15)	0.2	120 (80—150)	0.1 (0.05—0.15)	0.2
			Medium Cutting	90 (60—120)	0.25 (0.15—0.35)	—3.0	80 (50—110)	0.15 (0.1—0.2)	—1.5
M	Stainless Steel	≤200HB	Light Cutting	140 (100—180)	0.1 (0.05—0.15)	0.2	140 (100—180)	0.1 (0.05—0.15)	0.2
			Medium Cutting	70 (50—90)	0.2 (0.15—0.25)	—2.0	60 (40—80)	0.15 (0.1—0.2)	—1.0
N	Aluminium Alloy	—	Light Cutting	300 (200—400)	0.1 (0.05—0.15)	0.2	300 (200—400)	0.1 (0.05—0.15)	0.2
			Medium Cutting	200 (150—250)	0.1 (0.05—0.15)	—2.0	200 (150—250)	0.1 (0.05—0.15)	—1.5

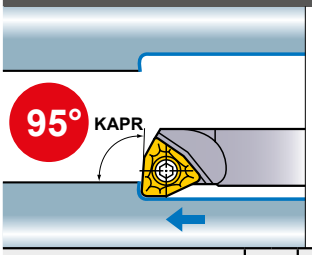
TP○○ type inserts ➤ A190, A191
PCBN & PCD inserts ➤ B043, B061
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

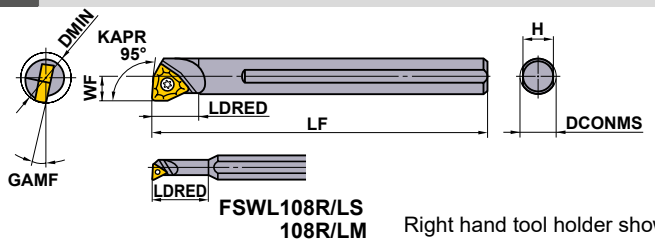
F TYPE BORING BARS

- The minimum cutting diameter is from Ø5.8.
- 7°positive insert.
- Screw-on type.
- l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).

FSWL1

WC○○inserts





FSWL108R/LS
108R/LM

Right hand tool holder shown.

Finish	Light
R/L	Standard
(02,L3)	(02,L3,04,06)
PCBN/PCD	
(L3,04,06)	

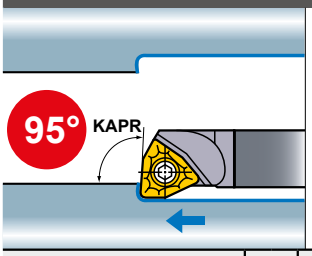
Order Number	Stock		Insert Number		Dimensions (mm)							*	
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench
FSWL108R/LS	●	●	WCMT WCGT	0201○○	8	100	19	2.9	7	17°	**5.8**	TS21	TKY06F
FSWL108R/LM	●	●	WCMT WCGT WCMW	L302○○	8	100	25	4	7	15°	**8**	TS2	TKY06F
FSWL108R/L	●	●	WCMT WCMW	0402○○	8	125	10	5	7	15°	**10**	TS25	TKY08F
FSWL110R/L	●	●		0402○○	10	150	12	6	9	13°	**12**	TS25	TKY08F
FSWL112R/L ☆	●	●		06T3○○	12	180	15	8	11	13°	**16**	TS4	TKY15F
FSWL116R/L ☆	●	●		06T3○○	16	200	20	11	14	7°	**22**	TS4	TKY15F

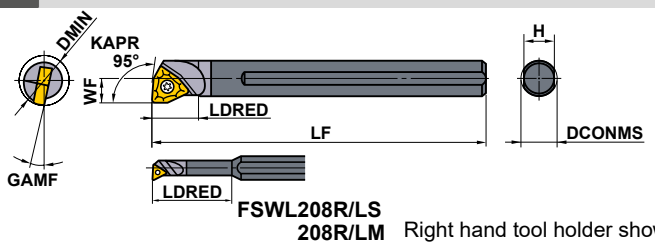
* Clamp Torque (N • m) : TS21=0.6, TS2=0.6, TS25=1.0, TS4=3.5

FSWL2

Carbide shank

WC○○inserts





FSWL208R/LS
208R/LM

Right hand tool holder shown.

Finish	Light
R/L	Standard
(02,L3)	(02,L3,04,06)
PCBN/PCD	
(L3,04,06)	

Order Number	Stock		Insert Number		Dimensions (mm)							*	
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench
FSWL208R/LS	●	●	WCMT WCGT	0201○○	8	122	25	2.9	7	17°	**5.8**	TS21	TKY06F
FSWL208R/LM	●	●	WCMT WCGT WCMW	L302○○	8	125	33	4	7	15°	**8**	TS2	TKY06F
FSWL208R/L	●	●	WCMT WCMW	0402○○	8	125	10	5	7	15°	**10**	TS25	TKY08F
FSWL210R/L	●	●		0402○○	10	150	12	6	9	13°	**12**	TS25	TKY08F
FSWL212R/L ☆	●	●		06T3○○	12	180	15	8	11	13°	**16**	TS4	TKY15F
FSWL216R/L ☆	●	●		06T3○○	16	200	20	11	14	7°	**22**	TS4	TKY15F

* Clamp Torque (N • m) : TS21=0.6, TS2=0.6, TS25=1.0, TS4=3.5

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.4. (Model of ☆ Mark is RE 0.8)
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

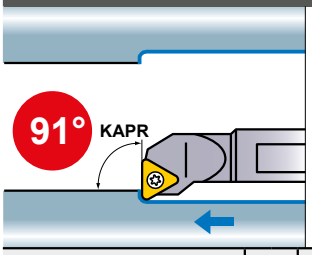
● : Inventory maintained.

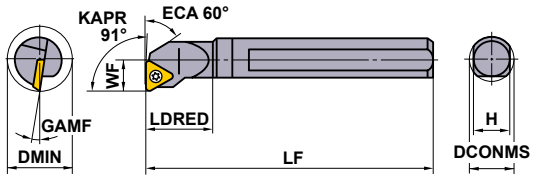
WC○○ type inserts	**➤ A184**
PCBN & PCD inserts	**➤ B058**

S TYPE BORING BARS

- The minimum cutting diameter is from Ø11.
- ISO standard.
- 7° positive insert.
- Screw-on type.
- l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).

S○○○STFC — TC○○inserts





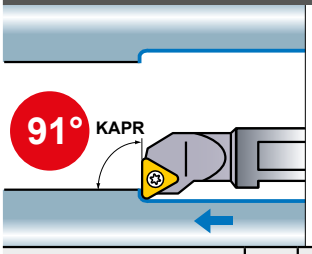
Right hand tool holder shown.

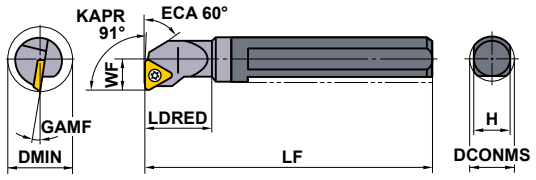
Finish	Finish	Light	Light
FP	FM	LP	LM
(09,11,16)	(09,11,16)	(09,11,16)	(09,11,16)
Medium	Medium	Flat Top	PCBN/PCD
MP	MM		
(09,11,16)	(09,11,16)	(11,16)	(09,11,16)

Order Number	Stock		Insert Number		Dimensions (mm)							*	
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench
S08FSTFCR/L09	●	●	TCMT TCGW	0902○○	8	80	12	6	7	15°	**11**	TS22	TKY06F
S10HSTFCR/L11	●	●	TCMW TCMT TCGW TCGT	1102○○	10	100	16	7	9	13°	**13**	TS25	TKY08F
S12KSTFCR/L11	●	●		1102○○	12	125	20	9	11	10°	**16**	TS25	TKY08F
S16MSTFCR/L11	●	●		1102○○	16	150	25	11	14	7°	**20**	TS25	TKY08F
S20QSTFCR/L16 ☆	●	●		16T3○○	20	180	32	13	18	7°	**25**	TS4	TKY15F
S25RSTFCR/L16 ☆	●	●		16T3○○	25	200	40	17	23	5°	**32**	TS4	TKY15F
S32SSTFCR/L16 ☆	●	●		16T3○○	32	250	50	22	30	5°	**40**	TS4	TKY15F

* Clamp Torque (N • m) : TS22=0.6, TS25=1.0, TS4=3.5

C○○○STFC — Carbide shank — TC○○inserts





Right hand tool holder only.

Finish	Finish	Light	Light
FP	FM	LP	LM
(09,11,16)	(09,11,16)	(09,11,16)	(09,11,16)
Medium	Medium	Flat Top	PCBN/PCD
MP	MM		
(09,11,16)	(09,11,16)	(11,16)	(11)

Order Number	Stock	Insert Number		Dimensions (mm)							*	
	R			DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench
C08HSTFCR09	●	TCMT TCGW	0902○○	8	100	12	6	7	15°	**11**	TS22	TKY06F
C10KSTFCR11	●	TCMW TCMT TCGW TCGT	1102○○	10	125	16	7	9	13°	**13**	TS25	TKY08F
C12MSTFCR11	●		1102○○	12	150	20	9	11	10°	**16**	TS25	TKY08F
C16RSTFCR11	●		1102○○	16	200	25	11	14	7°	**20**	TS25	TKY08F
C20SSTFCR16 ☆	●		16T3○○	20	250	32	13	18	7°	**25**	TS4	TKY15F
C25TSTFCR16 ☆	●		16T3○○	25	300	40	17	23	5°	**32**	TS4	TKY15F

* Clamp Torque (N • m) : TS22=0.6, TS25=1.0, TS4=3.5

RECOMMENDED CUTTING CONDITIONS

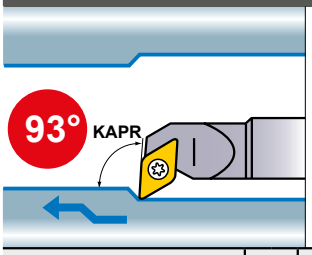
Steel Shank				l/d≤3			l/d=3—4 (Shank Diameter≥25mm)		
Carbide Shank				l/d≤5			l/d=6—7		
	Material		Hardness	Cutting Mode	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Carbon Steel Alloy Steel		180—350HB	Light Cutting	130 (90—160)	0.1 (0.05—0.15)	0.2	120 (80—150)	0.1 (0.05—0.15)	0.2
				Medium Cutting	90 (60—120)	0.25 (0.15—0.35)	—3.0	80 (50—110)	0.15 (0.1—0.2)	—1.5
M	Stainless Steel		≤200HB	Light Cutting	140 (100—180)	0.1 (0.05—0.15)	0.2	140 (100—180)	0.1 (0.05—0.15)	0.2
				Medium Cutting	70 (50—90)	0.2 (0.15—0.25)	—2.0	60 (40—80)	0.15 (0.1—0.2)	—1.0
N	Aluminium Alloy		—	Light Cutting	300 (200—400)	0.1 (0.05—0.15)	0.2	300 (200—400)	0.1 (0.05—0.15)	0.2
				Medium Cutting	200 (150—250)	0.1 (0.05—0.15)	—2.0	200 (150—250)	0.1 (0.05—0.15)	—1.5

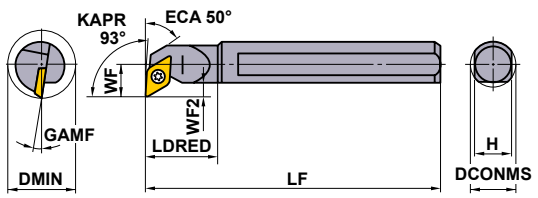
TC○○ type inserts ➤ A165—A168
PCBN & PCD inserts ➤ B055
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

S TYPE BORING BARS

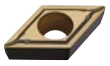
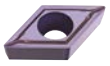
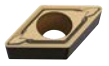
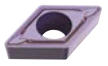
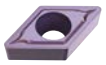
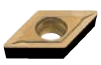
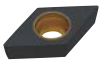
- The minimum cutting diameter is from Ø11.
- ISO standard.
- 7° positive insert.
- Screw-on type.
- l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).

SOOOSDUC — DCOOinserts





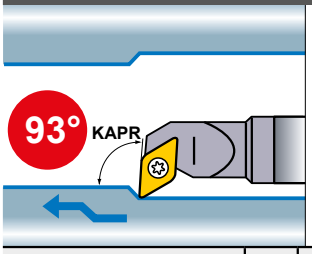
Right hand tool holder shown.

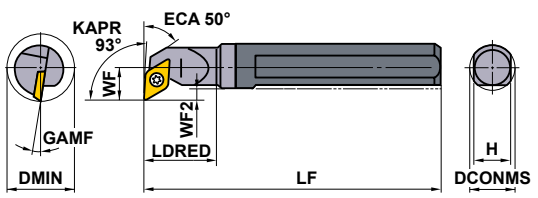
Finish	Finish	Light	Light
FP	FM	LP	LM
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	Medium	Medium	Flat Top
MP	MM	Standard	
			
(07,11,15)	(07,11,15)	(07,11,15)	(07,11,15)

Order Number	Stock		Insert Number		Dimensions (mm)								*	
	R	L			DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN	Clamp Screw	Wrench
S10HSDUCR/L07	●	●	DCMT DCET DCGT DCMW DCGW	0702OO	10	100	16	7	2.4	9	13°	**13**	TS25	TKY08F
S12KSDUCR/L07	●	●		0702OO	12	125	20	9	3.4	11	10°	**16**	TS25	TKY08F
S16MSDUCR/L07	●	●		0702OO	16	150	25	11	3.9	14	7°	**20**	TS25	TKY08F
S20QSDUCR/L11 ☆	●	●		11T3OO	20	180	32	13	4.4	18	7°	**25**	TS4	TKY15F
S25RSDUCR/L15 ☆	●	●		1504OO	25	200	40	17	6.9	23	5°	**32**	TS5	TKY25F
S32SSDUCR/L15 ☆	●	●		1504OO	32	250	50	22	8.4	30	5°	**40**	TS5	TKY25F
S40TSDUCR/L15 ☆	●	●		1504OO	40	300	63	27	9.4	37	5°	**50**	TS5	TKY25F

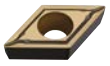
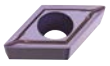
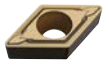
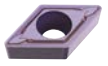
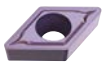
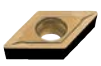
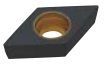
* Clamp Torque (N • m) : TS25=1.0, TS4=3.5, TS5=7.5

COOOSDUC Carbide shank — DCOOinserts





Right hand tool holder only.

Finish	Finish	Light	Light
FP	FM	LP	LM
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	Medium	Medium	Flat Top
MP	MM	Standard	
			
(07,11,15)	(07,11,15)	(07,11,15)	(07,11,15)

Order Number	Stock	Insert Number		Dimensions (mm)								*	
	R			DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN	Clamp Screw	Wrench
C10KSDUCR07	●	DCMT DCET DCGT DCMW DCGW	0702OO	10	125	16	7	2.1	9	13°	**13**	TS25	TKY08F
C12MSDUCR07	●		0702OO	12	150	20	9	3.1	11	10°	**16**	TS25	TKY08F
C16RSDUCR07	●		0702OO	16	200	25	11	3.1	14	7°	**20**	TS25	TKY08F
C20SSDUCR11 ☆	●		11T3OO	20	250	32	13	3.1	18	7°	**25**	TS4	TKY15F
C25TSDUCR15 ☆	●	DCMW DCMT	1504OO	25	300	40	17	4.9	23	5°	**32**	TS5	TKY25F

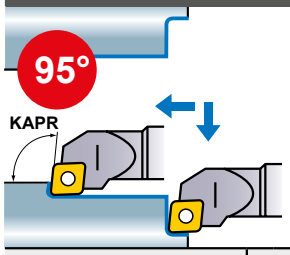
* Clamp Torque (N • m) : TS25=1.0, TS4=3.5, TS5=7.5

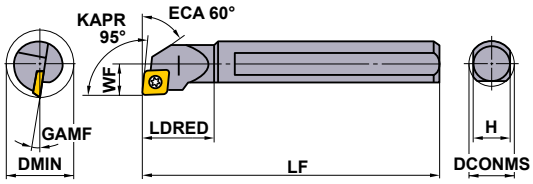
Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.4. (Model of ☆ Mark is RE 0.8)
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

● : Inventory maintained.

DCOO type inserts	➤ A152—A158
PCBN & PCD inserts	➤ B040, B041, B054

S○○○SCLC — CC○○inserts





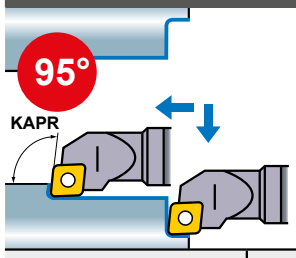
Right hand tool holder shown.

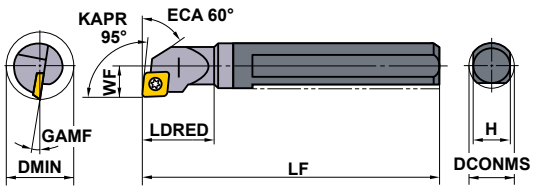
Finish	Finish	Light	Light
FP	FM	LP	LM
(06,09)	(06,09)	(06,09)	(06,09)
Medium	Medium	Flat Top	PCBN/PCD
MP	MM		
(06,09,12)	(06,09,12)	(06,09,12)	(06,09,12)

Order Number	Stock		Insert Number		Dimensions (mm)							*	
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench
S08FSCLCR/L06	●	●	CCMB CCMH CCMT CCMW CCET CCGB CCGH CCGT CCGW	0602○○	8	80	12	6	7	15°	**11**	TS25	TKY08F
S10HSCLCR/L06	●	●		0602○○	10	100	16	7	9	13°	**13**	TS25	TKY08F
S12KSCLCR/L06	●	●		0602○○	12	125	20	9	11	10°	**16**	TS25	TKY08F
S16MSCLCR/L09 ☆	●	●		09T3○○	16	150	25	11	14	7°	**20**	TS4	TKY15F
S20QSCLCR/L09 ☆	●	●		09T3○○	20	180	32	13	18	7°	**25**	TS4	TKY15F
S25RSCLCR/L12 ☆	●	●		1204○○	25	200	40	17	23	5°	**32**	TS5	TKY25F
S32SSCLCR/L12 ☆	●	●		1204○○	32	250	50	22	30	5°	**40**	TS5	TKY25F
S40TSCLCR/L12 ☆	●	●		1204○○	40	300	63	27	37	5°	**50**	TS5	TKY25F

* Clamp Torque (N • m) : TS25=1.0, TS4=3.5, TS5=7.5

C○○○SCLC — Carbide shank CC○○inserts





Right hand tool holder only.

Finish	Finish	Light	Light
FP	FM	LP	LM
(06,09)	(06,09)	(06,09)	(06,09)
Medium	Medium	Flat Top	PCBN/PCD
MP	MM		
(06,09)	(06,09)	(06,09)	(06,09)

Order Number	Stock	Insert Number		Dimensions (mm)							*	
	R			DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench
C08HSCLCR06	●	CCMB CCMH CCMT CCMW CCET CCGB CCGH CCGT CCGW	0602○○	8	100	12	6	7	15°	**11**	TS25	TKY08F
C10KSCLCR06	●		0602○○	10	125	16	7	9	13°	**13**	TS25	TKY08F
C12MSCLCR06	●		0602○○	12	150	20	9	11	10°	**16**	TS25	TKY08F
C16RSCLCR09 ☆	●		09T3○○	16	200	25	11	14	7°	**20**	TS4	TKY15F
C20SSCLCR09 ☆	●		09T3○○	20	250	32	13	18	7°	**25**	TS4	TKY15F

* Clamp Torque (N • m) : TS25=1.0, TS4=3.5

RECOMMENDED CUTTING CONDITIONS

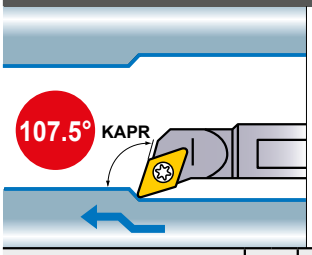
Steel Shank				l/d≤3			l/d=3−4 (Shank Diameter≥25mm)		
Carbide Shank				l/d≤5			l/d=6−7		
	Material	Hardness	Cutting Mode	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Carbon Steel Alloy Steel	180−350HB	Light Cutting	130 (90−160)	0.1 (0.05−0.15)	0.2	120 (80−150)	0.1 (0.05−0.15)	0.2
			Medium Cutting	90 (60−120)	0.25 (0.15−0.35)	−3.0	80 (50−110)	0.15 (0.1−0.2)	−1.5
M	Stainless Steel	≤200HB	Light Cutting	140 (100−180)	0.1 (0.05−0.15)	0.2	140 (100−180)	0.1 (0.05−0.15)	0.2
			Medium Cutting	70 (50−90)	0.2 (0.15−0.25)	−2.0	60 (40−80)	0.15 (0.1−0.2)	−1.0
N	Aluminium Alloy	—	Light Cutting	300 (200−400)	0.1 (0.05−0.15)	0.2	300 (200−400)	0.1 (0.05−0.15)	0.2
			Medium Cutting	200 (150−250)	0.1 (0.05−0.15)	−2.0	200 (150−250)	0.1 (0.05−0.15)	−1.5

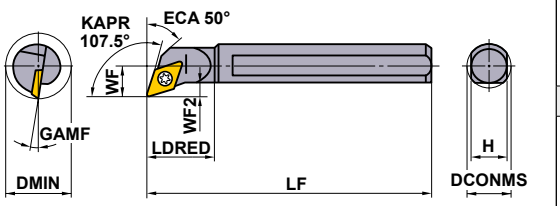
CC○○ type inserts ➤ A140−A148
PCBN & PCD inserts ➤ B037, B038, B053
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

S TYPE BORING BARS

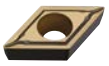
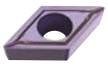
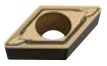
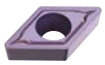
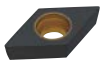
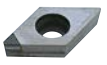
- The minimum cutting diameter is from Ø11.
- ISO standard.
- 7° positive insert.
- Screw-on type.
- l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).

S○○○SDQC — DC○○inserts





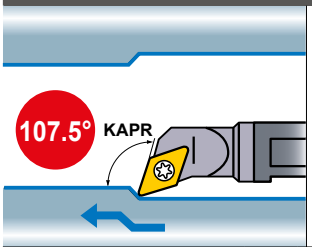
Right hand tool holder shown.

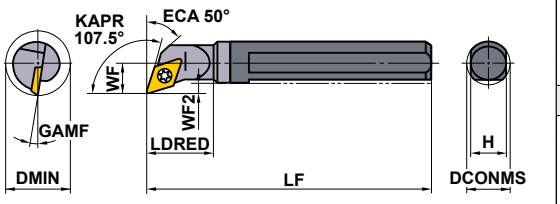
Finish	Finish	Light	Light
FP	FM	LP	LM
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	Medium	Flat Top	PCBN/PCD
MP	MM		
			
(07,11,15)	(07,11,15)	(07,11,15)	(07,11)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN	* Clamp Screw	Wrench
S10HSDQCR/L07	●	●	DCMT DCET DCGT DCMW DCGW	0702○○	10	100	16	7	2.4	9	13°	**13**	TS25	TKY08F
S12KSDQCR/L07	●	●		0702○○	12	125	20	9	3.4	11	10°	**16**	TS25	TKY08F
S16MSDQCR/L07	●	●		0702○○	16	150	25	11	3.9	14	7°	**20**	TS25	TKY08F
S20QSDQCR/L11 ☆	●	●		11T3○○	20	180	32	13	4.4	18	7°	**25**	TS4	TKY15F
S25RSDQCR/L15 ☆	●	●		1504○○	25	200	40	17	6.9	23	5°	**32**	TS5	TKY25F
S32SSDQCR15 ☆	●			1504○○	32	250	50	22	8.4	30	5°	**40**	TS5	TKY25F
S40TSDQCR15 ☆	●			1504○○	40	300	63	27	9.4	37	5°	**50**	TS5	TKY25F

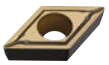
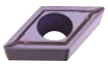
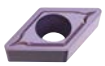
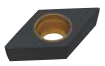
* Clamp Torque (N • m) : TS25=1.0, TS4=3.5, TS5=7.5

C○○○SDQC Carbide shank — DC○○inserts





Right hand tool holder only.

Finish	Finish	Light	Light
FP	FM	LP	LM
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	Medium	Flat Top	PCBN/PCD
MP	MM		
			
(07,11,15)	(07,11,15)	(07,11,15)	(07,11)

Order Number	Stock R	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN	* Clamp Screw	Wrench
C10KSDQCR07	●	DCMT DCET DCGT DCMW DCGW	0702○○	10	125	16	7	2.1	9	13°	**13**	TS25	TKY08F
C12MSDQCR07	●		0702○○	12	150	20	9	3.1	11	10°	**16**	TS25	TKY08F
C16RSDQCR07	●		0702○○	16	200	25	11	3.1	14	7°	**20**	TS25	TKY08F
C20SSDQCR11 ☆	●		11T3○○	20	250	32	13	3.1	18	7°	**25**	TS4	TKY15F
C25TSDQCR15 ☆	★	DCMW DCMT	1504○○	25	300	40	17	4.9	23	5°	**32**	TS5	TKY25F

* Clamp Torque (N • m) : TS25=1.0, TS4=3.5, TS5=7.5

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.4. (Model of ☆ Mark is RE 0.8)
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

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

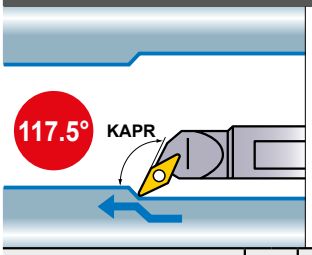
DC○○ type inserts	➤ A152—A158
PCBN & PCD inserts	➤ B040, B041, B054

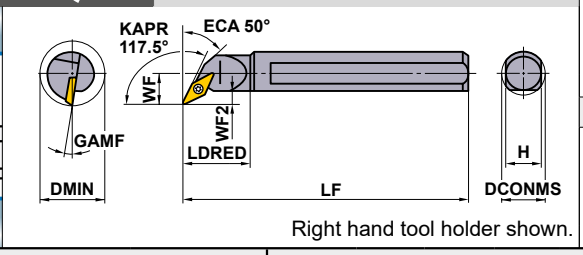
S TYPE BORING BARS

- The minimum cutting diameter is from Ø20.
- ISO standard.
- 7° positive insert.
- Screw-on type.
- l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).

S○○○SVQC

VC○○inserts





Right hand tool holder shown.

Finish	Finish	Light	Light
FP	FM	LP	LM
(11,16)	(11,16)	(11,16)	(11,16)
Medium	Medium	Medium	Flat Top
MP	MM	Standard	
(16)	(16)	(11,16)	(11,16)

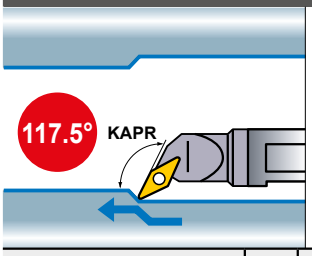
Order Number	Stock		Insert Number		Dimensions (mm)								* Clamp Screw	Wrench
	R	L			DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN		
S16MSVQCR/L11	●	●	VCMW VCMT VCGW VCGT	1103○○	16	150	25	11	3.9	14	7°	**20**	TS25	TKY08F
S20QSVQCR/L11	●	●		1103○○	20	180	32	13	4.4	18	7°	**25**	TS25	TKY08F
S25RSVQCR/L16 ☆	●	●		1604○○	25	200	40	17	6.9	23	5°	**32**	TS4	TKY15F
S32SSVQCR/L16 ☆	●	●		1604○○	32	250	50	22	8.4	30	5°	**40**	TS4	TKY15F
S40TSVQCR16 ☆	●			1604○○	40	300	63	27	9.4	37	5°	**50**	TS4	TKY15F

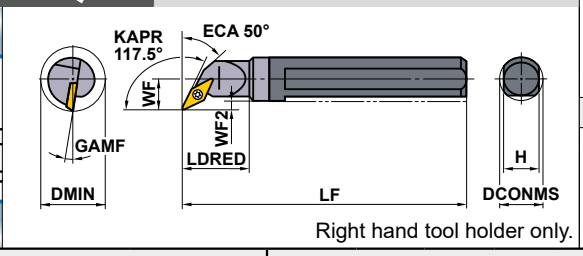
* Clamp Torque (N • m) : TS25=1.0, TS4=3.5

C○○○SVQC

Carbide shank

VC○○inserts





Right hand tool holder only.

Finish	Finish	Light	Light
FP	FM	LP	LM
(11,16)	(11,16)	(11,16)	(11,16)
Medium	Medium	Medium	Flat Top
MP	MM	Standard	
(16)	(16)	(11,16)	(11,16)

Order Number	Stock	Insert Number		Dimensions (mm)								* Clamp Screw	Wrench
	R			DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN		
C16RSVQCR11	●	VCMW VCMT VCGW VCGT	1103○○	16	200	25	11	3.1	14	7°	**20**	TS25	TKY08F
C20SSVQCR11	★		1103○○	20	250	32	13	3.1	18	7°	**25**	TS25	TKY08F
C25TSVQCR16 ☆	★		1604○○	25	300	40	17	4.9	23	5°	**32**	TS4	TKY15F

* Clamp Torque (N • m) : TS25=1.0, TS4=3.5

RECOMMENDED CUTTING CONDITIONS

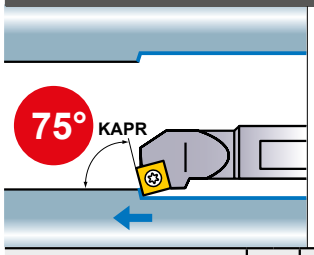
Steel Shank				l/d≤3			l/d=3—4 (Shank Diameter≥25mm)		
Carbide Shank				l/d≤5			l/d=6—7		
	Material	Hardness	Cutting Mode	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Carbon Steel Alloy Steel	180—350HB	Light Cutting	130 (90—160)	0.1 (0.05—0.15)	0.2	120 (80—150)	0.1 (0.05—0.15)	0.2
			Medium Cutting	90 (60—120)	0.25 (0.15—0.35)	—3.0	80 (50—110)	0.15 (0.1—0.2)	—1.5
M	Stainless Steel	≤200HB	Light Cutting	140 (100—180)	0.1 (0.05—0.15)	0.2	140 (100—180)	0.1 (0.05—0.15)	0.2
			Medium Cutting	70 (50—90)	0.2 (0.15—0.25)	—2.0	60 (40—80)	0.15 (0.1—0.2)	—1.0
N	Aluminium Alloy	—	Light Cutting	300 (200—400)	0.1 (0.05—0.15)	0.2	300 (200—400)	0.1 (0.05—0.15)	0.2
			Medium Cutting	200 (150—250)	0.1 (0.05—0.15)	—2.0	200 (150—250)	0.1 (0.05—0.15)	—1.5

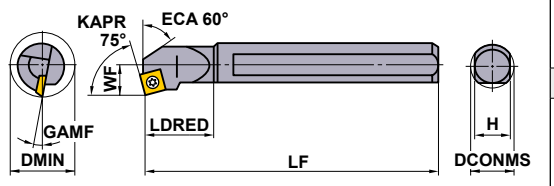
VC○○ type inserts ➤ A177—A180
PCBN & PCD inserts ➤ B046, B057
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

S TYPE BORING BARS

- The minimum cutting diameter is from Ø20.
- ISO standard.
- 7° positive insert.
- Screw-on type.
- l/d is 3 to 5 times the diameter (Carbide shank is 7 times the diameter).

S○○○SSKC — SC○○inserts





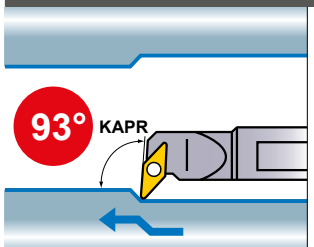
Right hand tool holder shown.

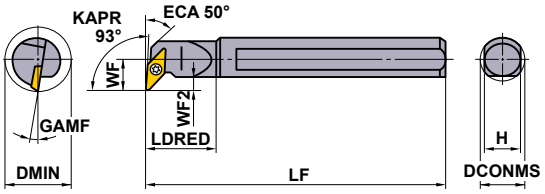
Finish	Finish	Light	Light
FP	FM	LP	LM
(09)	(09)	(09)	(09)
Medium	Medium	Medium	Flat Top
MP	MM	Standard	
(09,12)	(09,12)	(09,12)	(09,12)

Order Number	Stock		Insert Number		Dimensions (mm)							*	
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Clamp Screw	Wrench
S16MSSKCR/L09☆	●	●	SCMW SCMT	09T3○○	16	150	25	11	14	7°	**20**	TS4	TKY15F
S20QSSKCR/L09☆	●	●		09T3○○	20	180	32	13	18	7°	**25**	TS4	TKY15F
S25RSSKCR/L12☆	★	★		1204○○	25	200	40	17	23	5°	**32**	TS5	TKY25F

∗ Clamp Torque (N • m) : TS4=3.5, TS5=7.5

S○○○SVUC — VC○○inserts





Right hand tool holder shown.

Finish	Finish	Light	Light
FP	FM	LP	LM
(11,16)	(11,16)	(11,16)	(11,16)
Medium	Medium	Medium	Flat Top
MP	MM	Standard	
(16)	(16)	(11,16)	(11,16)

Order Number	Stock		Insert Number		Dimensions (mm)								*	
	R	L			DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN	Clamp Screw	Wrench
S20QSVUCR/L11	●	●	VCMW VCMT VCGW VCGT	1103○○	20	180	32	13	4.4	18	7°	**25**	TS25	TKY08F
S25RSVUCR/L16☆	●	●		1604○○	25	200	40	17	6.9	23	5°	**32**	TS4	TKY15F
S32SSVUCR/L16☆	●	●		1604○○	32	250	50	22	8.4	30	5°	**40**	TS4	TKY15F
S40TSVUCR/L16☆	●	●		1604○○	40	300	63	27	9.4	37	5°	**50**	TS4	TKY15F

∗ Clamp Torque (N • m) : TS25=1.0, TS4=3.5

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.4. (Model of ☆ Mark is RE 0.8)
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

RECOMMENDED CUTTING CONDITIONS

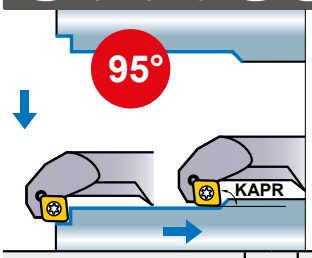
Steel Shank				l/d≤3			l/d=3—4 (Shank Diameter≥25mm)		
Carbide Shank				l/d≤5			l/d=6—7		
	Material		Hardness	Cutting Mode	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Carbon Steel Alloy Steel		180—350HB	Light Cutting	130 (90—160)	0.1 (0.05—0.15)	0.2	120 (80—150)	0.1 (0.05—0.15)	0.2
				Medium Cutting	90 (60—120)	0.25 (0.15—0.35)	—3.0	80 (50—110)	0.15 (0.1—0.2)	—1.5
M	Stainless Steel		≤200HB	Light Cutting	140 (100—180)	0.1 (0.05—0.15)	0.2	140 (100—180)	0.1 (0.05—0.15)	0.2
				Medium Cutting	70 (50—90)	0.2 (0.15—0.25)	—2.0	60 (40—80)	0.15 (0.1—0.2)	—1.0
N	Aluminium Alloy		—	Light Cutting	300 (200—400)	0.1 (0.05—0.15)	0.2	300 (200—400)	0.1 (0.05—0.15)	0.2
				Medium Cutting	200 (150—250)	0.1 (0.05—0.15)	—2.0	200 (150—250)	0.1 (0.05—0.15)	—1.5

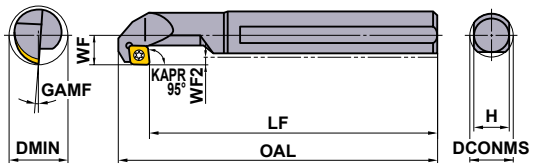
● : Inventory maintained. ★ : Inventory maintained in Japan.

SC○○ type inserts	➤ A161, A162
VC○○ type inserts	➤ A177—A180
PCBN & PCD inserts	➤ B046, B057

S○○○SCZC

CC○○inserts





Right hand tool holder shown.

Finish	Finish	Light	Light
FP	FM	LP	LM
(06,09)	(06,09)	(06,09)	(06,09)
Medium	Medium	Flat Top	PCBN/PCD
MP	MM		
(06,09)	(06,09)	(06,09)	(06,09)

Order Number	Stock		Insert Number		Dimensions (mm)								*	
	R	L			DCONMS	OAL	LF	WF	WF2	H	GAMF	DMIN	Clamp Screw	Wrench
S16MSCZCR/L06	●	●	CC○B CC○H CC○T CC○W	0602○○	16	161	150	11	3	14	10°	**20**	TS25	TKY08F
S20QSCZCR/L09	●	●		09T3○○	20	198	180	13	3	18	7°	**25**	TS4	TKY15F

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) When using inserts with right or left hand chipbreakers, please use right hand inserts for right hand holders and left hand inserts for left hand holders.
* Clamp Torque (N • m) : TS25=1.0, TS4=3.5

RECOMMENDED CUTTING CONDITIONS

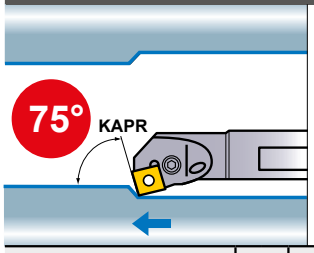
	Material	Hardness	Cutting Mode	l/d≤3			l/d=3—4 (Shank Diameter≥25mm)		
				Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)	Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Carbon Steel Alloy Steel	180—350HB	Light Cutting	130 (90—160)	0.1 (0.05—0.15)	0.2	120 (80—150)	0.1 (0.05—0.15)	0.2
			Medium Cutting	90 (60—120)	0.25 (0.15—0.35)	—3.0	80 (50—110)	0.15 (0.1—0.2)	—1.5
M	Stainless Steel	≤200HB	Light Cutting	140 (100—180)	0.1 (0.05—0.15)	0.2	140 (100—180)	0.1 (0.05—0.15)	0.2
			Medium Cutting	70 (50—90)	0.2 (0.15—0.25)	—2.0	60 (40—80)	0.15 (0.1—0.2)	—1.0
N	Aluminium Alloy	—	Light Cutting	300 (200—400)	0.1 (0.05—0.15)	0.2	300 (200—400)	0.1 (0.05—0.15)	0.2
			Medium Cutting	200 (150—250)	0.1 (0.05—0.15)	—2.0	200 (150—250)	0.1 (0.05—0.15)	—1.5

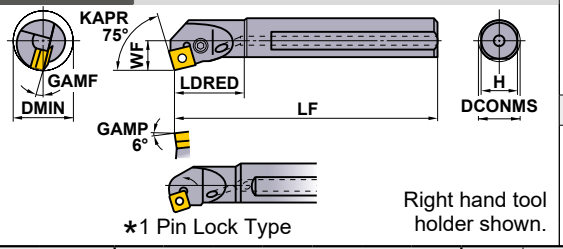
CC○○ type inserts ➤ **A140—A148**
PCBN & PCD inserts ➤ **B037, B038, B053**
SPARE PARTS ➤ **N001**
TECHNICAL DATA ➤ **P001**

P TYPE BORING BARS

- The minimum cutting diameter is from Ø25.
- l/d is 3 times the diameter.
- ISO standard.
- Economical negative insert.
- Lever lock type and pin lock type.

A○○○PSKN With coolant hole SN○○inserts





∗1 Pin Lock Type

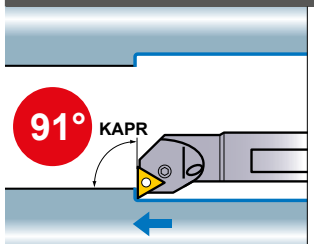
Right hand tool holder shown.

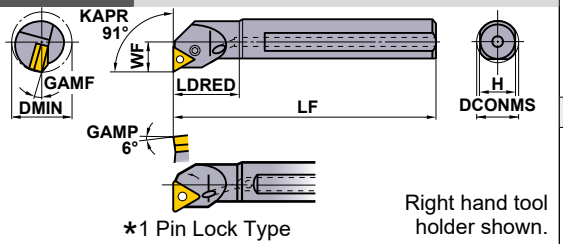
Finish	Light	Medium	Medium
FP	LP	MP	MH
(12)	(12)	(12)	(12)
Medium	**Stainless**	**G Class**	**PCBN/PCD**
Standard	MM	R/L	
(09,12)	(12)	(09,12)	(12)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw ∗2	Wrench	Plug	Clamp Pin ∗2	Pin	Screw
A20QPSKNR/L09	●	★	SNMA SNMG	0903○○	20	180	32	13	18	13°	**25**	—	—	—	—	HKY15R HKY25R	HGM-PT1/8	HP3T	P208AM	HSS03005
A25RPSKNR/L12	●	●	SNMM	1204○○	25	200	40	17	23	13°	**32**	MLSP42	—	—	—	HKY15R HKY30R	HGM-PT1/4	HP43	P210AM	HSS03005
A32SPSKNR/L12	●	●	SNGA SNGG	1204○○	32	250	50	22	30	13°	**44**	LLSSN42	LLP14	LLCL14	LLCS108S	HKY30R	HGM-PT3/8	—	—	—

∗1 Pin Lock Type : A20QPSKNR/L09, A25RPSKNR/L12
∗2 Clamp Torque (N • m) : LLCS108S=3.3, HP3T=2.2, HP43=3.3

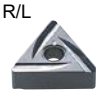
A○○○PTFN With coolant hole TN○○inserts





∗1 Pin Lock Type

Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MH
(16)	(16,22)	(16,22)	(16,22)
Medium	**Stainless**	**G Class**	**PCBN/PCD**
Standard	MM	R/L	
			
(16,22)	(16,22)	(16,22)	(16,22)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw ∗2	Wrench	Plug	Clamp Pin ∗2	Pin	Screw
A20QPTFNR/L16	●	●	TNMA	1604○○	20	180	32	13	18	15°	**25**	—	—	—	—	HKY15R HKY25R	HGM-PT1/8	HP31	P208AM	HSS03005
A25RPTFNR/L16	●	●	TNMG	1604○○	25	200	40	17	23	13°	**32**	MLTP32	—	—	—	HKY15R HKY25R	HGM-PT1/4	HP33	P208AM	HSS03005
A32SPTFNR/L16	●	●	TNMM TNGA	1604○○	32	250	50	22	30	13°	**44**	LLSTN32	LLP13	LLCL13	LLCS106	HKY25R	HGM-PT3/8	—	—	—
A40TPTFNR/L22	●	●	TNGG TNGH	2204○○	40	300	63	27	37	10°	**54**	LLSTN42	LLP14	LLCL14	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A50UPTFNR/L22	●	●		2204○○	50	350	80	35	47	9°	**70**	LLSTN42	LLP14	LLCL14	LLCS108S	HKY30R	HGM-PT3/8	—	—	—

∗1 Pin Lock Type : A20QPTFNR/L16, A25RPTFNR/L16
∗2 Clamp Torque (N • m) : LLCS106=2.2, LLCS108S=3.3, HP31=2.2, HP33=2.2

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.4.
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

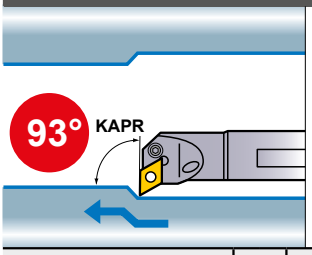
● : Inventory maintained. ★ : Inventory maintained in Japan.

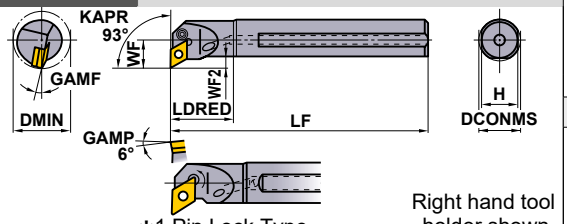
SN○○ type inserts	**➤ A114—A119**
TN○○ type inserts	**➤ A120—A126**
PCBN & PCD inserts	**➤ B030, B031, B051**

P TYPE BORING BARS

- The minimum cutting diameter is from Ø20.
- l/d is 3 times the diameter.
- ISO standard.
- Economical negative insert.
- Lever lock type and pin lock type.

A○○○PDUN With coolant hole DN○○inserts





*1 Pin Lock Type

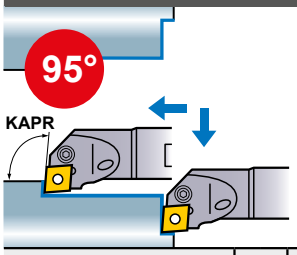
Right hand tool holder shown.

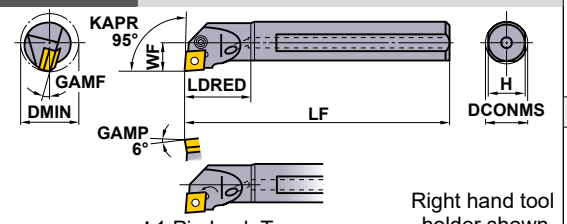
Finish	Light	Medium	Medium
FP	LP	MP	MH
(15)	(11,15)	(15)	(15)
Medium	**Stainless**	**G Class**	**PCBN/PCD**
Standard	MM	R/L	
(11,15)	(15)	(15)	(15)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw *2	Wrench	Plug	Clamp Pin *2	Pin	Screw
A20QPDUNR/L11	●	●	DNMA DNMG DNMX DNMM DNGA DNGG DNGM	1104○○	20	180	32	15	6.4	18	13°	**26**	—	—	LLCL23S	LLCS125	HKY20R	HGM-PT1/8	—	—	—
A25RPDUNR/L11	●	●		1104○○	25	200	40	17	6.9	23	15°	**32**	LLSDN32	LLP13	LLCL23	LLCS106	HKY25R	HGM-PT1/4	—	—	—
A25RPDUNR/L15	●	●		1504○○	25	200	40	17	6.9	23	13°	**32**	MLDP42	—	—	—	HKY15R HKY30R	HGM-PT1/4	HP43	P210AM	HSS03005
A32SPDUNR/L11	●	●		1104○○	32	250	50	22	8.4	30	13°	**44**	LLSDN32	LLP13	LLCL23	LLCS106	HKY25R	HGM-PT3/8	—	—	—
A32SPDUNR/L15	●	●		1504○○	32	250	50	22	8.4	30	13°	**44**	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A40TPDUNR/L15	●	●		1504○○	40	300	63	27	9.4	37	10°	**54**	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A50UPDUNR/L15	●	●		1504○○	50	350	80	35	12.4	47	9°	**70**	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—

*1 Pin Lock Type : A25RPDUNR/L15
*2 Clamp Torque (N • m) : LLCS125=1.5, LLCS106=2.2, LLCS108S=3.3, HP43=3.3

A○○○PCLN With coolant hole CN○○inserts





*1 Pin Lock Type

Right hand tool holder shown.

Finish	Light	Light	Medium
FP	SA	LP	MP
(12)	(12)	(12)	(12)
Medium	**Medium**	**Stainless**	**PCBN/PCD**
MH	Standard	MM	
(12)	(09,12)	(12)	(12)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	DMIN	Shim	Shim Pin	Clamp Lever *3	Clamp Screw *2	Wrench	Plug	Clamp Pin *2	Pin	Screw
A16MPCLNR/L09	●	●	CNMA CNMG CNMM CNGA CNGG CNGM	09T3○○	16	150	25	11	14	15°	**20**	—	—	LLCL13S	LLCS105	HKY20R	HGM-PT1/8	—	—	—
A20QPCLNR/L09	●	●		09T3○○	20	180	32	13	18	13°	**25**	—	—	—	—	HKY25R HKY15R	HGM-PT1/8	HP3T	P208AM	HSS03005
A20QPCLNR/L09N	●	★		09T3○○	20	180	32	13	18	13°	**25**	—	—	LLCL13S	LLCS105	HKY20R	HGM-PT1/8	—	—	—
A25RPCLNR/L09	●	★		09T3○○	25	200	40	17	23	13°	**32**	—	—	LLCL13S	LLCS105	HKY20R	HGM-PT1/4	—	—	—
A25RPCLNR/L12	●	●		1204○○	25	200	40	17	23	13°	**32**	MLCP42	—	—	—	HKY30R HKY15R	HGM-PT1/4	HP43	P210AM	HSS03005
A32SPCLNR/L12	●	●		1204○○	32	250	50	22	30	13°	**44**	LLSCN42	LLP14	LLCL14	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A40TPCLNR/L12	●	●		1204○○	40	300	63	27	37	10°	**54**	LLSCN42	LLP14	LLCL14	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A50UPCLNR12	●			1204○○	50	350	80	35	47	10°	**63**	LLSCP42	LLP14	LLCL14	LLCS108S	HKY30R	HGM-PT3/8	—	—	—

*1 Pin Lock Type : A20QPCLNR/L09, A25RPCLNR/L12
*2 Clamp Torque (N • m) : LLCS105=1.5, LLCS106=2.2, LLCS108S=3.3, HP3T=2.2, HP43=3.3
*3 When replacing clamp Lever LLCL13S, please consider purchasing lever spring HLS2 as necessary.

RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Cutting Mode	l/d≤3 Cutting Speed (m/min)	l/d≤3 Feed (mm/rev)	l/d≤3 Depth of Cut (mm)
P	Carbon Steel Alloy Steel	180—350HB	Medium Cutting	110 (80—140)	0.25 (0.1—0.4)	—5.0
M	Stainless Steel	≤200HB	Medium Cutting	80 (60—100)	0.2 (0.1—0.3)	—4.0
K	Gray Cast Iron	Tensile Strength ≤350MPa	Medium Cutting	80 (60—100)	0.25 (0.1—0.4)	—5.0

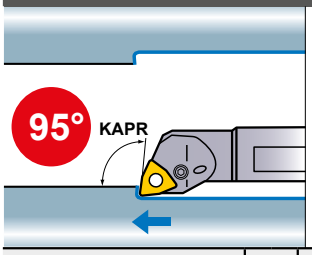
DN○○ type inserts ➤ A106—A112
CN○○ type inserts ➤ A098—A105, A137
PCBN & PCD inserts ➤ B022—B024, B049
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

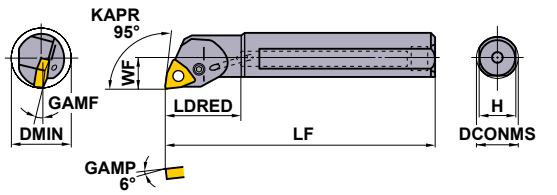
P TYPE BORING BARS

- The minimum cutting diameter is from Ø20.
- l/d is 3 times the diameter.
- ISO standard.
- Economical negative insert.
- Lever lock type and pin lock type.

A○○○PWLN With coolant hole

WN○○inserts





Right hand tool holder shown.

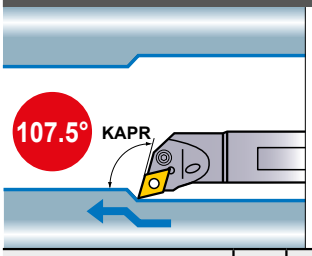
Light	Medium
LP (06)	MP (06)
Stainless	
MM (06)	

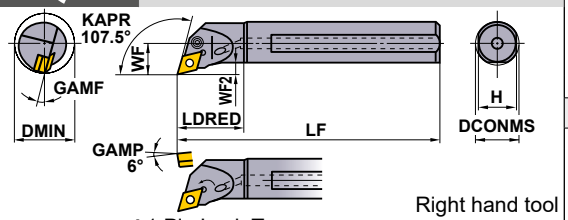
Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	DMIN	*2 Clamp Lever	*1 Clamp Screw	Wrench	Plug
A16MPWLNR/L06	●	●	WNMG	06T3○○	16	150	25	11	14	15°	**20**	LLCL13S	LLCS105	HKY20R	HGM-PT1/8
A20QPWLNR/L06	●	●		06T3○○	20	180	32	13	18	13°	**25**	LLCL13S	LLCS105	HKY20R	HGM-PT1/8
A25RPWLNR/L06	●	●		06T3○○	25	200	40	17	23	13°	**32**	LLCL13S	LLCS105	HKY20R	HGM-PT1/4

*1 Clamp Torque (N • m) : LLCS105=1.5
*2 When replacing clamp Lever LLCL13S, please consider purchasing lever spring HLS2 as necessary.

A○○○PDQN With coolant hole

DN○○inserts





*1 Pin Lock Type

Right hand tool holder shown.

Finish	Light	Medium	Medium
FP (15)	LP (15)	MP (15)	MH (15)
Medium	Stainless	G Class	PCBN/PCD
Standard (15)	MM (15)	R/L (15)	(15)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	WF2	H	GAMF	DMIN	Shim	Shim Pin	Clamp Lever	*2 Clamp Screw	Wrench	Plug	*2 Clamp Pin	Pin	Screw
A25RPDQNR/L15	●	●	DNMA DNMG	1504○○	25	200	40	17	6.9	23	13°	**32**	MLDP42	—	—	—	HKY15R HKY30R	HGM-PT1/4	HP43	P210AM	HSS03005
A32SPDQNR/L15	●	●	DNMM	1504○○	32	250	50	22	8.4	30	13°	**44**	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A40TPDQNR/L15	●	●	DNGA DNGG	1504○○	40	300	63	27	9.4	37	10°	**54**	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A50UPDQNR15	★		DNGM	1504○○	50	350	80	35	12.4	47	9°	**70**	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—

*1 Pin Lock Type : A25RPDQNR/L15
*2 Clamp Torque (N • m) : LLCS108S=3.3, HP43=3.3

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.4.
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Cutting Mode	l/d≤3 Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Carbon Steel Alloy Steel	180–350HB	Medium Cutting	110 (80–140)	0.25 (0.1–0.4)	–5.0
M	Stainless Steel	≤200HB	Medium Cutting	80 (60–100)	0.2 (0.1–0.3)	–4.0
K	Gray Cast Iron	Tensile Strength ≤350MPa	Medium Cutting	80 (60–100)	0.25 (0.1–0.4)	–5.0

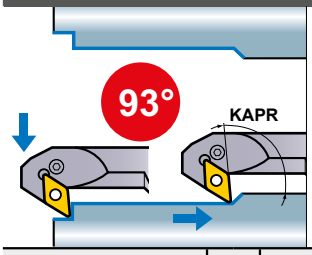
● : Inventory maintained. ★ : Inventory maintained in Japan.

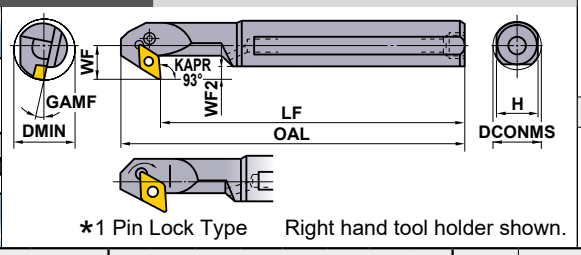
WN○○ type inserts	**➤ A131–A135**
DN○○ type inserts	**➤ A106–A112**
PCBN & PCD inserts	**➤ B025–B028, B050**

P TYPE BORING BARS

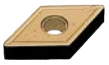
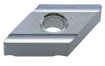
- The minimum cutting diameter is from Ø32.
- l/d is 3 times the diameter.
- ISO standard.
- Economical negative insert.
- Lever lock type and pin lock type.

A○○○PDZN With coolant hole DN○○inserts





*1 Pin Lock Type Right hand tool holder shown.

Finish	Light	Medium	Medium
FP	LP	MP	MH
(15)	(15)	(15)	(15)
Medium	**Stainless**	**G Class**	**PCBN/PCD**
Standard	MM	R/L	
			
(15)	(15)	(15)	(15)

Order Number	Stock R	Stock L	Insert Number		DCONMS	OAL	LF	WF	WF2	H	GAMF	DMIN	Shim	Shim Pin	Clamp Lever	Clamp Screw *2	Wrench	Plug	Clamp Pin *2	Pin	Screw
A25RPDZNR/L15	●	●	DNMA DNMG	1504○○	25	225	200	17	6.7	23	13°	**32**	MLDP42	—	—	—	HKY15R HKY30R	HGM-PT1/4	HP43	P210AM	HSS03005
A32SPDZNR/L15	●	●	DNMX DNMM	1504○○	32	275	250	22	8.2	30	13°	**40**	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A40TPDZNR/L15	●	●	DNGA DNGG	1504○○	40	325	300	27	9.2	37	10°	**50**	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—
A50UPDZNR/L15	●	●	DNGM	1504○○	50	375	350	35	12.2	47	9°	**63**	LLSDN42	LLP14	LLCL24	LLCS108S	HKY30R	HGM-PT3/8	—	—	—

*1 Pin Lock Type
*2 Clamp Torque (N • m) : LLCS108S=3.3, HP43=3.3
Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.8.
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for left hand holders and right hand inserts with right hand holders.

RECOMMENDED CUTTING CONDITIONS

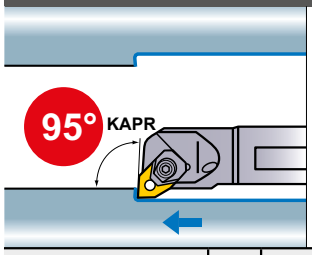
	Material	Hardness	Cutting Mode	l/d≤3 Cutting Speed (m/min)	l/d≤3 Feed (mm/rev)	l/d≤3 Depth of Cut (mm)	l/d=3—4 Cutting Speed (m/min)	l/d=3—4 Feed (mm/rev)	l/d=3—4 Depth of Cut (mm)
P	Carbon Steel Alloy Steel	180—350HB	Medium Cutting	110 (80—140)	0.25 (0.1—0.4)	—5.0	110 (80—140)	0.2 (0.1—0.3)	—4.0
M	Stainless Steel	≤200HB	Medium Cutting	80 (60—100)	0.2 (0.1—0.3)	—4.0	70 (50—100)	0.15 (0.1—0.25)	—3.0
K	Gray Cast Iron	Tensile Strength ≤350MPa	Medium Cutting	80 (60—100)	0.25 (0.1—0.4)	—5.0	80 (60—100)	0.2 (0.1—0.3)	—4.0

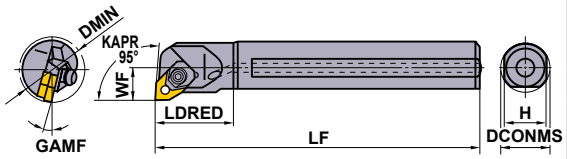
DN○○ type inserts ➤ A106—A112
PCBN & PCD inserts ➤ B025—B028, B050
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

M TYPE BORING BARS

- The minimum cutting diameter is from Ø63.
- Negative trigon shape insert.
- Double clamp type.
- l/d is 3 times the diameter.

A○○○MWLN With coolant hole WN○○inserts





Right hand tool holder only.

Finish	Light	Medium	Medium
FP	LP	MP	MH
(08)	(08)	(08)	(08)
Medium	**Medium to Rough**	**Stainless**	
Standard	RP	MM	
(08)	(08)	(08)	

Order Number	Stock	Insert Number	Dimensions(mm)							Shim	Shim Pin	Clamp Bridge	Side Lock Plate	Spring	Clamp Screw*	Wrench	Plug
	R		DCONMS	LF	LDRED	WF	H	GAMF	DMIN								
A50UMWLNR08	●	WNMA WNMG WNGA 0804○○	50	350	80	35	63	9°	**63**	WPS WC43	CCP44	CCK13	CPT24	MES2	SLCS105	HKY25R HKY40R	HGM-PT3/8

*Clamp Torque (N • m) : SLCS105=7.0

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.

Note 2) Dimensions shown for insert corner RE 0.8.

RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Cutting Mode	l/d≤3		
				Cutting Speed (m/min)	Feed (mm/rev)	Depth of Cut (mm)
P	Carbon Steel Alloy Steel	180–350HB	Medium Cutting	110 (80–140)	0.25 (0.1–0.4)	–5.0
M	Stainless Steel	≤200HB	Medium Cutting	80 (60–100)	0.2 (0.1–0.3)	–4.0
K	Gray Cast Iron	Tensile Strength ≤350MPa	Medium Cutting	80 (60–100)	0.25 (0.1–0.4)	–5.0

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

WN○○ type inserts ➤ A131–A135
PCBN & PCD inserts ➤ B034

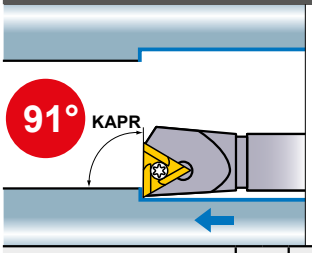
AL TYPE BORING BARS

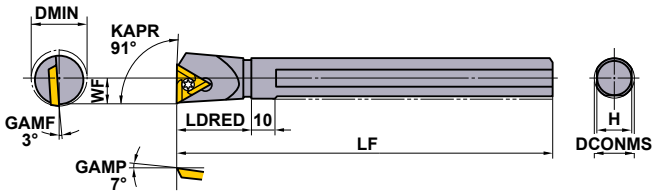
- Suitable for non-ferrous metal.
- 20° positive insert.
- Screw-on type.
- l/d is 6 times the diameter.
- Excellent vibration resistance.
- The minimum cutting diameter is from Ø20.

S○○○STFE

TE○○inserts

Medium	PCD
R/L	R/L
(16)	(16)
PCD	
(16)	





Right hand tool holder shown.

Order Number	Stock		Insert Number		Dimensions (mm)						*	
	R	L			DCONMS	LF	LDRED	WF	H	DMIN	Clamp Screw	Wrench
S16RSTFER/L16	★	★	TEGX	1603○○	16	200	30	11	14.6	**20**	FC400890T	TKY10F
S20RSTFER/L16	★	★		1603○○	20	200	37	13	18	**25**	FC400890T	TKY10F
S25SSTFER/L16	★	★		1603○○	25	250	40	17	23	**32**	FC400890T	TKY10F

* Clamp Torque (N • m) : FC400890T=2.5

Note 1) The insert photos are only examples. The letters refer to the chipbreaker and the dimension refers to the inscribed circle.
Note 2) Dimensions shown for insert corner RE 0.4.
Note 3) When using inserts with a right or left handed chipbreaker, please use left hand inserts for right hand holders and right hand inserts with left hand holders.

RECOMMENDED CUTTING CONDITIONS

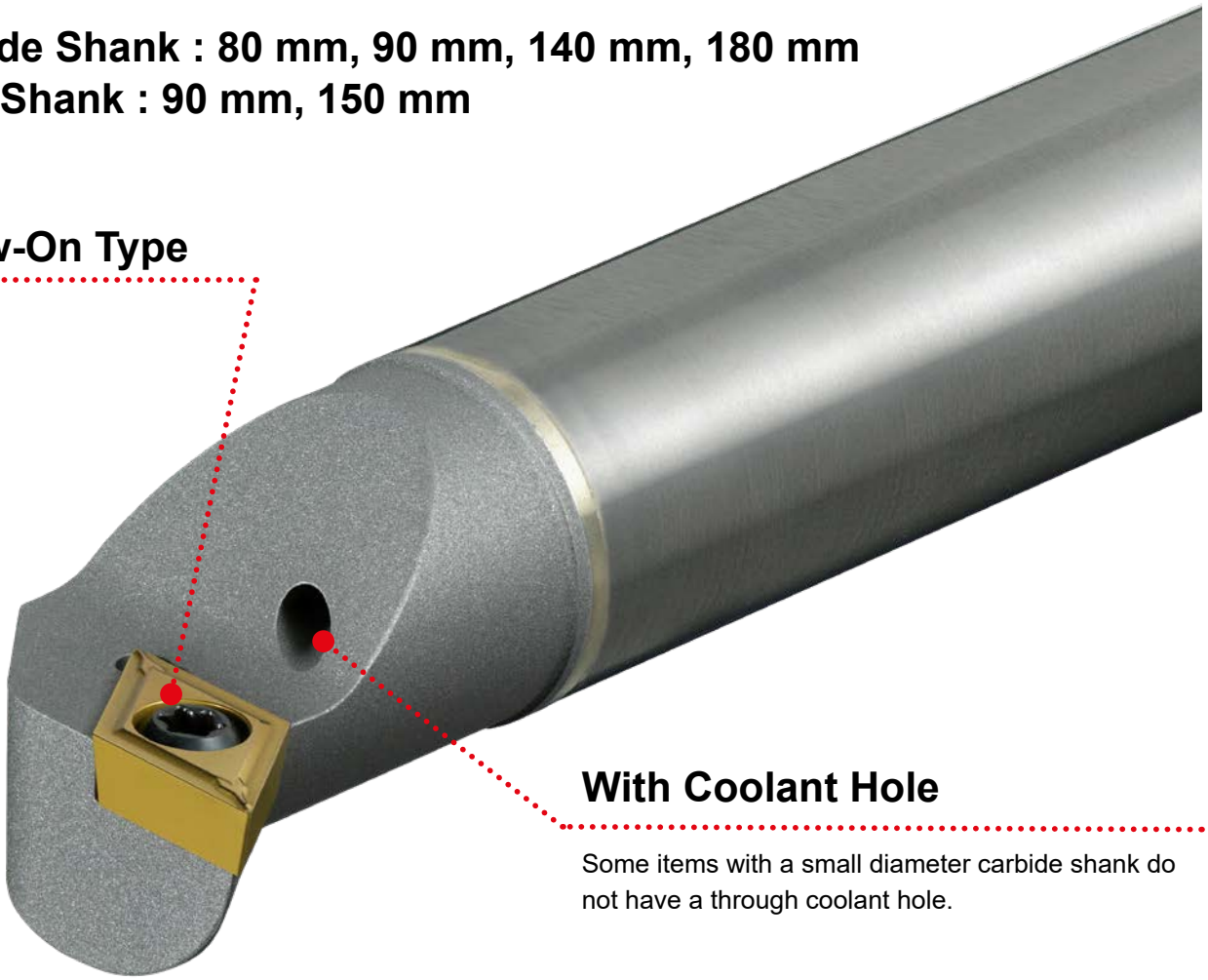
	Material	Grade	Cutting Speed (m/min)	l/d=3		l/d=4		l/d=5		l/d=6	
				Feed (mm/rev)	Depth of Cut (mm)	Feed (mm/rev)	Depth of Cut (mm)	Feed (mm/rev)	Depth of Cut (mm)	Feed (mm/rev)	Depth of Cut (mm)
N	Aluminium Alloy	**HTi10**	400 (200—600)	0.15 (0.05—0.25)	—3.0	0.15 (0.05—0.25)	—3.0	0.1 (0.05—0.2)	—2.5	0.1 (0.05—0.2)	—1.0
		MD220	800 (200—1500)	0.15 (0.05—0.25)	—3.0	0.15 (0.05—0.25)	—3.0	0.1 (0.05—0.2)	—2.5	0.1 (0.05—0.2)	—1.0

TE○○ type inserts	**➤ A169**
PCD inserts	**➤ B059**
SPARE PARTS	**➤ N001**
TECHNICAL DATA	**➤ P001**

BORING BAR FOR MACHINING SMALL PARTS

Overall length compatible with Swiss-Type automatic lathes

Carbide Shank : 80 mm, 90 mm, 140 mm, 180 mm
Steel Shank : 90 mm, 150 mm



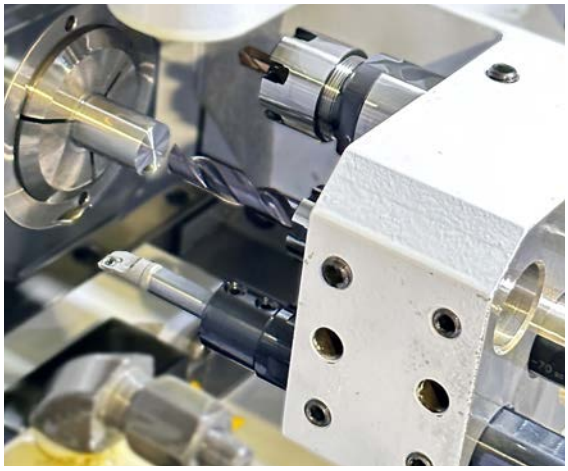
Screw-On Type

With Coolant Hole

Some items with a small diameter carbide shank do not have a through coolant hole.

No Need to Shorten the Shank

The length of the tools are compatible with Swiss-type automatic lathes, therefore no need to cut the shank to prevent interference.

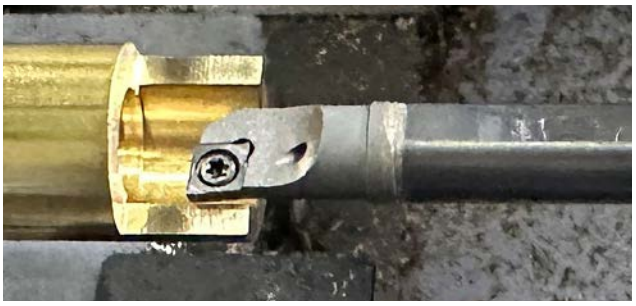


FEATURES

Through Coolant Carbide Shank with Minimum Machining Diameter of 9 mm

The boring bar with a minimum machining diameter of 9mm provides a large clearance and enables excellent chip evacuation.

Clearance comparison : Hole diameter 11 mm



Boring Bars for small parts machining
Minimum Machining Diameter of 9 mm

Dimple Bar
Minimum Machining Diameter of 10 mm

IDENTIFICATION

①Shank Material	
C	Carbide Shank
S	Steel Shank

④Clamp Structure	
S	Screw-on

⑤Insert Shape	
C	RHOMBIC 80°
D	RHOMBIC 55°
T	TRIANGULAR 60°
V	RHOMBIC 35°
W	TRIGON

⑥Cutting Angle KAPR	
U	93°
L	95°
Q	107.5°
P	117.5°

⑦Insert Clearance	
B	5° POSITIVE
C	7° POSITIVE
P	11° POSITIVE

②Min. Machining Diameter DMIN(mm)

③Shank Diameter DCONMS(mm)

1	2		3	4	5	6	7	8	9		10		11
C	18	-	16	S	C	L	C	R	09	-	180	-	C

⑧Hand of Tool	
R	Right Hand
L	Left Hand

⑨Cutting Edge Length Symbol and Inscribed Circle						
Inscribed circle (mm)	3.97	4.76	5.56	6.35	7.94	9.525
RHOMBIC 80°	03	04	–	06	08	09
RHOMBIC 55°	–	–	–	07	–	11
TRIANGULAR 60°	06	08	09	11	–	16
RHOMBIC 35°	–	08	–	11	–	16
TRIGON	02	L3	–	04	–	06

⑩Tool Length (mm)	
080	80
090	90
140	140
150	150
180	180

⑪Coolant Hole	
C	With Coolant Hole

SELECTION STANDARD

Insert Shape	Holder Type	Tool Cutting Edge Angle **KAPR**	Shank Material	Tool Length	Min Machining Diameter **DMIN**	Shank Diameter **DCONMS**	Economical	Cutting Edge Strength	Profile Turning	Internal Coolant	Deep Boring (L/D≥6)	Holder Page
RHOMBIC 80° Normal Clearance 7°	SCLC	95°	Carbide	80,90	5–8	4–7		◎			◎	E047
			Carbide	90,140,180	9–34	8–32		◎		◎	◎	E047
			Steel	90,150	14–34	12–32		◎		◎		E048
RHOMBIC 80° Normal Clearance 11°	SCLP	95°	Carbide	140,180	12–30	10–25		◎		◎	◎	E048
			Steel	90,150	14–30	12–25		◎		◎		E049
TRIANGULAR 60° Normal Clearance 7°	STUC	93°	Carbide	90	7–8	6–7	◎				◎	E049
			Carbide	90,140,180	9–32	8–25	◎			◎	◎	E050
			Steel	90,150	14–40	12–32	◎			◎		E050
TRIANGULAR 60° Normal Clearance 11°	STUP	93°	Carbide	90,140,180	10–34	8–25	◎			◎	◎	E051
			Steel	90,150	14–34	12–25	◎			◎		E051
RHOMBIC 55° Normal Clearance 7°	SDUC	93°	Carbide	140,180	14–32	10–25			◎	◎	◎	E052
			Steel	150	16–32	12–25			◎	◎		E052
RHOMBIC 55° Normal Clearance 7°	SDQC	107.5°	Carbide	140,180	13–30	10–25			◎	◎	◎	E053
			Steel	90,150	16–30	12–25			◎	◎		E053
TRIGON Normal Clearance 7°	SWUC	93°	Carbide	80,90	6–8	5–7	◎	◎			◎	E054
			Carbide	90,140,180	10–22	8–20	◎	◎		◎	◎	E054
			Steel	90,150	14–22	12–20	◎	◎		◎		E054

■ Instructions for the use of CPGT · TPG/MX type inserts

Boring bars for machining small parts can use the inserts listed in the table below by changing the clamp screws.

Insert Type	Clamp Screw
CPGT0802○○ (Ø7.94)	**TS3**
CPGT0903○○ (Ø9.525)	**TS4**

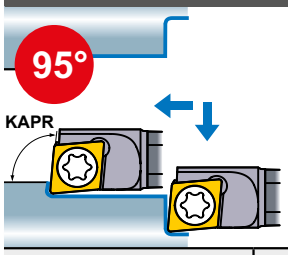
Insert Type	Clamp Screw
TPGX0802○○ (Ø4.76)	**CS200T**
TPG/MX0902○○ (Ø5.56)	**CS250T**
TPG/MX1103○○ (Ø9.525)	**CS300890T**

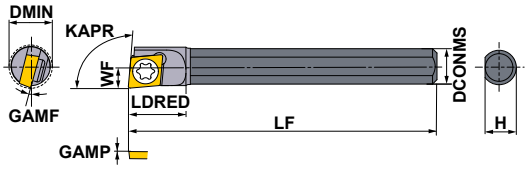
∗ If the screw is too long, shorten it as necessary.

BORING BARS

C-SCLC NEW

Carbide shank without coolant hole — **CC○○inserts**





Right hand tool holder shown.

Finish
L-F

(03,04)
PCBN/PCD

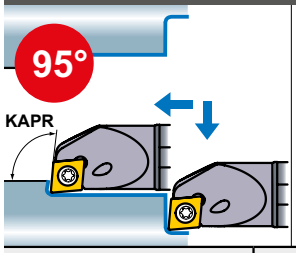
(03,04)

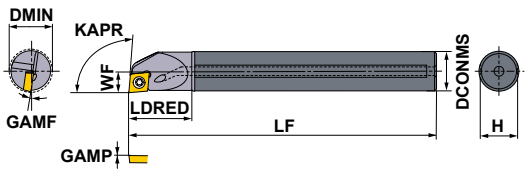
Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	* Clamp Screw	Wrench
C05-04SCLCR/L03-080	●	●	CC○○	03S1○○	4	80	7	2.5	3.7	15°	0°	**5**	TS16	TKY06F
C06-05SCLCR/L03-080	●	●		03S1○○	5	80	9	3.0	4.7	13°	0°	**6**	TS16	TKY06F
C07-06SCLCR/L04-090	●	●		04T0○○	6	90	9	3.5	5.7	13°	0°	**7**	TS21	TKY06F
C08-07SCLCR/L04-090	●	●		04T0○○	7	90	10	4.0	6.7	11°	0°	**8**	TS21	TKY06F

∗ Clamp Torque (N • m) : TS16=0.6, TS21=0.6

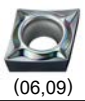
C-SCLC-C NEW

Carbide shank with coolant hole — **CC○○inserts**





Right hand tool holder shown.

Finish	Finish	Light	Light
FS	FS-P	LS	LS-P
(06,09)	 (06,09)	(06,09)	(06,09)
Medium	**Medium**	**Flat Top**	**PCBN/PCD**
MP	MM		
(06,09)	(06,09)	(06,09)	(04,06,09)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	* Clamp Screw	Wrench
C09-08SCLCR04-090-C	●		CC○○	04T0○○	8	90	14	4.5	7	10°	0°	**9**	TS21	TKY06F
C10-08SCLCR04-090-C	●			04T0○○	8	90	14	5.0	7	9°	0°	**10**	TS21	TKY06F
C10-08SCLCR/L06-140-C	●	●		0602○○	8	140	14	5.0	7	9°	0°	**10**	TS25	TKY08F
C12-10SCLCR/L06-140-C	●	●		0602○○	10	140	18	6.0	9	12°	0°	**12**	TS25	TKY08F
C14-12SCLCR/L06-140-C	●	●		0602○○	12	140	23	7.0	11	10°	0°	**14**	TS25	TKY08F
C18-16SCLCR/L09-180-C	●	●		09T3○○	16	180	28	9.0	15	10°	0°	**18**	TS4	TKY15F
C22-20SCLCR09-180-C	●			09T3○○	20	180	32	11.0	19	8°	0°	**22**	TS4	TKY15F
C27-25SCLCR09-180-C	★			09T3○○	25	180	38	13.5	24	6°	0°	**27**	TS4	TKY15F
C34-32SCLCR09-180-C	★			09T3○○	32	180	48	17.0	31	4°	0°	**34**	TS4	TKY15F

∗ Clamp Torque (N • m) : TS21=0.6, TS25=1.0, TS4=3.5

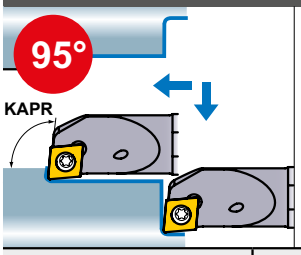
● : Inventory maintained. ★ : Inventory maintained in Japan.

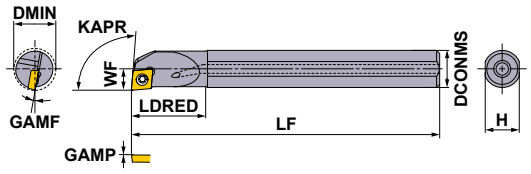
CC○○ type inserts	➤ A140—A148
PCBN & PCD inserts	➤ B037, B038, B053
SPARE PARTS	➤ N001
TECHNICAL DATA	➤ P001

BORING BARS

S-SCLC-C NEW

Steel shank with coolant hole **CC○○inserts**





Right hand tool holder shown.

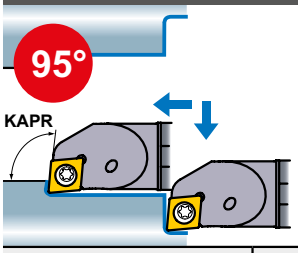
Finish	Finish	Light	Light
FS	FS-P	LS	LS-P
(06,09)	(06,09)	(06,09)	(06,09)
Medium	Medium	Flat Top	PCBN/PCD
MP	MM		
(06,09)	(06,09)	(06,09)	(06,09)

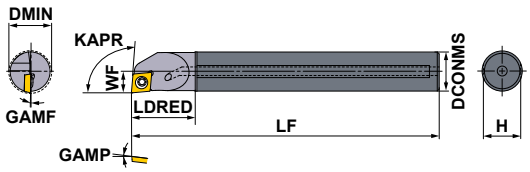
Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	* Clamp Screw	Wrench
S14-12SCLCR/L06-090-C	●	●	CC○○	0602○○	12	90	24	7.0	11	10°	0°	**14**	TS25	TKY08F
S18-16SCLCR/L09-150-C	●	●		09T3○○	16	150	30	9.0	15	10°	0°	**18**	TS4	TKY15F
S22-20SCLCR/L09-150-C	●	●		09T3○○	20	150	36	11.0	19	8°	0°	**22**	TS4	TKY15F
S27-25SCLCR/L09-150-C	●	●		09T3○○	25	150	46	13.5	24	6°	0°	**27**	TS4	TKY15F
S34-32SCLCR/L09-150-C	●	★		09T3○○	32	150	58	17.0	31	4°	0°	**34**	TS4	TKY15F

∗ Clamp Torque (N • m) : TS25=1.0, TS4=3.5

C-SCLP-C NEW

Carbide shank with coolant hole **CP○○inserts**





Right hand tool holder shown.

Finish	Finish	Light
FV	FS	LM
(08,09)	(08,09)	(08,09)
Medium	Medium	PCBN/PCD
MM	MS	
(08,09)	(08,09)	(08,09)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	*1 Clamp Screw	Wrench
C12-10SCLPR/L08-140-C	●	●	CP○○	0802○○	10	140	18	6.0	9	5°	5°	**12**	TS3D	TKY10F
C14-12SCLPR/L08-140-C	●	●		0802○○	12	140	23	7.0	11	4°	5°	**14**	TS3D	TKY10F
C16-12SCLPR/L09-140-C	●	●		0903○○	12	140	23	8.0	11	4°	5°	**16**	TS4D	TKY15F
C18-16SCLPR/L09-180-C	●	●		0903○○	16	180	28	9.0	15	3.5°	5°	**18**	TS4D	TKY15F
C22-20SCLPR/L09-180-C	●	●		0903○○	20	180	32	11.0	19	2°	5°	**22**	TS4D	TKY15F
C27-25SCLPR09-180-C	★			0903○○	25	180	38	13.5	24	0°	5°	**27**	TS4D	TKY15F
C30-25SCLPR09-180-C	★			0903○○	25	180	38	15.0	24	0°	5°	**30**	TS4D	TKY15F

∗1 Clamp Torque (N • m) : TS3D=2.5, TS4D=3.5

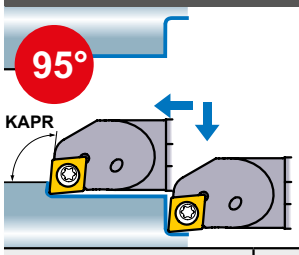
∗2 By changing the clamp screw, It is possible to use the inserts listed page E046 for details.

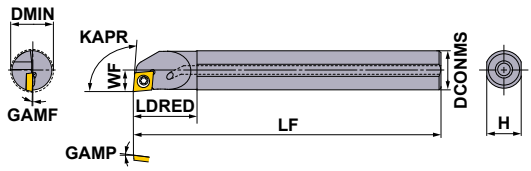
● : Inventory maintained. ★ : Inventory maintained in Japan.

CC○○ type inserts	➤ A140—A148
CP○○ type inserts	➤ A149—A151
PCBN & PCD inserts	➤ B037—B039, B053

S-SCLP-C NEW

Steel shank with coolant hole — **CP○○inserts**





Right hand tool holder shown.

Finish	Finish	Light
FV	FS	LM
(08,09)	(08,09)	(08,09)
Medium	**Medium**	**PCBN/PCD**
MM	MS	
(08,09)	(08,09)	(08,09)

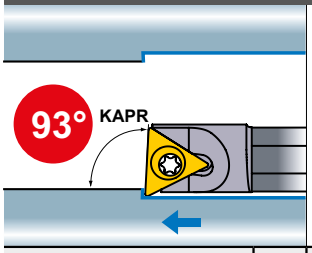
Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	✱1 Clamp Screw	Wrench
S14-12SCLPR/L08-090-C	●	●	CP○○	0802○○	12	90	24	7.0	11	4°	5°	**14**	TS3D	TKY10F
S16-12SCLPR/L09-090-C	★	★		0903○○	12	90	24	8.0	11	4°	5°	**16**	TS4D	TKY15F
S18-16SCLPR/L09-150-C	★	★		0903○○	16	150	30	9.0	15	3.5°	5°	**18**	TS4D	TKY15F
S22-20SCLPR/L09-150-C	★	★		0903○○	20	150	36	11.0	19	2°	5°	**22**	TS4D	TKY15F
S27-25SCLPR/L09-150-C	★	★		0903○○	25	150	46	13.5	24	0°	5°	**27**	TS4D	TKY15F
S30-25SCLPR/L09-150-C	●	★		0903○○	25	150	46	15.0	24	0°	5°	**30**	TS4D	TKY15F

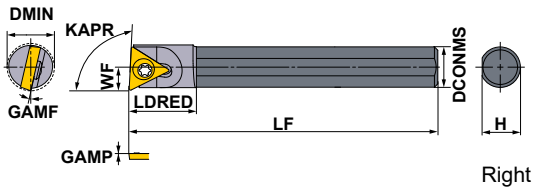
✱1 Clamp Torque (N • m) : TS3D=2.5, TS4D=3.5

✱2 By changing the clamp screw, It is possible to use the inserts listed page E046 for details.

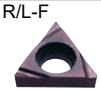
C-STUC NEW

Carbide shank without coolant hole — **TC○○inserts**





Right hand tool holder shown.

Finish
R/L-F

(06)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	✱ Clamp Screw	Wrench
C07-06STUCR/L06-090	●	●	TC○○	0601○○	6	90	10	3.5	5.7	13°	0°	**7**	TS2C	TKY06F
C08-07STUCR/L06-090	●	●		0601○○	7	90	10	4.0	6.7	12°	0°	**8**	TS2C	TKY06F

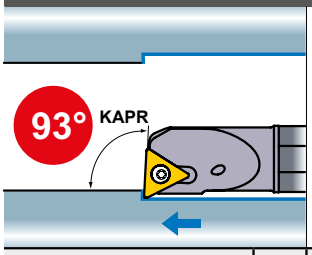
✱ Clamp Torque (N • m) : TS2C=0.6

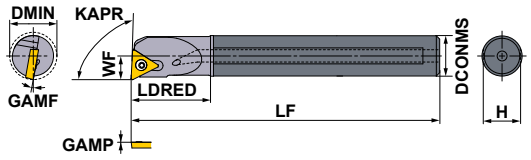
CP○○ type inserts	➤ A149—A151
TC○○ type inserts	➤ A165—A168
PCBN & PCD inserts	➤ B042, B055
SPARE PARTS	➤ N001
TECHNICAL DATA	➤ P001

BORING BARS

C-STUC-C NEW

Carbide shank with coolant hole **TC○○inserts**





Right hand tool holder shown.

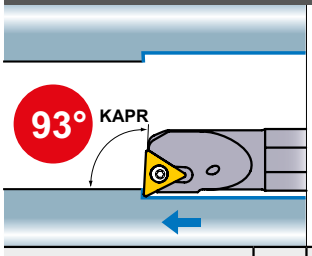
Finish	Finish	Light	Light
FP	FM	LP	LM
(09,11,16)	(09,11,16)	(09,11,16)	(09,11,16)
Medium	**Medium**	**Flat Top**	**PCBN/PCD**
MP	MM		
(09,11,16)	(09,11,16)	(11,16)	(06,09,11,16)

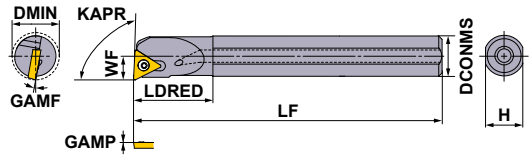
Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	* Clamp Screw	Wrench
C09-08STUCR06-090-C	●		TC○○	0601○○	8	90	14	4.5	7	11°	0°	**9**	TS2C	TKY06F
C10-08STUCR/L09-090-C	●	●		0902○○	8	90	14	5.0	7	14°	0°	**10**	TS22	TKY06F
C12-10STUCR/L09-140-C	●	●		0902○○	10	140	18	6.2	9	12°	0°	**12**	TS22	TKY06F
C14-12STUCR/L09-140-C	●	●		0902○○	12	140	23	7.2	11	10°	0°	**14**	TS22	TKY06F
C18-16STUCR/L11-180-C	●	●		1102○○	16	180	28	9.2	15	8°	0°	**18**	TS25	TKY08F
C22-20STUCR/L11-180-C	●	●		1102○○	20	180	32	11.2	19	6°	0°	**22**	TS25	TKY08F
C27-20STUCR/L11-180-C	●	●		1102○○	20	180	32	13.5	19	5°	0°	**27**	TS25	TKY08F
C32-25STUCR/L16-180-C	●	★		16T3○○	25	180	38	17.0	24	5°	0°	**32**	TS4	TKY15F

* Clamp Torque (N • m) : TS2C=0.6, TS22=0.6, TS25=1.0, TS4=3.5

S-STUC-C NEW

Steel shank with coolant hole **TC○○inserts**





Right hand tool holder shown.

Finish	Finish	Light	Light
FP	FM	LP	LM
(09,11,16)	(09,11,16)	(09,11,16)	(09,11,16)
Medium	**Medium**	**Flat Top**	**PCBN/PCD**
MP	MM		
(09,11,16)	(09,11,16)	(11,16)	(06,09,11,16)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	* Clamp Screw	Wrench
S14-12STUCR/L09-090-C	●	●	TC○○	0902○○	12	90	24	7.2	11	10°	0°	**14**	TS22	TKY06F
S18-16STUCR/L11-150-C	●	●		1102○○	16	150	30	9.2	15	8°	0°	**18**	TS25	TKY08F
S22-20STUCR/L11-150-C	●	●		1102○○	20	150	36	11.2	19	6°	0°	**22**	TS25	TKY08F
S27-20STUCR/L11-150-C	●	●		1102○○	20	150	36	13.5	19	5°	0°	**27**	TS25	TKY08F
S32-25STUCR/L16-150-C	●	●		16T3○○	25	150	46	17.0	24	5°	0°	**32**	TS4	TKY15F
S40-32STUCR/L16-150-C	★	★		16T3○○	32	150	58	22.0	31	3°	0°	**40**	TS4	TKY15F

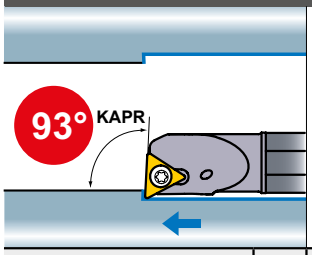
* Clamp Torque (N • m) : TS22=0.6, TS25=1.0, TS4=3.5

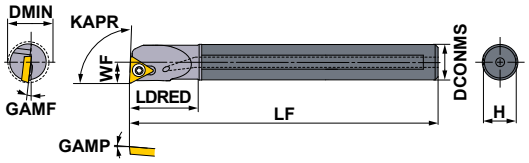
● : Inventory maintained. ★ : Inventory maintained in Japan.

TC○○ type inserts	➤ A165—A168
PCBN & PCD inserts	➤ B042, B055

C-STUP-C NEW

Carbide shank with coolant hole — **TP○○inserts**





Right hand tool holder shown.

Finish	Finish
FS	FV
(09,11)	(08,09,11)
Light	PCBN/PCD
LP	
(08,09,11)	(09,11)

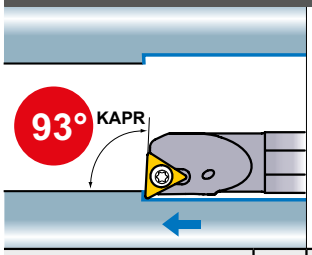
Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	*1 Clamp Screw	Wrench
C10-08STUPR/L08-090-C	●	●	TP○○	0802○○	8	90	14	5.0	7	10°	5°	**10**	TS2D	TKY06F
C12-10STUPR/L09-140-C	●	●		0902○○	10	140	18	6.2	9	8°	5°	**12**	TS25D	TKY08F
C14-12STUPR/L09-140-C	●	●		0902○○	12	140	23	7.2	11	7°	5°	**14**	TS25D	TKY08F
C18-16STUPR/L11-180-C	●	★		1103○○	16	180	28	9.2	15	3.5°	5°	**18**	TS31D	TKY10F
C22-20STUPR/L11-180-C	●	★		1103○○	20	180	32	11.2	19	2°	5°	**22**	TS31D	TKY10F
C27-25STUPR/L11-180-C	★	★		1103○○	25	180	38	13.7	24	0°	5°	**27**	TS31D	TKY10F
C34-25STUPR/L11-180-C	★	★		1103○○	25	180	38	17.2	24	0°	5°	**34**	TS31D	TKY10F

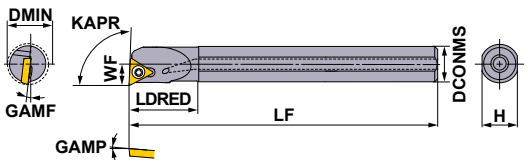
*1 Clamp Torque (N • m) : TS2D=0.6, TS25D=1.6, TS31D=2.5

*2 By changing the clamp screw, It is possible to use the inserts listed page E046 for details.

S-STUP-C NEW

Steel shank with coolant hole — **TP○○inserts**





Right hand tool holder shown.

Finish	Finish
FS	FV
(09,11)	(08,09,11)
Light	PCBN/PCD
LP	
(08,09,11)	(09,11)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	*1 Clamp Screw	Wrench
S14-12STUPR/L09-090-C	●	●	TP○○	0902○○	12	90	24	7.2	11	7°	5°	**14**	TS25D	TKY08F
S18-16STUPR/L11-150-C	●	●		1103○○	16	150	30	9.2	15	3.5°	5°	**18**	TS31D	TKY10F
S22-20STUPR/L11-150-C	★	★		1103○○	20	150	36	11.2	19	2°	5°	**22**	TS31D	TKY10F
S27-25STUPR/L11-150-C	★	★		1103○○	25	150	46	13.7	24	0°	5°	**27**	TS31D	TKY10F
S34-25STUPR/L11-150-C	★	★		1103○○	25	150	46	17.2	24	0°	5°	**34**	TS31D	TKY10F

*1 Clamp Torque (N • m) : TS25D=1.6, TS31D=2.5

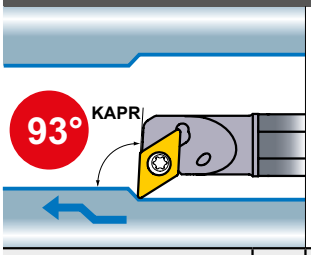
*2 By changing the clamp screw, It is possible to use the inserts listed page E046 for details.

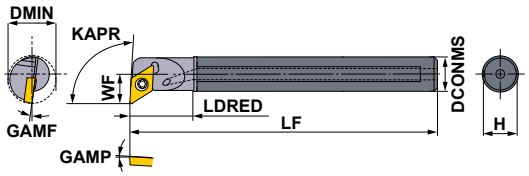
TP○○ type inserts	➤ A170—A173	SPARE PARTS	➤ N001
PCBN & PCD inserts	➤ B043, B044, B056	TECHNICAL DATA	➤ P001

BORING BARS

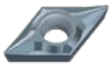
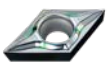
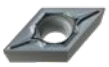
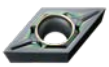
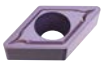
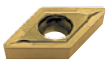
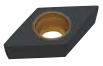
C-SDUC-C NEW

Carbide shank with coolant hole **DC○○inserts**





Right hand tool holder shown.

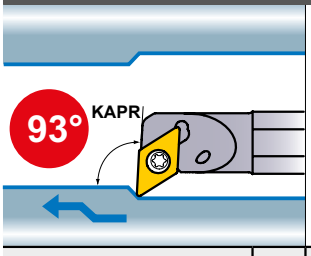
Finish	Finish	Light	Light
FS	FS-P	LS	LS-P
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	Medium	Medium	Flat Top
MP	MM	Standard	
			
(07,11)	(07,11)	(07,11)	(07,11)

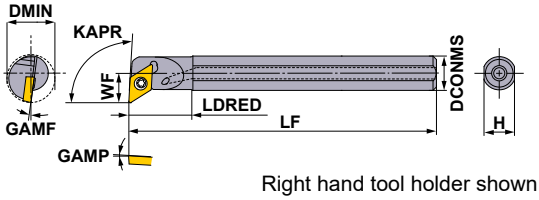
Order Number	Stock		Insert Number		Dimensions (mm)								*	
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	Clamp Screw	Wrench
C14-10SDUCR/L07-140-C	●	●	DC○○	0702○○	10	140	18	8.7	9	7.5°	3°	**14**	TS25	TKY08F
C16-12SDUCR/L07-180-C	●	●		0702○○	12	180	23	9.7	11	6.5°	3°	**16**	TS25	TKY08F
C20-16SDUCR/L07-180-C	●	●		0702○○	16	180	28	11.7	15	5°	3°	**20**	TS25	TKY08F
C23-16SDUCR/L07-180-C	●	●		0702○○	16	180	28	14.5	15	5°	3°	**23**	TS25	TKY08F
C27-20SDUCR/L11-180-C	●	●		11T3○○	20	180	32	16.5	19	5°	3°	**27**	TS4	TKY15F
C32-25SDUCR/L11-180-C	●	★		11T3○○	25	180	38	19.0	24	5°	3°	**32**	TS4	TKY15F

∗ Clamp Torque (N • m) : TS25=1.0, TS4=3.5

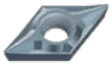
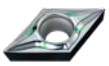
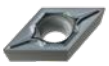
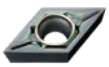
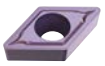
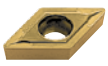
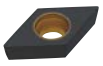
S-SDUC-C NEW

Steel shank with coolant hole **DC○○inserts**





Right hand tool holder shown.

Finish	Finish	Light	Light
FS	FS-P	LS	LS-P
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	Medium	Medium	Flat Top
MP	MM	Standard	
			
(07,11)	(07,11)	(07,11)	(07,11)

Order Number	Stock		Insert Number		Dimensions (mm)								*	
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	Clamp Screw	Wrench
S16-12SDUCR/L07-150-C	●	●	DC○○	0702○○	12	150	21	9.7	11	6.5°	3°	**16**	TS25	TKY08F
S20-16SDUCR/L07-150-C	●	●		0702○○	16	150	21	11.7	15	5°	3°	**20**	TS25	TKY08F
S23-16SDUCR/L07-150-C	●	●		0702○○	16	150	21	14.5	15	5°	3°	**23**	TS25	TKY08F
S27-20SDUCR/L11-150-C	●	●		11T3○○	20	150	23	16.5	19	5°	3°	**27**	TS4	TKY15F
S32-25SDUCR/L11-150-C	●	●		11T3○○	25	150	24	19.0	24	5°	3°	**32**	TS4	TKY15F

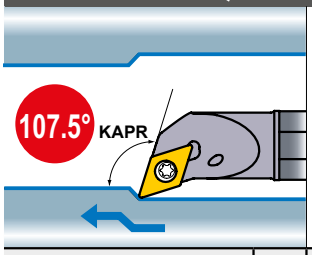
∗ Clamp Torque (N • m) : TS25=1.0, TS4=3.5

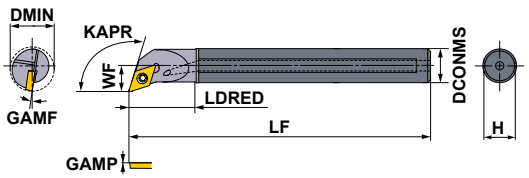
● : Inventory maintained. ★ : Inventory maintained in Japan.

DC○○ type inserts	➤ A152—A158
PCBN & PCD inserts	➤ B040, B041, B054

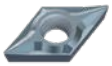
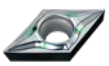
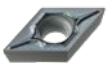
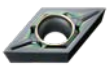
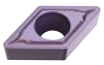
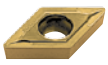
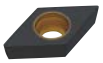
C-SDQC-C NEW

Carbide shank with coolant hole **DC○○inserts**





Right hand tool holder shown.

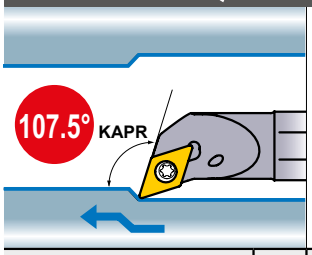
Finish	Finish	Light	Light
FS	FS-P	LS	LS-P
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	**Medium**	**Medium**	**Flat Top**
MP	MM	Standard	
			
(07,11)	(07,11)	(07,11)	(07,11)

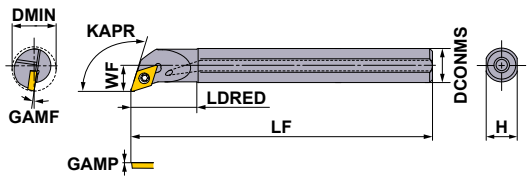
Order Number	Stock		Insert Number		Dimensions (mm)								*	
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	Clamp Screw	Wrench
C13-10SDQCR/L07-140-C	●	●	DC○○	0702○○	10	140	18	7.5	9	10°	0°	**13**	TS25	TKY08F
C16-12SDQCR/L07-140-C	●	●		0702○○	12	140	23	9.25	11	8°	0°	**16**	TS25	TKY08F
C20-16SDQCR/L07-180-C	●	●		0702○○	16	180	28	11.3	15	6°	0°	**20**	TS25	TKY08F
C23-16SDQCR/L07-180-C	●	●		0702○○	16	180	28	12.8	15	5°	0°	**23**	TS25	TKY08F
C25-20SDQCR/L11-180-C	●	●		11T3○○	20	180	32	14.4	19	5°	0°	**25**	TS4	TKY15F
C30-25SDQCR/L11-180-C	★	★		11T3○○	25	180	38	16.9	24	4°	0°	**30**	TS4	TKY15F

∗ Clamp Torque (N • m) : TS25=1.0, TS4=3.5

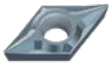
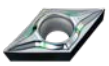
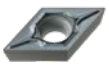
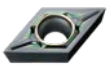
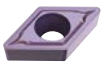
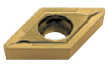
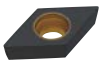
S-SDQC-C NEW

Steel shank with coolant hole **DC○○inserts**





Right hand tool holder shown.

Finish	Finish	Light	Light
FS	FS-P	LS	LS-P
			
(07,11)	(07,11)	(07,11)	(07,11)
Medium	**Medium**	**Medium**	**Flat Top**
MP	MM	Standard	
			
(07,11)	(07,11)	(07,11)	(07,11)

Order Number	Stock		Insert Number		Dimensions (mm)								*	
	R	L			DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	Clamp Screw	Wrench
S16-12SDQCR/L07-090-C	●	●	DC○○	0702○○	12	90	22	9.25	11	8°	0°	**16**	TS25	TKY08F
S20-16SDQCR/L07-150-C	●	●		0702○○	16	150	25	11.3	15	6°	0°	**20**	TS25	TKY08F
S23-16SDQCR/L07-150-C	●	●		0702○○	16	150	25	12.8	15	5°	0°	**23**	TS25	TKY08F
S25-20SDQCR/L11-150-C	●	●		11T3○○	20	150	31	14.4	19	5°	0°	**25**	TS4	TKY15F
S30-25SDQCR/L11-150-C	●	●		11T3○○	25	150	38	16.9	24	4°	0°	**30**	TS4	TKY15F

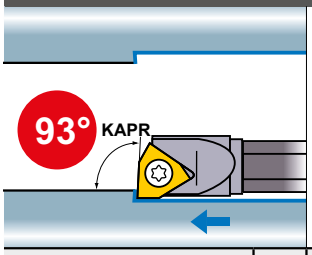
∗ Clamp Torque (N • m) : TS25=1.0, TS4=3.5

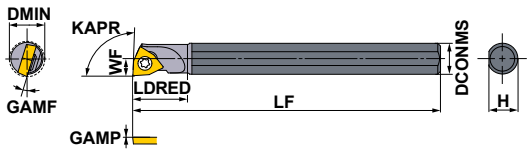
DC○○ type inserts	➤ A152—A158	SPARE PARTS	➤ N001
PCBN & PCD inserts	➤ B040, B041, B054	TECHNICAL DATA	➤ P001

BORING BARS

C-SWUC NEW

Carbide shank without coolant hole — **WC○○inserts**





Right hand tool holder shown.

Finish
FV

(02,L3)
PCBN/PCD

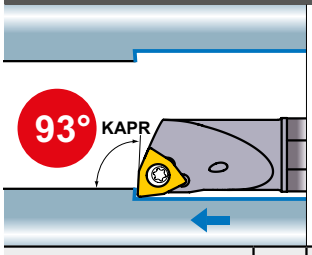
(L3)

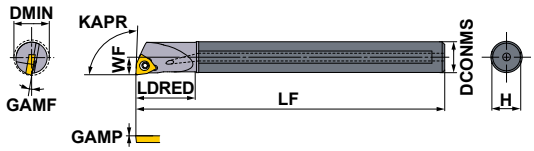
Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	* Clamp Screw	Wrench
C06-05SWUCR/L02-080	●	●	WC○○	0201○○	5	80	9	3.0	4.7	17°	0°	6	TS21	TKY06F
C08-07SWUCR/LL3-090	●	●		L302○○	7	90	10	4.0	6.7	15°	0°	8	TS2	TKY06F

* Clamp Torque (N • m) : TS21=0.6, TS2=0.6

C-SWUC-C NEW

Carbide shank with coolant hole — **WC○○inserts**





Right hand tool holder shown.

Finish
FV

(04,06)
Medium
MP

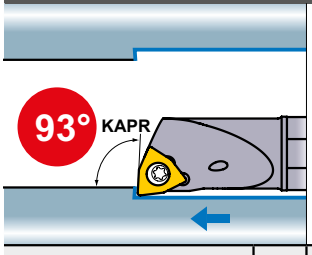
(04,06)

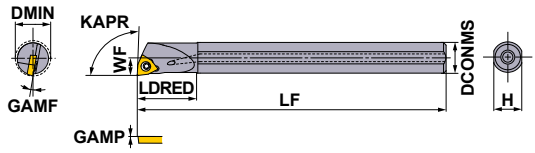
Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	* Clamp Screw	Wrench
C10-08SWUCR/L04-090-C	●	●	WC○○	0402○○	8	90	14	5.0	7	15°	0°	10	TS25	TKY08F
C12-10SWUCR/L04-090-C	●	●		0402○○	10	90	18	6.0	9	12°	0°	12	TS25	TKY08F
C14-12SWUCR/L04-140-C	●	●		0402○○	12	140	23	7.0	11	10°	0°	14	TS25	TKY08F
C16-12SWUCR/L06-140-C	●	●		06T3○○	12	140	23	8.0	11	12°	0°	16	TS4	TKY15F
C18-16SWUCR/L06-140-C	●	●		06T3○○	16	140	28	9.0	15	10°	0°	18	TS4	TKY15F
C22-20SWUCR/L06-180-C	●	●		06T3○○	20	180	32	11.0	19	7°	0°	22	TS4	TKY15F

* Clamp Torque (N • m) : TS25=1.0, TS4=3.5

S-SWUC-C NEW

Steel shank with coolant hole — **WC○○inserts**





Right hand tool holder shown.

Finish
FV

(04,06)
Medium
MP

(04,06)

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCONMS	LF	LDRED	WF	H	GAMF	GAMP	DMIN	* Clamp Screw	Wrench
S14-12SWUCR/L04-090-C	●	●	WC○○	0402○○	12	90	24	7.0	11	10°	0°	14	TS25	TKY08F
S16-12SWUCR/L06-090-C	●	●		06T3○○	12	90	24	8.0	11	12°	0°	16	TS4	TKY15F
S18-16SWUCR/L06-090-C	●	●		06T3○○	16	90	30	9.0	15	10°	0°	18	TS4	TKY15F
S22-20SWUCR/L06-150-C	●	●		06T3○○	20	150	36	11.0	19	7°	0°	22	TS4	TKY15F

* Clamp Torque (N • m) : TS25=1.0, TS4=3.5

● : Inventory maintained.

WC○○ type inserts ➤ A184
PCBN & PCD inserts ➤ B058
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

RECOMMENDED CUTTING CONDITIONS

	Material	Properties	Cutting Mode	Chipbreaker	Grade	Cutting Speed Vc (m/min)	Feed f (mm/rev)	Depth of Cut ap (mm)
P	Pure Iron Free Cutting Steel	–	Finish	R/L-F	MS6015	150 (50–250)	0.01–0.15	0.1–0.4
			Light	LS-P	MS6015	150 (50–250)	0.01–0.15	0.3–2.2
			Light	R/L-SS	MS6015	150 (50–250)	0.01–0.15	0.2–0.8
			Medium	R/L-SN	MS6015	150 (50–250)	0.01–0.15	0.1–0.4
			Medium	SMG	MS6015	150 (50–250)	0.01–0.15	0.1–1.5
	Carbon Steel Alloy Steel	Hardness 180–280HB	Finish	R/L-F	MS6015	100 (50–150)	0.01–0.15	0.1–0.4
			Light	LS-P	MS6015	100 (50–150)	0.01–0.15	0.3–2.2
			Light	R/L-SS	MS6015	100 (50–150)	0.01–0.15	0.2–0.8
			Medium	R/L-SN	MS6015	100 (50–150)	0.01–0.15	0.1–0.4
			Medium	SMG	MS6015	100 (50–150)	0.01–0.15	0.1–1.5
M	Austenitic Stainless Steel	–	Finish	FS-P	MS7025	60 (40–100)	0.01–0.08	0.2–0.5
			Finish	FS-P	MS9025	100 (60–150)	0.04–0.15	0.2–0.5
			Finish	R/L-F	MS7025	60 (40–100)	0.01–0.08	0.1–0.4
			Finish	R-SRF	MS9025	100 (60–150)	0.04–0.15	0.1–0.4
			Light	LS-P	MS7025	60 (40–100)	0.01–0.08	0.3–2.2
			Light	LS-P	MS9025	100 (60–150)	0.05–0.15	0.3–2.2
			Medium	R-SN	MS7025	60 (40–100)	0.01–0.08	0.1–3.8
			Medium	R-SN	MS9025	100 (60–150)	0.05–0.15	0.1–3.8
	Ferritic and Martensitic Stainless Steel	–	Finish	FS-P	MS7025	60 (40–100)	0.01–0.08	0.2–0.5
			Finish	R-SRF	MS7025	60 (40–100)	0.01–0.08	0.1–0.4
			Light	LS-P	MS7025	60 (40–100)	0.01–0.08	0.3–2.2
			Light	R-SN	MS7025	60 (40–100)	0.01–0.08	0.1–3.8
	Soft magnetic stainless steel (X105CrMo17 / 1.4125, X42Cr13 / 1.2083, etc.)	Hardness 230HBW	Finish	FS-P	MS7025	80 (40–160)	0.02–0.08	0.2–1.4
			Finish	FS-P	MS9025	100 (50–180)	0.04–0.12	0.2–1.4
			Finish	R-SRF	MS7025	80 (40–160)	0.03–0.08	0.1–0.4
			Finish	R-SRF	MS9025	100 (50–180)	0.05–0.12	0.1–0.4
			Light	LS-P	MS7025	80 (40–160)	0.02–0.10	0.3–2.2
			Light	LS-P	MS9025	100 (50–180)	0.04–0.15	0.3–2.2
			Medium	R-SN	MS7025	80 (40–160)	0.01–0.10	0.1–3.8
			Medium	R-SN	MS9025	100 (50–180)	0.01–0.10	0.1–3.8
	Precipitation hardened stainless steel (17-4PH / 1.4542, 17-7PH / X7CrNi-A117-7 / X5CrNi-CuNb17-4, etc.)	Hardness <450HB	Finish	FS-P	MS7025	60 (40–80)	0.01–0.10	0.1–1.0
			Finish	FS-P	MS9025	70 (50–100)	0.03–0.15	0.1–1.0
			Finish	R-SRF	MS7025	60 (40–80)	0.01–0.10	0.1–0.4
			Finish	R-SRF	MS9025	70 (50–100)	0.03–0.15	0.1–0.4
			Light	LS-P	MS7025	60 (40–80)	0.04–0.10	0.2–2.2
			Light	LS-P	MS9025	70 (50–100)	0.04–0.15	0.2–2.2
			Medium	R-SN	MS7025	60 (40–80)	0.03–0.10	0.3–2.2
			Medium	R-SN	MS9025	70 (50–100)	0.04–0.15	0.2–2.2
K	Grey Cast Iron	Tensile Strength ≤350MPa	Finish	Flat Top	MC5115	225 (150–300)	0.04–0.15	0.1–0.5
			Finish	Flat Top	HTi10	100 (50–150)	0.04–0.15	0.1–0.5
			Light	Flat Top	MC5115	225 (150–300)	0.04–0.15	0.2–1.0
			Light	Flat Top	HTi10	100 (50–150)	0.04–0.15	0.2–1.0
			Medium	Flat Top	MC5115	225 (150–300)	0.04–0.15	0.1–2.0
			Medium	Flat Top	HTi10	100 (50–150)	0.04–0.15	0.1–2.0
S	Heat resistant alloy (Heat resistant stainless steel, etc.)	–	Finish	FS-P	MS9025	80 (40–140)	0.04–0.12	0.2–1.0
			Finish	R-SRF	MS9025	80 (40–140)	0.05–0.12	0.1–0.4
			Light	LS-P	MS9025	80 (40–140)	0.04–0.15	0.3–2.2
			Medium	R-SN	MS9025	80 (40–140)	0.01–0.10	0.1–3.8

Note 1) If chatter or vibrations occur, adjust the cutting conditions accordingly.
Note 2) If the tool overhang amount is L/D = 5 or more for a carbide shank or L/D = 3 or more for a steel shank, please reduce the cutting speed by 10% to 20%.
Note 3) Regarding the feed rate and depth of cut for breakers not listed in the table, please refer to page A056 of for 7° positive and page A064 for 11° positive types. For cutting speed, please refer to the grade introduction page A030.

HOW TO READ THE STANDARD OF GROOVING AND CUTTING OFF

●How this section page is organised

①Classified according to external or internal applications.
②Sub-classified according to product series.
(Refer to the index on the next page.)

FIGURE SHOWING THE TOOLING APPLICATION
Uses illustrations and arrows to depict available machining applications such as cutting off, grooving, and copying.

INDICATION OF HOLDER TYPE ACCORDING TO APPLICATION
Indicates the holder types, such as the 00° type or the 90° type, according to machining application.

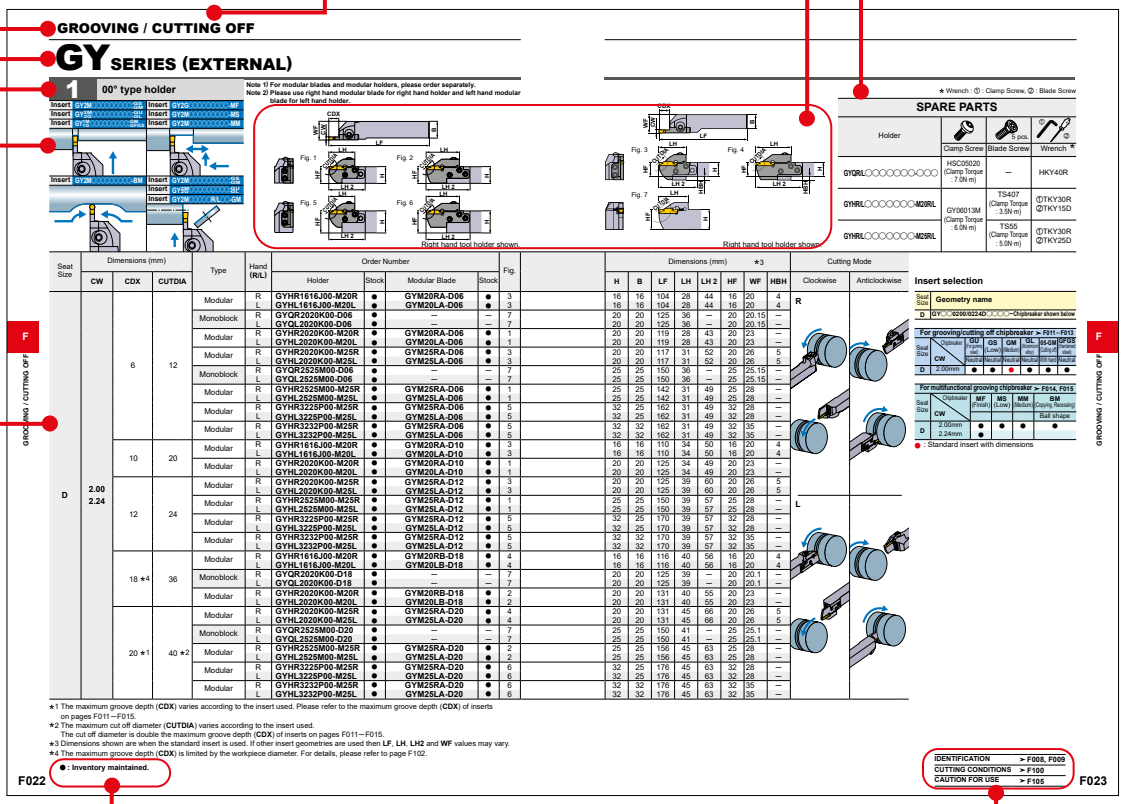
TITLE OF PRODUCT

PRODUCT SECTION

INDICATION OF EXTERNAL/ FACE/INTERNAL APPLICATION

GEOMETRY

SPARE PARTS FOR HOLDER



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

PRODUCT STANDARDS
Indicates order numbers, stock status (per right/left hand), holders, modular blades, groove widths, maximum groove depths, maximum cut-off diameters, dimensions, and applicable inserts.

PAGE REFERENCE
·CAUTION FOR USE
·CUTTING CONDITIONS
·IDENTIFICATION
Indicates reference pages, on the right hand page of each double-page spread.

TURNING TOOLS

GROOVING AND CUTTING OFF

CLASSIFICATION (EXTERNAL) ····· F002
CLASSIFICATION (INTERNAL) ····· F003

STANDARD OF GROOVING AND CUTTING OFF TOOLS

EXTERNAL

FEATURES OF THE GY SERIES ····· F004
GY SERIES ORDER NUMBER ····· F008
GY SERIES INSERTS ····· F011
GY SERIES REFERENCE MATERIAL ····· F016
GY SERIES ····· F018
GW SERIES ····· F118
GW SERIES ORDER NUMBER ····· F121
MG HOLDER ····· F132

INTERNAL

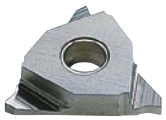
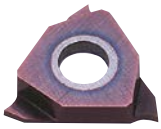
GY SERIES ····· F086
MICRO-MINI TWIN ····· F134

*Arranged by Alphabetical order

F134 **CG**
F122 **GWS**
F124 **GWB**
F125 **GWTB**
F126 **GW1**
F011 **GY**
F132 **MGH**
F133 **MGT**
F137 **RBH**
F138 **SBH**
F136 **SLV**

CLASSIFICATION

EXTERNAL CUTTING

Name of Tool Holder	Insert Shape	Features	Groove Width According to Cutting Mode (mm)					
			Shallow Grooving	Deep Grooving	Cutting Off	Copying	Recessing	Face Grooving
GY Series F018		Modular blade type ● Clamp-on type. ● The modular blade allows for high rigidity and accuracy. (Triforce System) ● Various insert types. Monoblock type ● Spring clamp type. ● Maximum cut off diameter 50mm.	1.2 1.5 2 2.24 2.39 2.5 2.74 3 3.18 3.24 4 4.24 4.75 5 5.24 6 6.31 6.35 8	1.2 1.5 2 2.24 2.39 2.5 2.74 3 3.18 3.24 4 4.24 4.75 5 5.24 6 6.31 6.35 8	1.2 1.5 2 2.24 2.39 2.5 2.74 3 3.18 3.24 4 4.24 4.75 5 5.24 6 6.31 6.35 8	2 2.5 3 3.18 4 4.75 5 6 6.35	2 2.5 3 3.18 4 4.75 5 6 6.35	2 2.24 2.39 2.5 2.74 3 3.18 3.24 4 4.24 4.75 5 5.24 6 6.31 6.35
GW Series F122		● Spring clamp type. ● Simple insert clamping method. ● Possible to use the blade with both external or through coolant. ● Chipbreaker system offering excellent chip disposal properties. ● Maximum cut off diameter : 120mm.	2.0 3.0 4.0 5.0	2.0 3.0 4.0 5.0	2.0 3.0 4.0 5.0			
MG Holder F132		● Clamp-on type. ● Precision class insert. ● Positive insert suffers from negligible chattering and thus produces a good finished surface.	1.25 – 6					
SMALL TOOLS **GTAH GTBH GTCH** D018		● For gang type tool posts. ● Small Shank : 8 mm—16 mm ● Possible to control the back clamping. ● High rigidity due to design of vertical insert. ● Economical due to the design of three-corner inserts.	0.3 – 3.0					
CTAH D020		● For gang type tool posts. ● Small Shank : 8 mm—16 mm ● Due to the design of handed tool holders, able to minimize accumulation of workpieces. ● High rigidity due to design of vertical insert. ● Maximum cut off diameter :12 mm	0.7 1.0 1.5 2.0	0.7 1.0 1.5 2.0	0.7 1.0 1.5 2.0			
CTBH D015		● For gang type tool posts. ● Small Shank : 10 mm—16 mm ● Single holder for inserts for back turning and cutting off. ● High rigidity due to design of vertical insert. ● Maximum cut off diameter:16 mm	1.5 2.0	1.5 2.0	1.5 2.0			

INTERNAL CUTTING

Name of Tool Holder	Insert Shape	Features	Min. Cutting Diameter (mm)	Groove Width (mm)	Max. Groove Depth (mm)
MICRO-MINI TWIN CG TYPE F134	–	● Solid carbide type. ● Economical due to single holder with two cutting edges.	3.0	1.0 – 2.0	1.0 – 2.0
GY Series F086		Modular blade type ● Clamp-on type. ● The modular blade allows for high rigidity and accuracy. (Triforce System) ● Various insert types. Monoblock type ● Spring clamp type.	25	2 – 6.35	4 – 13

GY SERIES

A wide selection of holders and inserts available for a diverse range of grooving and cutting off applications

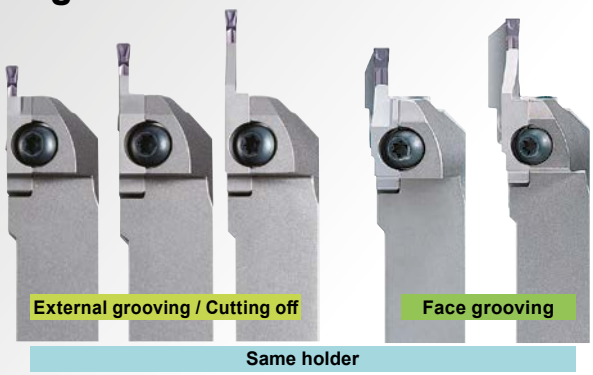
External • Face holders

Corresponding blades to a variety of modular holders with different shank sizes.

Monoblock type

Modular type

Various depths of groove possible with a single tool, by using different modular blades.



Various sizes of face grooves from a wide array of modular blades.

Internal holders

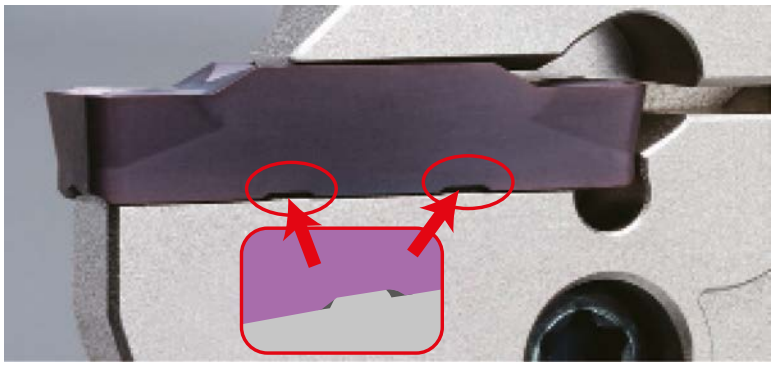
A wide range of holders available from minimum diameter of 25 mm.

Short shank types are stock standard.

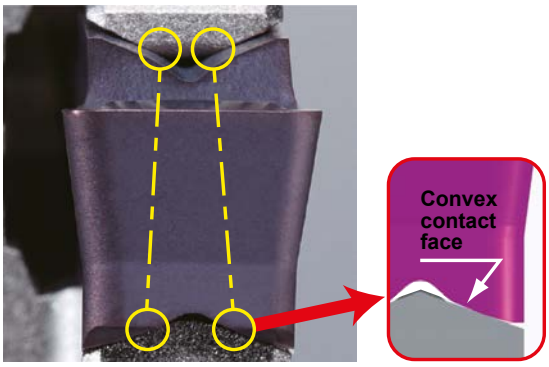
Original insert design leading the way to new grooving and cutting off applications

Highly reliable insert clamping

Safety keys prevent insert movement.



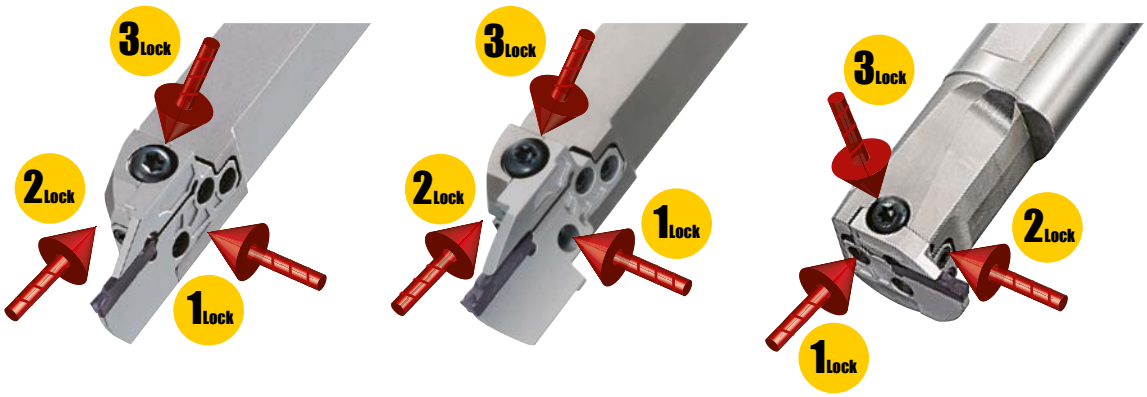
The convex geometry ensures high precision clamping.



TRIFORCE System for increased stability and performance!

TRIFORCE System

The TRIFORCE system ensures the blade is securely fixed in 3 directions (side, front and top), giving high rigidity for a stable grooving and cutting performance.



A WIDE SELECTION OF INSERTS

● Selection of groove widths

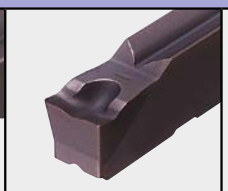
● Different corner radii available

INSERT

● Chipbreaker system

Grooving

GU Chipbreaker
(For Gummy Steel)



GS Chipbreaker
(Low feeds)

GM Chipbreaker
(Medium feeds)

GFGS
(For hardened steel)

GL Chipbreaker
(For Aluminium Alloy)

For Multifunctional Grooving

MF Chipbreaker
(G class)

MS Chipbreaker
(Low feeds)

MM Chipbreaker
(Medium feeds)

Copying/For recessing

BM Chipbreaker

Cutting Off

GU Chipbreaker
(For Gummy Steel)

GS Chipbreaker
(Low feeds)

GM Chipbreaker
(Medium feeds)

R/L05-GM
Chipbreaker
(Medium feeds)

NEW

R08-GS
Chipbreaker
(Low feeds)

NEW

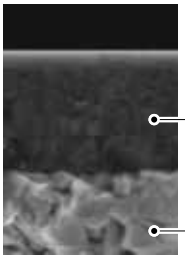
R15-GS
Chipbreaker
(Low feeds)

GL Chipbreaker
(For Aluminium Alloy)

INSERT GRADE

Machining Condition \ Material	P Steel	M Stainless Steel	K Cast Iron	N Aluminium Alloy	S Heat resistant Alloy / Titanium Alloy	H Hardened Steel
Stable ↑ Machining Condition ↓ Unstable	NX2525 MY5015 VP10RT VP20RT	VP10RT VP20RT	MY5015 VP10RT VP20RT	RT9010	MP9015 / RT9010 MP9025	BC8110

MP9000 Series

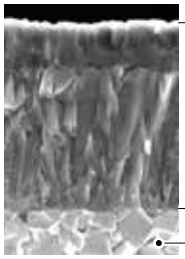


- The high Al-rich (Al, Ti)N single layer coating provides stabilization of the high hardness phase and succeeds in dramatically improving wear, crater and welding resistance.

High Al-rich (Al, Ti)N Single Layer Coating

Special Cemented Carbide Substrate

MY5015

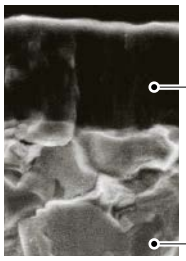


- MY5015 is a CVD coated grade with excellent wear resistance even at high temperatures. It provides longer tool life when machining cast and ductile cast irons. Also suitable for high speed continuous cutting of steels.

CVD Coated Carbide

Carbide substrate

VP20RT (1st Recommendation)



- PVD coated grade suitable for a wide range of applications. The combination of a special tough cemented carbide substrate with MIRACLE coating provides an excellent balance of wear and fracture resistance.

MIRACLE Coating

Carbide substrate (90.5HRA)

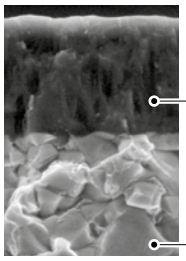
RT9010

- First recommended grade for titanium alloys. It is recommended for use on non-ferrous alloys.

NX2525

- NX2525, a cermet grade for finish machining of steels and for good surface finishes at lower cutting speeds.

VP10RT (2nd Recommendation)



- PVD coated grade with a cemented carbide substrate harder than VP20RT. For use on difficult-to-cut materials and for extending tool life.

MIRACLE Coating

Carbide substrate (HRA92.0)

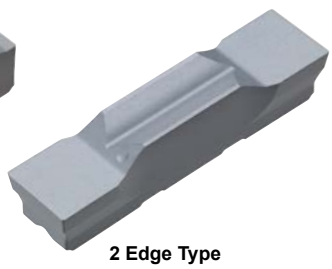
BC8110

- A coated PCBN grade for continuous cutting, which provides longer life when machining hardened steel.

BLANK INSERTS

- Blank inserts for custom grinding

1 Edge Type



2 Edge Type

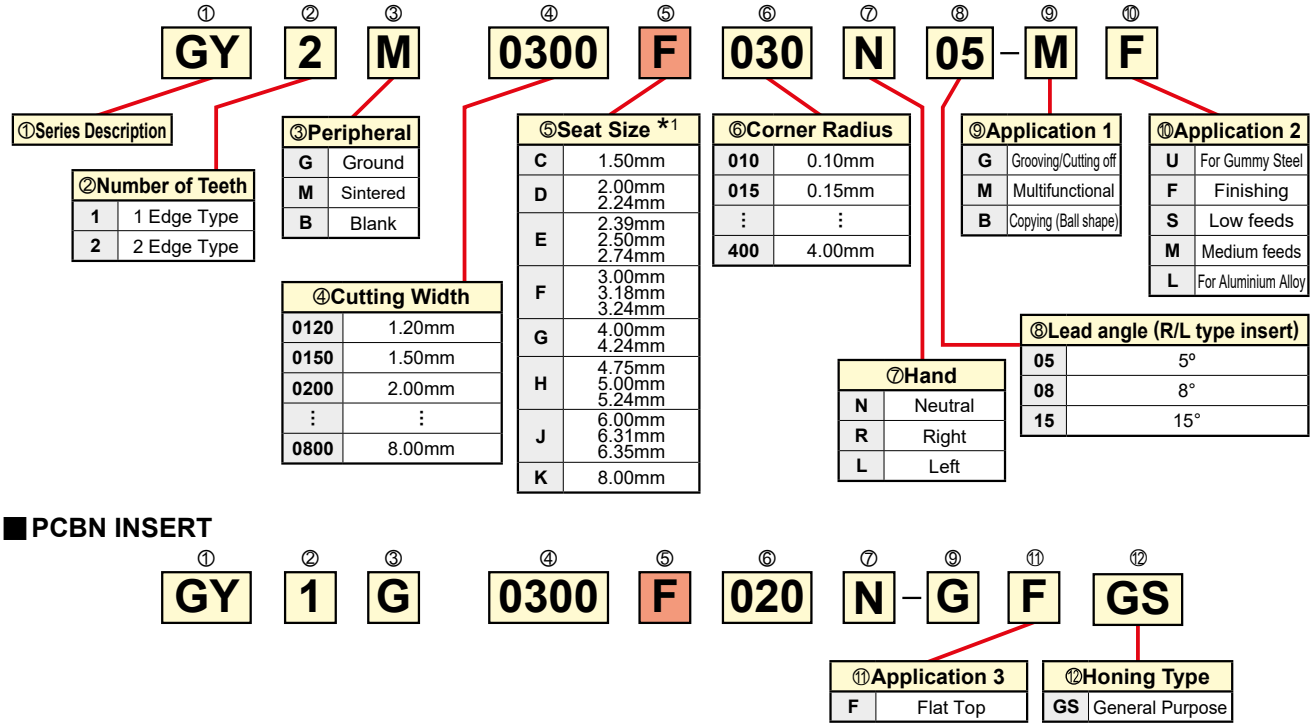
RT9010/RT9020 for blank insert

- First recommendation for blanks inserts is RT9020 due to the tougher carbide substrate that is suitable for a wider range of applications.
  RT9010 has a harder substrate than RT9020 and is ideal for longer tool life on stable cutting applications.
  Both grades are recommended to have a coating applied that is suitable for the required application.

* Blank inserts to be ground by customers.

GY SERIES ORDER NUMBER

■INSERT



①Series Description

②Number of Teeth

1	1 Edge Type
2	2 Edge Type

③Peripheral

G	Ground
M	Sintered
B	Blank

④Cutting Width

0120	1.20mm
0150	1.50mm
0200	2.00mm
⋮	⋮
0800	8.00mm

⑤Seat Size *1

C	1.50mm
D	2.00mm 2.24mm
E	2.39mm 2.50mm 2.74mm
F	3.00mm 3.18mm 3.24mm
G	4.00mm 4.24mm
H	4.75mm 5.00mm 5.24mm
J	6.00mm 6.31mm 6.35mm
K	8.00mm

⑥Corner Radius

010	0.10mm
015	0.15mm
⋮	⋮
400	4.00mm

⑦Hand

N	Neutral
R	Right
L	Left

⑧Lead angle (R/L type insert)

05	5°
08	8°
15	15°

⑨Application 1

G	Grooving/Cutting off
M	Multifunctional
B	Copying (Ball shape)

⑩Application 2

U	For Gummy Steel
F	Finishing
S	Low feeds
M	Medium feeds
L	For Aluminium Alloy

■PCBN INSERT

⑪Application 3

F	Flat Top

⑫Honing Type

GS	General Purpose

*1 Select a seat size with the same symbol as that of modular blade and monoblock holder.

■MODULAR BLADE

●EXTERNAL/INTERNAL/FOR RECESSING

①Series Description

②Modular Blade Size

M20
M25

③Hand

R	Right
L	Left

④Modular Blade Type

A	Standard Type
B	Reinforced Type
C	For recessing
D	Face Grooving

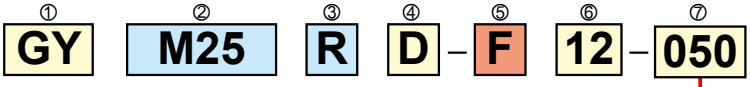
⑤Seat Size *1

D	2.00mm 2.24mm
E	2.39mm 2.50mm 2.74mm
F	3.00mm 3.18mm 3.24mm
G	4.00mm 4.24mm
H	4.75mm 5.00mm 5.24mm
J	6.00mm 6.31mm 6.35mm

⑥Max. Groove Depth CDX *2

005	0.5mm
06	6mm
⋮	⋮
25	25mm

●FACE GROOVING



⑦Min. Groove Diameter

035	35mm
040	40mm
⋮	⋮
250	250mm

*1 Select a seat size with the same symbol as that of the insert.
*2 The maximum groove depth is a value when used for external grooving and changes according to the insert used. For internal grooving, refer to the maximum groove depth on pages F086—F092.
*3 GYM20R/LA-○10, GYM20R/LA-○12, GYM25R/LA-○12 and GYM25R/LA-○14 can be used for both external and internal grooving.

■ EXTERNAL / FACE GROOVING / FOR RECESSING

● MONOBLOCK HOLDER

①	②	③	④	⑤	⑥		⑦	⑧
GY	P	R	2525	M	00	–	K	25

①Series Description

②Holder Type

S	Mono-Block Holder for Swiss-Type Automatic Lathes
P	With monoblock offset
Q	Without monoblock offset
H	Modular holder

③Hand of Holder

R	Right
L	Left

④Shank Diameter(H x W)

1010	10x10mm
1212	12x12mm
1616	16x16mm
2012	20x12mm
2020	20x20mm
2525	25x25mm
3225	32x25mm
3232	32x32mm

⑤Holder Length LF

J	110mm
JX	120mm
K	125mm
M	150mm
P	170mm

⑥Angle (degree)

00	0°
50	50°
90	90°

⑦Seat Size *1

C	1.50mm
D	2.00mm 2.24mm
E	2.39mm 2.50mm 2.74mm
F	3.00mm 3.18mm 3.24mm
G	4.00mm 4.24mm
H	4.75mm 5.00mm 5.24mm
J	6.00mm 6.31mm 6.35mm
K	8.00mm

⑧Max. Groove Depth CDX

06	6mm
08	8mm
⋮	⋮
25	25mm

● MODULAR HOLDER

①	②	③	④	⑤	⑥		⑨	⑩
GY	H	R	2525	M	00	–	M25	R

⑨Modular Blade Size

M20
M25

⑩Hand of Modular Blade

R	Right
L	Left

*1 Select a seat size with the same symbol as that of the insert.

■ INTERNAL

● MONOBLOCK HOLDER

①	②	③	④	⑤	⑥	⑦		⑧	⑨
GY	A	R	20	K	90	A	–	F	06

①Series Description

②Holder Type

A	Monoblock
D	Modular holder

③Hand of Holder

R	Right
L	Left

④Shank Diameter DCONMS

20	20mm
25	25mm
32	32mm
40	40mm
50	50mm

⑤Holder Length LF

K	125mm
L	140mm
M	150mm
P	170mm
Q	180mm
R	200mm
S	250mm
T	300mm

⑥Angle (degree)

90	90°

⑦Neck Length

A	30mm
B	40mm
C	50mm
D	60mm
F	80mm

⑧Seat Size *1

D	2.00mm 2.24mm
E	2.39mm 2.50mm 2.74mm
F	3.00mm 3.18mm 3.24mm
G	4.00mm 4.24mm
H	4.75mm 5.00mm 5.24mm
J	6.00mm 6.31mm 6.24mm

⑨Max. Groove Depth CDX

06	6mm
07	7mm

● MODULAR HOLDER

①	②	③	④	⑤	⑥	⑦		⑩	⑪
GY	D	R	40	M	90	D	–	M25	L

⑩Modular Blade Size

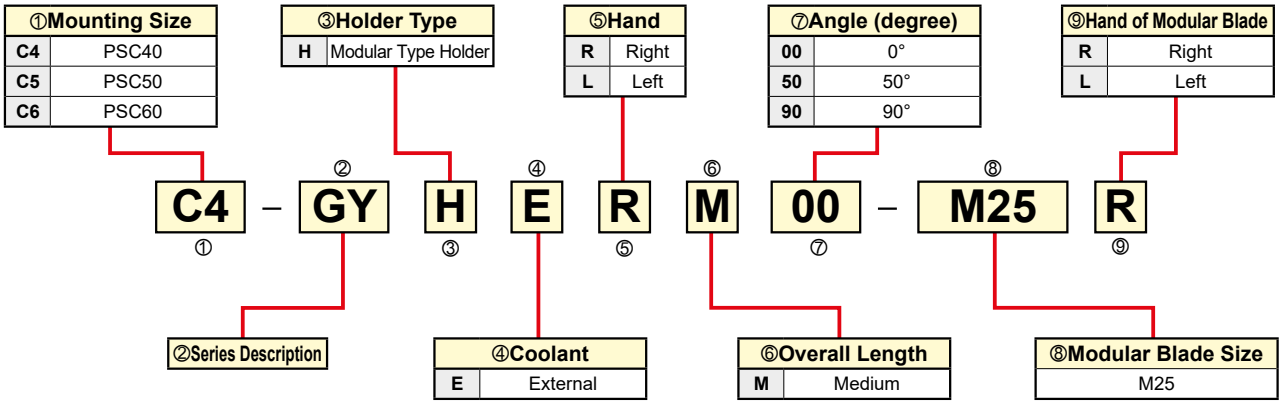
M20
M25

⑪Hand of Modular Blade

R	Right
L	Left

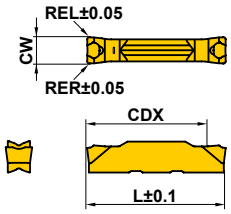
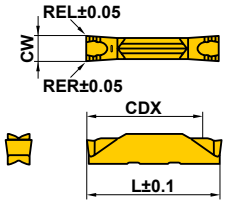
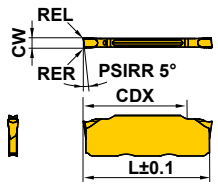
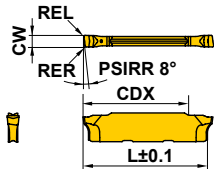
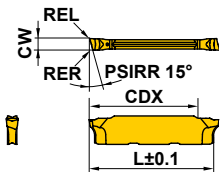
*1 Select a seat size with the same symbol as that of the insert.

PSC HOLDER ORDER NUMBER



GY SERIES INSERTS

INSERTS

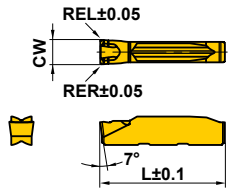
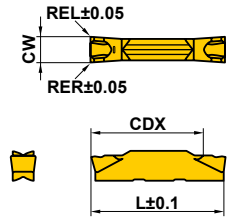
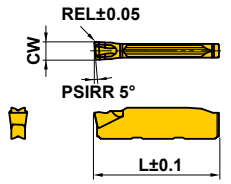
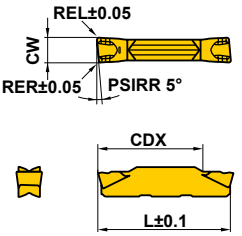
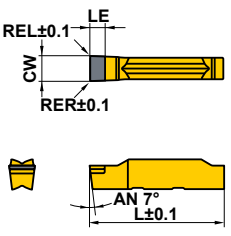
Applications	Geometry	Order Number	Stock: Coated MP9015	Coated MP9025	Coated VP10RT	Coated VP20RT	Coated MY5015	Cermet NX2525	Cermet	Carbide RT9010	Carbide RT9020	Seat Size	Dimensions (mm): CW Cutting Width	CW Tolerance	RER/L	CDX	✱2 L
For Grooving / Cutting Off	**GU Chipbreaker** (For gummy steel) 	GY2M0200D020N-GU			●	●		●				D	2.00	±0.03	0.2	19.7	20.70
		GY2M0239E020N-GU			●	●		●				E	2.39	±0.03	0.2	19.8	20.70
		GY2M0250E020N-GU			●	●		●				E	2.50	±0.03	0.2	19.5	20.70
		GY2M0300F030N-GU			●	●		●				F	3.00	±0.03	0.3	19.3	20.70
		GY2M0318F030N-GU			●	●		●				F	3.18	±0.03	0.3	19.3	20.70
		GY2M0400G030N-GU			●	●		●				G	4.00	±0.04	0.3	24.2	25.65
		GY2M0475H040N-GU			●	●		●				H	4.75	±0.04	0.4	24.2	25.65
		GY2M0500H040N-GU			●	●		●				H	5.00	±0.04	0.4	24.2	25.65
		GY2M0600J040N-GU			●	●		●				J	6.00	±0.04	0.4	24.2	25.65
		GY2M0635J040N-GU			●	●		●				J	6.35	±0.04	0.4	24.2	25.65
	GS Chipbreaker (Low feeds) 	NEW GY2M0120B010N-GS			●	●						B	1.20	±0.03	0.1	12.2	14.70
		GY2M0150C010N-GS			●	●		●				C	1.50	±0.03	0.1	13.4	14.70
		GY2M0200D020N-GS			●	●		●				D	2.00	±0.03	0.2	18.7	20.70
		GY2M0239E020N-GS			●	●		●				E	2.39	±0.03	0.2	18.5	20.70
		GY2M0250E020N-GS			●	●		●				E	2.50	±0.03	0.2	18.5	20.70
		GY2M0300F020N-GS			●	●		●				F	3.00	±0.03	0.2	18.5	20.70
		GY2M0318F020N-GS			●	●		●				F	3.18	±0.03	0.2	18.5	20.70
		GY2M0400G020N-GS			●	●		●				G	4.00	±0.04	0.2	23.9	25.65
		GY2M0475H030N-GS			●	●		●				H	4.75	±0.04	0.3	23.9	25.65
		GY2M0500H030N-GS			●	●		●				H	5.00	±0.04	0.3	24.0	25.65
		GY2M0600J030N-GS			●	●		●				J	6.00	±0.04	0.3	24.1	25.65
		GY2M0635J030N-GS			●	●		●				J	6.35	±0.04	0.3	24.1	25.65
		GY2M0800K030N-GS			●	●						K	8.00	±0.04	0.3	29.1	30.50
For Cutting off	**R05-GS Chipbreaker** (Low feeds) NEW 	GY2M0120B010R05-GS			★	★						B	1.20	±0.03	0.1	12.22	14.70
	R08-GS Chipbreaker (Low feeds) NEW 	GY2G0150C010R08-GS			●	●						C	1.50	±0.02	0.1	13.17	15.20
		GY2G0200D020R08-GS			●	●						D	2.00	±0.03	0.2	18.85	21.30
		GY2G0250E020R08-GS			●	●						E	2.50	±0.03	0.2	19.04	21.50
		GY2G0300F020R08-GS			●	●						F	3.00	±0.03	0.2	18.62	21.50
	R15-GS Chipbreaker (Low feeds) NEW 	GY2G0150C003R15-GS			●	●						C	1.50	±0.02	0.1/0.03	13.17	15.20
		GY2G0150C010R15-GS			●	●						C	1.50	±0.02	0.1	13.17	15.20
		GY2G0200D003R15-GS			●	●						D	2.00	±0.03	0.1/0.03	18.85	21.30
		GY2G0200D010R15-GS			●	●						D	2.00	±0.03	0.1	18.85	21.30
		GY2G0250E003R15-GS			●	●						E	2.50	±0.03	0.1/0.03	19.04	21.50
		GY2G0250E020R15-GS			●	●						E	2.50	±0.03	0.1/0.2	19.04	21.50
		GY2G0300F003R15-GS			●	●						F	3.00	±0.03	0.1/0.03	18.62	21.50
		GY2G0300F020R15-GS			●	●						F	3.00	±0.03	0.1/0.2	18.62	21.50

✱2 The dimension depends on the chipbreaker. Refer to the F017 “L dimension tolerance conversion table”.

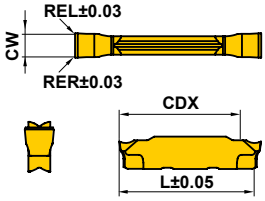
● : Inventory maintained. ★ : Inventory maintained in Japan.
(10 inserts in one case)

GY SERIES INSERTS

INSERTS

Applications	Geometry	Order Number	Stock: Coated MP9015	Coated MP9025	Coated VP10RT	Coated VP20RT	Coated MY5015	Cermet NX2525	Carbide RT9010	CBN BC8110	Seat Size	Dimensions (mm): CW Cutting Width	CW Tolerance	RER/L	CDX	★2 L	LE
For Grooving / Cutting Off	**GM Chipbreaker** (Medium feeds) 	GY1M0200D020N-GM	●	●	●	●	●				D	2.00	±0.03	0.2	—	20.70	—
		GY1M0250E020N-GM	●	●	●	●	★				E	2.50	±0.03	0.2	—	20.70	—
		GY1M0300F030N-GM	●	●	●	●	●				F	3.00	±0.03	0.3	—	20.70	—
		GY1M0400G030N-GM	●	●	●	●	●				G	4.00	±0.04	0.3	—	25.65	—
		GY1M0500H040N-GM	●	●	●	●	●				H	5.00	±0.04	0.4	—	25.65	—
	GM Chipbreaker (Medium feeds) 	GY2M0150C020N-GM	●	●	●	●		●			C	1.50	±0.03	0.2	13.9	14.70	—
		GY2M0200D020N-GM	●	●	●	●	●	●			D	2.00	±0.03	0.2	19.4	20.70	—
		GY2M0239E020N-GM	●	●	●	●	●	●			E	2.39	±0.03	0.2	19.4	20.70	—
		GY2M0250E020N-GM	●	●	●	●	●	●			E	2.50	±0.03	0.2	19.4	20.70	—
		GY2M0300F030N-GM	●	●	●	●	●	●			F	3.00	±0.03	0.3	19.4	20.70	—
		GY2M0318F030N-GM	●	●	●	●	●	●			F	3.18	±0.03	0.3	19.4	20.70	—
		GY2M0400G030N-GM	●	●	●	●	●	●			G	4.00	±0.04	0.3	24.4	25.65	—
		GY2M0475H040N-GM	●	●	●	●	●	●			H	4.75	±0.04	0.4	24.3	25.65	—
		GY2M0500H040N-GM	●	●	●	●	●	●			H	5.00	±0.04	0.4	24.3	25.65	—
		GY2M0600J040N-GM	●	●	●	●	●	●			J	6.00	±0.04	0.4	24.3	25.65	—
		GY2M0635J040N-GM	●	●	●	●	●	●			J	6.35	±0.04	0.4	24.3	25.65	—
		GY2M0800K050N-GM	●	●	●	●	●				K	8.00	±0.04	0.5	29.3	30.50	—
For Cutting Off	**R/L05-GM Chipbreaker**  Right hand insert shown.	GY1M0200D020R05-GM			●	●					D	2.00	±0.03	0.2	—	20.80	—
		GY1M0200D020L05-GM			★	●					D	2.00	±0.03	0.2	—	20.80	—
		GY1M0300F030R05-GM			●	●					F	3.00	±0.03	0.3	—	20.85	—
		GY1M0300F030L05-GM			●	●					F	3.00	±0.03	0.3	—	20.85	—
	R/L05-GM Chipbreaker  Right hand insert shown.	GY2M0200D020R05-GM			●	●					D	2.00	±0.03	0.2	19.5	20.80	—
		GY2M0200D020L05-GM			●	●					D	2.00	±0.03	0.2	19.5	20.80	—
		GY2M0250E020R05-GM			●	●					E	2.50	±0.03	0.2	19.5	20.825	—
		GY2M0250E020L05-GM			●	●					E	2.50	±0.03	0.2	19.5	20.825	—
		GY2M0300F030R05-GM			●	●					F	3.00	±0.03	0.3	19.5	20.85	—
		GY2M0300F030L05-GM			●	●					F	3.00	±0.03	0.3	19.5	20.85	—
		GY2M0400G030R05-GM			●	●					G	4.00	±0.04	0.3	24.5	25.85	—
		GY2M0400G030L05-GM			●	●					G	4.00	±0.04	0.3	24.5	25.85	—
		GY2M0500H040R05-GM			●	●					H	5.00	±0.04	0.4	24.5	25.95	—
		GY2M0500H040L05-GM			●	●					H	5.00	±0.04	0.4	24.5	25.95	—
For Grooving	**Flat Top** (For hardened steel) 	GY1G0200D020N-GFGS								●	D	2.00	±0.03	0.2	—	20.70	2.7
		GY1G0239E020N-GFGS								●	E	2.39	±0.03	0.2	—	20.70	2.7
		GY1G0250E020N-GFGS								●	E	2.50	±0.03	0.2	—	20.70	2.7
		GY1G0300F020N-GFGS								●	F	3.00	±0.03	0.2	—	20.70	2.7
		GY1G0318F020N-GFGS								●	F	3.18	±0.03	0.2	—	20.70	2.7
		GY1G0400G020N-GFGS								●	G	4.00	±0.03	0.2	—	25.65	2.7
		GY1G0475H020N-GFGS								●	H	4.75	±0.03	0.2	—	25.65	2.7
		GY1G0500H020N-GFGS								●	H	5.00	±0.03	0.2	—	25.65	2.7
		GY1G0600J020N-GFGS								●	J	6.00	±0.03	0.2	—	25.65	2.7

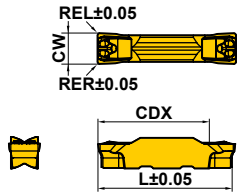
● : Inventory maintained. ★ : Inventory maintained in Japan.
(10 inserts in one case) (CBN inserts are available in 1 piece in one case.)

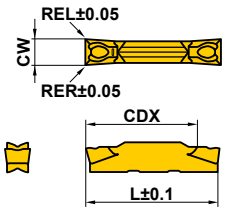
Applications	Geometry	Order Number	Stock									Seat Size	Dimensions (mm)					
			Coated					Cermet		Carbide	CBN		CW		RER/L	CDX	*2 L	LE
			MP9015	MP9025	VP10RT	VP20RT	MY5015	NX2525		RT9010	BC8110		Cutting Width	Tolerance				
For Grooving / Cutting Off	**GL Chipbreaker** (For Aluminium Alloy) 	**GY2G0200D005N-GL**								●		**D**	2.00	±0.02	0.05	19.5	21.05	—
		GY2G0250E005N-GL								●		**E**	2.50	±0.02	0.05	19.1	21.05	—
		GY2G0300F005N-GL								●		**F**	3.00	±0.02	0.05	18.9	21.05	—

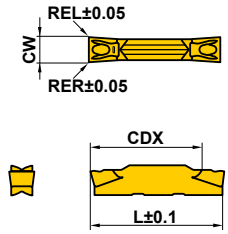
GY SERIES INSERTS

INSERTS

Applications	Geometry	Order Number	Stock: Coated MP9015	Coated MP9025	Coated VP10RT	Coated VP20RT	Coated MY5015	Cermet NX2525	Carbide RT9010	Carbide RT9020	Seat Size	Dimensions (mm): CW Cutting Width	CW Tolerance	RE RER/L	CDX	∗2 L
For Multifunctional Grooving	**MF Chipbreaker** (Finishing)	GY2G0200D020N-MF			●	●		●	●		D	2.00	±0.02	0.2	19.5	21.05
		∗1 GY2G0224D015N-MF			●	●		●	●		D	2.24	±0.02	0.15	19.8	21.05
		GY2G0239E020N-MF			★	★		★	★		E	2.39	±0.02	0.2	19.2	21.05
		GY2G0250E020N-MF			●	●		●	●		E	2.50	±0.02	0.2	19.4	21.05
		∗1 GY2G0274E020N-MF			●	●		●	●		E	2.74	±0.02	0.2	19.7	21.05
		GY2G0300F020N-MF			●	●		●	●		F	3.00	±0.02	0.2	19.5	21.05
		GY2G0300F040N-MF			●	●		●	●		F	3.00	±0.02	0.4	19.3	21.05
		GY2G0318F020N-MF			★	★		★	★		F	3.18	±0.02	0.2	19.5	21.05
		GY2G0318F040N-MF			★	★		★	★		F	3.18	±0.02	0.4	19.3	21.05
		∗1 GY2G0324F020N-MF			●	●		●	●		F	3.24	±0.02	0.2	19.5	21.05
		GY2G0400G020N-MF			●	●		●	●		G	4.00	±0.02	0.2	24.9	25.95
		GY2G0400G040N-MF			●	●		●	●		G	4.00	±0.02	0.4	24.7	25.95
		GY2G0400G080N-MF			●	●		●	●		G	4.00	±0.02	0.8	24.3	25.95
		∗1 GY2G0424G020N-MF			●	●		●	●		G	4.24	±0.02	0.2	24.9	25.95
		GY2G0475H020N-MF			★	★		★	★		H	4.75	±0.02	0.2	24.4	25.95
		GY2G0475H040N-MF			★	★		★	★		H	4.75	±0.02	0.4	24.2	25.95
		GY2G0475H080N-MF			★	★		★	★		H	4.75	±0.02	0.8	23.8	25.95
		GY2G0500H020N-MF			●	●		●	●		H	5.00	±0.02	0.2	24.4	25.95
		GY2G0500H040N-MF			●	●		●	●		H	5.00	±0.02	0.4	24.2	25.95
		GY2G0500H080N-MF			●	●		●	●		H	5.00	±0.02	0.8	23.8	25.95
		∗1 GY2G0524H020N-MF			●	●		●	●		H	5.24	±0.02	0.2	24.4	25.95
		GY2G0600J020N-MF			●	●		●	●		J	6.00	±0.02	0.2	24.4	25.95
		GY2G0600J040N-MF			●	●		●	●		J	6.00	±0.02	0.4	24.2	25.95
		GY2G0600J080N-MF			●	●		●	●		J	6.00	±0.02	0.8	23.8	25.95
		∗1 GY2G0631J020N-MF			●	●		●	●		J	6.31	±0.02	0.2	24.4	25.95
		GY2G0635J020N-MF			★	★		★	★		J	6.35	±0.02	0.2	24.4	25.95
		GY2G0635J040N-MF			★	★		★	★		J	6.35	±0.02	0.4	24.2	25.95
		GY2G0635J080N-MF			★	★		★	★		J	6.35	±0.02	0.8	23.8	25.95
	MS Chipbreaker (Low feeds)	GY2M0200D020N-MS			●	●	●	●			D	2.00	±0.03	0.2	19.1	20.70
		GY2M0250E020N-MS			●	●	●	●			E	2.50	±0.03	0.2	19.1	20.70
		GY2M0300F020N-MS			●	●	●	●			F	3.00	±0.03	0.2	19.2	20.70
		GY2M0300F040N-MS			●	●	●	●			F	3.00	±0.03	0.4	18.9	20.70
		GY2M0400G020N-MS			●	●	●	●			G	4.00	±0.04	0.2	24.2	25.65
		GY2M0400G040N-MS			●	●	●	●			G	4.00	±0.04	0.4	23.9	25.65
		GY2M0500H040N-MS			●	●	●	●			H	5.00	±0.04	0.4	23.9	25.65
		GY2M0500H080N-MS			●	●	●	●			H	5.00	±0.04	0.8	23.5	25.65
		GY2M0600J040N-MS			●	●	●	●			J	6.00	±0.04	0.4	23.9	25.65
		GY2M0600J080N-MS			●	●	●	●			J	6.00	±0.04	0.8	23.5	25.65
		GY2M0800K080N-MS			●	●	●				K	8.00	±0.04	0.8	28.5	30.50
	MM Chipbreaker (Medium feeds)	GY2M0200D020N-MM	●	●	●	●	●	●			D	2.00	±0.03	0.2	19.1	20.70
		GY2M0250E020N-MM	●	●	●	●	●	●			E	2.50	±0.03	0.2	19.1	20.70
		GY2M0300F020N-MM	●	●	●	●	●	●			F	3.00	±0.03	0.2	19.1	20.70
		GY2M0300F040N-MM	●	●	●	●	●	●			F	3.00	±0.03	0.4	18.9	20.70
		GY2M0300F080N-MM	●	●	●	●	●	●			F	3.00	±0.03	0.8	18.5	20.70
		GY2M0400G020N-MM	●	●	●	●	●	●			G	4.00	±0.04	0.2	24.1	25.65
		GY2M0400G040N-MM	●	●	●	●	●	●			G	4.00	±0.04	0.4	23.9	25.65
		GY2M0400G080N-MM	●	●	●	●	●	●			G	4.00	±0.04	0.8	23.5	25.65
		GY2M0500H040N-MM	●	●	●	●	●	●			H	5.00	±0.04	0.4	23.9	25.65
		GY2M0500H080N-MM	●	●	●	●	●	●			H	5.00	±0.04	0.8	23.5	25.65
		GY2M0600J040N-MM	●	●	●	●	●	●			J	6.00	±0.04	0.4	23.9	25.65
		GY2M0600J080N-MM	●	●	●	●	●	●			J	6.00	±0.04	0.8	23.5	25.65
		GY2M0800K080N-MM	●	●	●	●	●				K	8.00	±0.04	0.8	28.5	30.50
		GY2M0800K120N-MM	●	●	●	●	●				K	8.00	±0.04	1.2	28.1	30.50

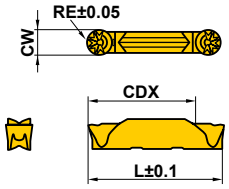
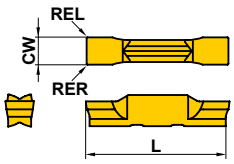
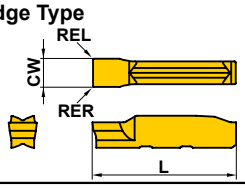






∗1 Groove width corresponding to the circlip.
∗2 The dimension depends on the chipbreaker. Refer to the F017 “L dimension tolerance conversion table”.

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

Applications	Geometry	Order Number	Stock								Seat Size	Dimensions (mm)				
			Coated					Cermet		Carbide		CW		RE RER/L	CDX	∗2 L
			MP9015	MP9025	VP10RT	VP20RT	MY5015	NX2525		RT9010	RT9020		Cutting Width	Tolerance			
For Copying / For Recessing	**BM Chipbreaker** 	**GY2M0200D100N-BM**	●	●	●	●	●	●				D	2.00	±0.03	1.00	19.5	20.90
		GY2M0250E125N-BM	●	●	●	●	●	●				E	2.50	±0.03	1.25	19.3	20.90
		GY2M0300F150N-BM	●	●	●	●	●	●				F	3.00	±0.03	1.50	19.0	20.90
		GY2M0318F159N-BM	●	●	●	●	●	●				F	3.18	±0.03	1.59	18.9	20.90
		GY2M0400G200N-BM	●	●	●	●	●	●				G	4.00	±0.04	2.00	23.4	25.80
		GY2M0475H238N-BM	●	●	●	●	●	●				H	4.75	±0.04	2.38	22.9	25.80
		GY2M0500H250N-BM	●	●	●	●	●	●				H	5.00	±0.04	2.50	22.8	25.80
		GY2M0600J300N-BM	●	●	●	●	●	●				J	6.00	±0.04	3.00	22.5	25.90
		GY2M0635J318N-BM	●	●	●	●	●	●				J	6.35	±0.04	3.18	22.3	25.90
		GY2M0800K400N-BM	●	●	●	●	●					K	8.00	±0.04	4.00	26.5	30.80
∗1 Blank	**2 Edge Type** 	**GY2B0220D020N**						●		●	●	D	2.20	±0.10	0.2	—	21.05
		GY2B0250D020N						●		●	●	D	2.55	±0.10	0.2	—	21.28
		GY2B0270E020N						●		●	●	E	2.70	±0.10	0.2	—	21.05
		GY2B0300E020N						●		●	●	E	3.05	±0.10	0.2	—	21.28
		GY2B0340F020N						●		●	●	F	3.40	±0.10	0.2	—	21.05
		GY2B0360F020N						●		●	●	F	3.65	±0.10	0.2	—	21.28
		GY2B0420G020N						●		●	●	G	4.20	±0.10	0.2	—	26.00
		GY2B0460G020N						●		●	●	G	4.65	±0.10	0.2	—	26.18
		GY2B0520H020N						●		●	●	H	5.20	±0.10	0.2	—	26.00
		GY2B0560H020N						●		●	●	H	5.65	±0.10	0.2	—	26.18
		GY2B0655J020N						●		●	●	J	6.55	±0.10	0.2	—	26.03
		GY2B0680J020N						●		●	●	J	6.85	±0.10	0.2	—	26.18
		GY2B0880K020N								●	●	K	8.85	±0.10	0.2	—	30.88
	1 Edge Type 	**GY1B0220D020N**						●		●	●	D	2.20	±0.10	0.2	—	21.07
		GY1B0270E020N						●		●	●	E	2.70	±0.10	0.2	—	21.10
		GY1B0340F020N						●		●	●	F	3.40	±0.10	0.2	—	21.00
		GY1B0420G020N						●		●	●	G	4.20	±0.10	0.2	—	25.86
		GY1B0520H020N						●		●	●	H	5.20	±0.10	0.2	—	25.90
		GY1B0655J020N						●		●	●	J	6.55	±0.10	0.2	—	25.90

∗1 Groove width corresponding to the circlip.
∗2 The dimension depends on the chipbreaker. Refer to the F017 “L dimension tolerance conversion table”.

Reference Material

C-TYPE CIRCLIP STANDARDS LIST

Category	Application		Standard	Width (Tolerance)							
				For shaft				For hole			
C-type stop ring	For shaft	For hole	ANSI B27.7/27.8 (US) BS 3673 (UK) DIN 471/472 (De) NF E 22 163 (Fr) UNI 7435/7438 (It)	0.5 0.7 0.8 0.9 1.1 1.3	+0.14 0	0.305 0.457	+0.051 0	1.15 1.35	+0.14 0	9 1.1 1.3 1.6 1.85	+0.14 0	0.457	+0.051 0
						0.737 0.991 1.168	+0.076 0	1.75 1.95				0.737 0.991 1.168	+0.076 0
						1.422	+0.102	2.2 2.7		2.15 2.65		1.422	+0.102
C-type concentric stop ring	For shaft	For hole		1.6 1.85		1.727	0	3.2 4.2	+0.18 0	3.15 4.15 5.15	+0.18 0	1.727	0
				2.15 2.65		2.184	+0.127					2.184	+0.127
						2.616 3.048	0					2.616 3.048	0
				3.15 4.15 5.15	+0.18 0	3.531	+0.152 0			6.2	+0.22 0		
			JIS B 2804 (JP)	6.2	+0.22 0								
E-type stop ring	For shaft		N1*** American	0.32 0.5	+0.05 0	0.305 0.457 0.584	+0.051 0	0.3 0.4 0.5	+0.05 0				
				0.7 1.0	+0.10 0	0.737 0.991 1.168	+0.076 0	0.7 0.9	+0.10 0				
				1.2 1.4	+0.14 0	1.422 1.727	+0.102 0	1.15 1.75 2.2	+0.14 0				

O-RING STANDARDS

Category	Standard	Width (Tolerance)								
		General				For oil pressure				For air pressure			
For stable	DIN 3770/3771 (De)	2.54 3.18 4.32 6.1 8.0	+0.13 0			1.9 2.3	+0.1 0	2.3 3.1 3.7 6.4 9.0	+0.2 0				
	JIS B 2401 (JP) ISO 3601	3.2 4.0 7.5 11.0	+0.2 0	2.5 3.2 4.7 7.5 11.1	+0.14 0	2.9	+0.15 0						
						3.6 4.5	+0.2 0						
For dynamic	SMS 1586/1588 (Se) BS 1806/4518 (UK)					5.5 7.0	+0.3 0	2.4 3.6 4.8 7.1 9.5	+0.25 0	2.3 3.1 3.7 6.4 9.0	+0.2 0	2.2 3.4 4.6 6.9 9.3	+0.25 0
	SAE AS-568 (US)	2.39 3.58 4.78 7.14 9.58	+0.25 0			8.6	+0.4 0						
						10.7	+0.5 0						

G-class insert with MF chipbreaker is available for single-step machining.
Conventional GY series insert is available for single-step machining.
Machined in multiple steps or by cross feed machining.

L DIMENSION TOLERANCE CONVERSION TABLE

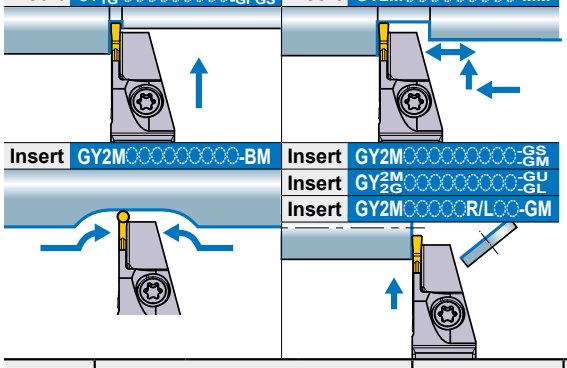
Cutting Width **CW** (mm)	*1 Dimensions **L** (mm)	*2 Dimensional tolerance (mm) versus standard dimension (L) of each chipbreaker									
		GU	**GS/GM**	**MS/MM**	**R05-GS**	**R08/15-GS**	**R/L-GM**	Flat Top	**MF**	**BM**	**GL**
1.20	14.70		0		0						
1.50	14.70		0			0.50					
2.00	20.70	0	0	0		0.60	0.10	0	0.35	0.20	0.35
2.24	*3 (20.7)								0.35		
2.39	20.70	0	0					0	0.35		
2.50	20.70	0	0	0		0.80	0.125	0	0.35	0.20	0.35
2.74	*3 (20.7)								0.35		
3.00	20.70	0	0	0		0.80	0.15	0	0.35	0.20	0.35
3.18	20.70	0	0					0	0.35	0.20	
3.24	*3 (20.7)								0.35		
4.00	25.65	0	0	0			0.20	0	0.30	0.15	
4.24	*3 (25.65)								0.30		
4.75	25.65	0	0					0	0.30	0.15	
5.00	25.65	0	0	0			0.30	0	0.30	0.15	
5.24	*3 (25.65)								0.30		
6.00	25.65	0	0	0				0	0.30	0.25	
6.31	*3 (25.65)								0.30		
6.35	25.65	0	0						0.30	0.25	
8.00	30.50		0	0						0.30	

*1 This value is used at the described holder dimension.
*2 ■ when there is no applicable chipbreaker.
*3 The standard dimensions shown here use an approximate insert width.

GY SERIES (External for Swiss style lathes)

1 00° type holder NEW

Insert GY2M○○○○○○○○○○-GS-GM
Insert GY2M/2G○○○○○○○○○○-GU-GL
Insert GY1M/1G○○○○○○○○○○-GM-GFGS
Insert GY2G○○○○○○○○○○-MF
Insert GY2M○○○○○○○○○○-MS
Insert GY2M○○○○○○○○○○-MM
Insert GY2M○○○○○○○○○○-BM
Insert GY2M○○○○○○○○○○-GS-GM
Insert GY2M/2G○○○○○○○○○○-GU-GL
Insert GY2M○○○○○R/L○○-GM



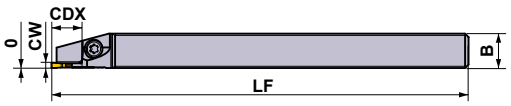


Fig. 1

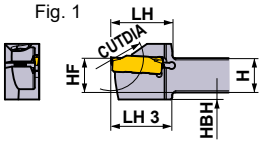


Fig. 2

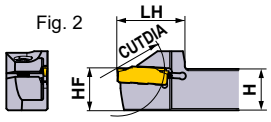
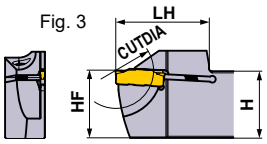


Fig. 3



Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX*4	CUTDIA	Type	Hand (R/L)	Order Number Holder	Stock	Fig.
B	1.20	8	16	Monoblock	R	GYSR1010JX00-B08	●	1
		8	16		L	GYSL1010JX00-B08	●	1
		8	16	Monoblock	R	GYSR1212JX00-B08	●	2
		8	16		L	GYSL1212JX00-B08	●	2
		12	24	Monoblock	R	GYSR1212JX00-B12	●	1
		12	24		L	GYSL1212JX00-B12	●	1
		8	16	Monoblock	R	GYSR1616JX00-B08	●	2
		8	16		L	GYSL1616JX00-B08	●	2
		13	26	Monoblock	R	GYSR1616JX00-B13	●	2
		13	26		L	GYSL1616JX00-B13	●	2
C	1.50	8	16	Monoblock	R	GYSR1010JX00-C08	●	1
		8	16		L	GYSL1010JX00-C08	●	1
		8	16	Monoblock	R	GYSR1212JX00-C08	●	2
		8	16		L	GYSL1212JX00-C08	●	2
		12	24	Monoblock	R	GYSR1212JX00-C12	●	1
		12	24		L	GYSL1212JX00-C12	●	1
		13	26	Monoblock	R	GYSR1616JX00-C13	●	2
		13	26		L	GYSL1616JX00-C13	●	2
		13	26	Monoblock	R	GYSR2012JX00-C13	★	3
		13	26		L	GYSL2012JX00-C13	★	3
D	2.00 2.24	10	20	Monoblock	R	GYSR1010JX00-D10	★	1
		10	20		L	GYSL1010JX00-D10	★	1
		12	24	Monoblock	R	GYSR1212JX00-D12	●	1
		12	24		L	GYSL1212JX00-D12	●	1
		13	26	Monoblock	R	GYSR1616JX00-D13	●	2
		13	26		L	GYSL1616JX00-D13	●	2
		16	32	Monoblock	R	GYSR1616JX00-D16	★	2
		16	32		L	GYSL1616JX00-D16	●	2
		17	34	Monoblock	R	GYSR1915K00-D17	★	3
		17	34		L	GYSL1915K00-D17	★	3
		17	34	Monoblock	R	GYSR2012JX00-D17	★	3
		17	34		L	GYSL2012JX00-D17	★	3
		17	34	Monoblock	R	GYSR2020K00-D17	★	2
		17	34		L	GYSL2020K00-D17	★	2
		17	34	Monoblock	R	GYSR2525M00-D17	★	2
		17	34		L	GYSL2525M00-D17	★	2

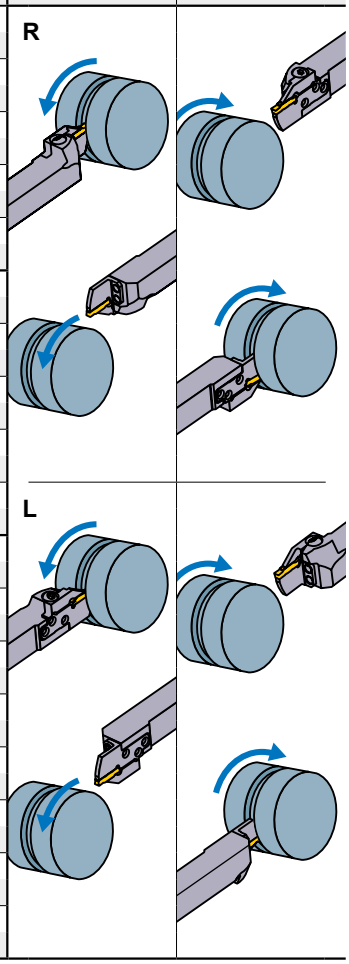
*1 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F012—F015.
*2 The maximum cut off diameter (**CUTDIA**) varies according to the insert used. The cut off diameter is double the maximum groove depth (**CDX**) of inserts on pages F012—F015.
*3 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH** and **LH 3** values may vary.
*4 The maximum groove depth (**CDX**) is limited by the workpiece diameter. For details, please refer to page F102.

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

SPARE PARTS

Holder	Clamp Screw	Wrench
GYSR/L1010JX00	CS350990T	TKY10R
GYSR/L1212JX00	CS350990T	TKY10R
GYSR/L1616JX00	TS4SBL	TKY15R
GYSR/L1915K00	TS4SBL	TKY15R
GYSR/L2012JX00	CS350990T	TKY10R
GYSR/L2020K00	HSC05018	HKY40R
GYSR/L2525M00	HSC05018	HKY40R

Dimensions (mm) ∗3							Cutting Mode	
H	B	LF	LH	LH 3	HF	HBH	Clockwise	Anticlockwise
10	10	120	17.5	17.5	10	2	R	
10	10	120	17.5	17.5	10	2		
12	12	120	19.5	—	12	—		
12	12	120	19.5	—	12	—		
12	12	120	19.5	19.5	12	2		
12	12	120	19.5	19.5	12	2		
16	16	120	25	—	16	—		
16	16	120	25	—	16	—		
16	16	120	25	—	16	—		
16	16	120	25	—	16	—		
10	10	120	17.5	17.5	10	2		
10	10	120	17.5	17.5	10	2		
12	12	120	19.5	—	12	—		
12	12	120	19.5	—	12	—		
12	12	120	19.5	19.5	12	2		
12	12	120	19.5	19.5	12	2		
16	16	120	25	—	16	—		
16	16	120	25	—	16	—		
20	12	120	28	—	20	—	L	
20	12	120	28	—	20	—		
10	10	120	17.5	17.5	10	2		
10	10	120	17.5	17.5	10	2		
12	12	120	19.5	19.5	12	2		
12	12	120	19.5	19.5	12	2		
16	16	120	25	—	16	—		
16	16	120	25	—	16	—		
16	16	120	28	—	16	—		
16	16	120	28	—	16	—		
19.05	15.875	125	28	—	19.05	—		
19.05	15.875	125	28	—	19.05	—		
20	12	120	28	—	20	—		
20	12	120	28	—	20	—		
20	20	125	35	—	20	—		
20	20	125	35	—	20	—		
25	25	150	40	—	25	—		
25	25	150	40	—	25	—		



Insert selection

Seat Size	Geometry name
B	GY○○0120B○○○○–Chipbreaker shown below
C	GY○○0150C○○○○–Chipbreaker shown below
D	GY○○0200/0224D○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011–F013

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GL (Aluminium alloy)	GFGS (Hardened steel)
		Neutral	Neutral	Neutral	Neutral	Neutral
B	1.20mm		●			
C	1.50mm		●	●		
D	2.00mm	●	●	●	●	●

For cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	05-GS (Low)	08-GS (Low)	15-GS (Low)	05-GM (Medium)
		R	R	R	R/L
B	1.20mm	●			
C	1.50mm		●	●	
D	2.00mm		●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

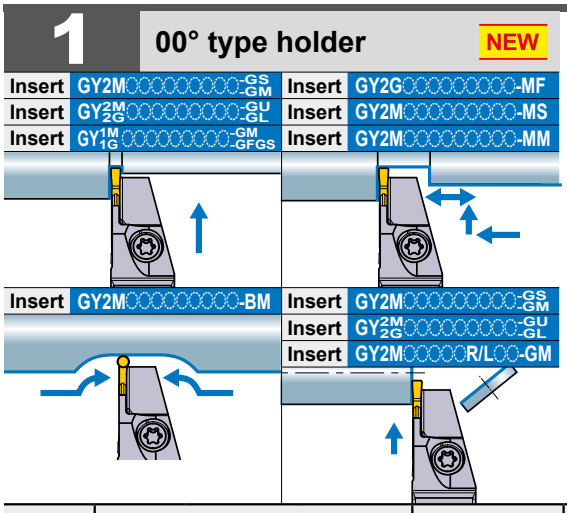
Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying, Recessing)
					Ball shape
D	2.00mm	●	●	●	●
	2.24mm	●			

● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F100
CAUTION FOR USE ➤ F105

GY SERIES (External for Swiss style lathes)

1 00° type holder NEW



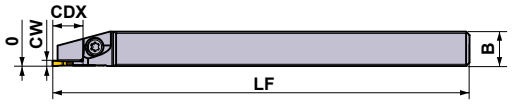


Fig. 1

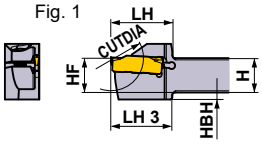


Fig. 2

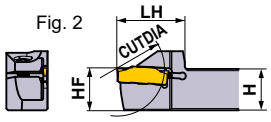
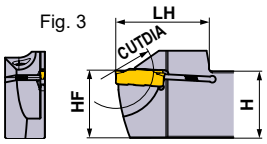


Fig. 3



Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX*4	CUTDIA	Type	Hand (R/L)	Order Number Holder	Stock	Fig.
E	2.39 2.50 2.74	10	20	Monoblock	R	GYSR1010JX00-E10	★	1
		10	20		L	GYSL1010JX00-E10	★	1
		12	24	Monoblock	R	GYSR1212JX00-E12	★	1
		12	24		L	GYSL1212JX00-E12	★	1
		13	26	Monoblock	R	GYSR1616JX00-E13	★	2
		13	26		L	GYSL1616JX00-E13	★	2
		16	32	Monoblock	R	GYSR1616JX00-E16	★	2
		16	32		L	GYSL1616JX00-E16	★	2
		17	34	Monoblock	R	GYSR1915K00-E17	★	3
		17	34		L	GYSL1915K00-E17	★	3
		17	34	Monoblock	R	GYSR2012JX00-E17	★	3
		17	34		L	GYSL2012JX00-E17	★	3
		17	34	Monoblock	R	GYSR2020K00-E17	★	2
		17	34		L	GYSL2020K00-E17	★	2
		17	34	Monoblock	R	GYSR2525M00-E17	★	2
		17	34		L	GYSL2525M00-E17	★	2
F	3.00 3.18 3.24	12	24	Monoblock	R	GYSR1212JX00-F12	★	1
		12	24		L	GYSL1212JX00-F12	●	1
		13	26	Monoblock	R	GYSR1616JX00-F13	★	2
		13	26		L	GYSL1616JX00-F13	★	2
		16	32	Monoblock	R	GYSR1616JX00-F16	●	2
		16	32		L	GYSL1616JX00-F16	★	2
		17	34	Monoblock	R	GYSR1915K00-F17	★	3
		17	34		L	GYSL1915K00-F17	★	3
		17	34	Monoblock	R	GYSR2012JX00-F17	★	3
		17	34		L	GYSL2012JX00-F17	★	3

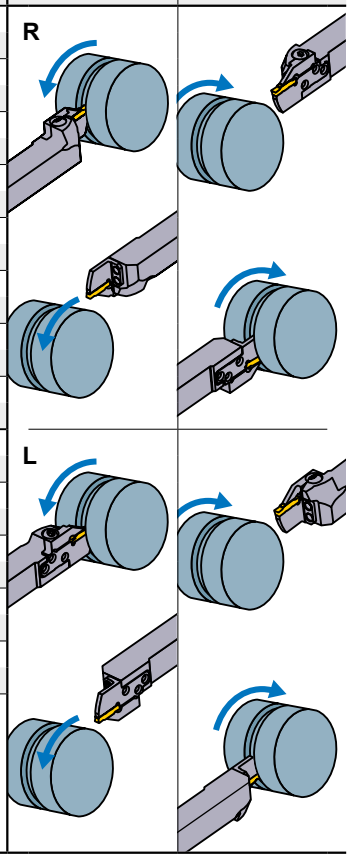
*1 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F012—F015.
*2 The maximum cut off diameter (**CUTDIA**) varies according to the insert used. The cut off diameter is double the maximum groove depth (**CDX**) of inserts on pages F012—F015.
*3 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH** and **LH 3** values may vary.
*4 The maximum groove depth (**CDX**) is limited by the workpiece diameter. For details, please refer to page F102.

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

SPARE PARTS

Holder	Clamp Screw	Wrench
GYSR/L1010JX00	CS350990T	TKY10R
GYSR/L1212JX00	CS350990T	TKY10R
GYSR/L1616JX00	TS4SBL	TKY15R
GYSR/L1915K00	TS4SBL	TKY15R
GYSR/L2012JX00	CS350990T	TKY10R
GYSR/L2020K00	HSC05018	HKY40R
GYSR/L2525M00	HSC05018	HKY40R

	Dimensions (mm) *3							Cutting Mode	
	H	**B**	**LF**	**LH**	**LH 3**	**HF**	**HBH**	Clockwise	Anticlockwise
	10	10	120	17.5	17.5	10	2	R	
	10	10	120	17.5	17.5	10	2		
	12	12	120	19.5	19.5	12	2		
	12	12	120	19.5	19.5	12	2		
	16	16	120	25	—	16	—		
	16	16	120	25	—	16	—		
	16	16	120	28	—	16	—		
	16	16	120	28	—	16	—		
	19.05	15.875	125	28	—	19.05	—		
	19.05	15.875	125	28	—	19.05	—		
	20	12	120	28	—	20	—		
	20	12	120	28	—	20	—		
	20	20	125	35	—	20	—		
	20	20	125	35	—	20	—		
	25	25	150	40	—	25	—		
	25	25	150	40	—	25	—		
	12	12	120	19.5	19.5	12	2	L	
	12	12	120	19.5	19.5	12	2		
	16	16	120	25	—	16	—		
	16	16	120	25	—	16	—		
	16	16	120	28	—	16	—		
	16	16	120	28	—	16	—		
	19.05	15.875	125	28	—	19.05	—		
	19.05	15.875	125	28	—	19.05	—		
	20	12	120	28	—	20	—		
	20	12	120	28	—	20	—		



Insert selection

Seat Size	Geometry name
E	GY○○0239/0250/0274E○○○○–Chipbreaker shown below
F	GY○○0300/0318/0324F○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011–F013

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GL (Aluminium alloy)	GFGS (Hardened steel)
		Neutral	Neutral	Neutral	Neutral	Neutral
E	2.39mm	●	●	●		●
	2.50mm	●	●	●	●	●
F	3.00mm	●	●	●	●	●
	3.18mm	●	●	●		●

For cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	05-GS (Low)	08-GS (Low)	15-GS (Low)	05-GM (Medium)
		R	R	R	R/L
E	2.39mm				
	2.50mm		●	●	●
F	3.00mm		●	●	●
	3.18mm				

For multifunctional grooving chipbreaker ➤ F014, F015

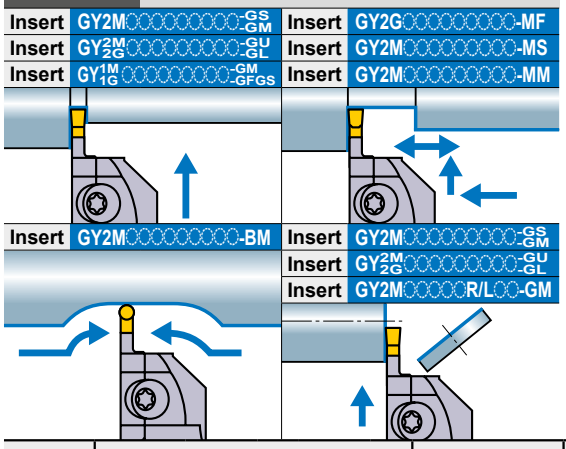
Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying, Recessing)
					Ball shape
E	2.39mm	●			
	2.50mm	●	●	●	●
	2.74mm	●			
F	3.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8			●	
	3.18mm				●
	RE 0.2	●			
	RE 0.4	●			
	3.24mm	●			

● : Standard insert with dimensions

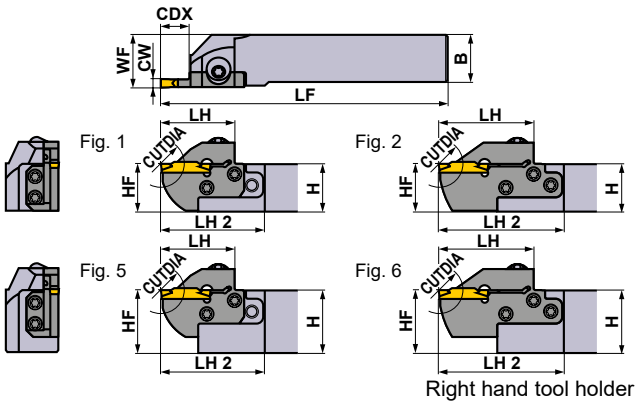
IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F100
CAUTION FOR USE ➤ F105

GY SERIES (EXTERNAL)

1 00° type holder



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

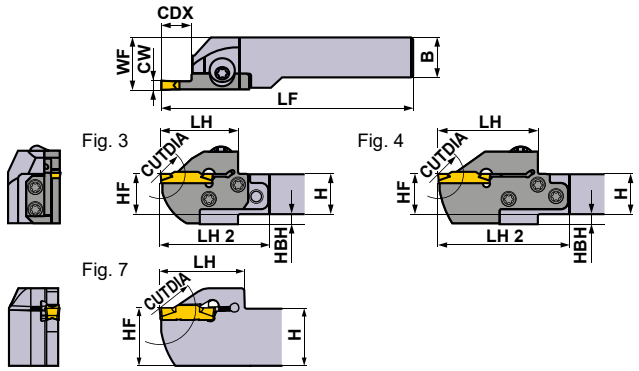


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX	CUTDIA	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
D	2.00 2.24	6	12	Modular	R	GYHR1616J00-M20R	●	GYM20RA-D06	●	3
					L	GYHL1616J00-M20L	●	GYM20LA-D06	●	3
				Monoblock	R	GYQR2020K00-D06	●	—	—	7
					L	GYQL2020K00-D06	●	—	—	7
				Modular	R	GYHR2020K00-M20R	●	GYM20RA-D06	●	1
					L	GYHL2020K00-M20L	●	GYM20LA-D06	●	1
				Modular	R	GYHR2020K00-M25R	●	GYM25RA-D06	●	3
					L	GYHL2020K00-M25L	●	GYM25LA-D06	●	3
				Monoblock	R	GYQR2525M00-D06	●	—	—	7
					L	GYQL2525M00-D06	●	—	—	7
				Modular	R	GYHR2525M00-M25R	●	GYM25RA-D06	●	1
					L	GYHL2525M00-M25L	●	GYM25LA-D06	●	1
				Modular	R	GYHR3225P00-M25R	●	GYM25RA-D06	●	5
					L	GYHL3225P00-M25L	●	GYM25LA-D06	●	5
				Modular	R	GYHR3232P00-M25R	●	GYM25RA-D06	●	5
					L	GYHL3232P00-M25L	●	GYM25LA-D06	●	5
		10	20	Modular	R	GYHR1616J00-M20R	●	GYM20RA-D10	●	3
					L	GYHL1616J00-M20L	●	GYM20LA-D10	●	3
				Modular	R	GYHR2020K00-M20R	●	GYM20RA-D10	●	1
					L	GYHL2020K00-M20L	●	GYM20LA-D10	●	1
		12	24	Modular	R	GYHR2020K00-M25R	●	GYM25RA-D12	●	3
					L	GYHL2020K00-M25L	●	GYM25LA-D12	●	3
				Modular	R	GYHR2525M00-M25R	●	GYM25RA-D12	●	1
					L	GYHL2525M00-M25L	●	GYM25LA-D12	●	1
				Modular	R	GYHR3225P00-M25R	●	GYM25RA-D12	●	5
					L	GYHL3225P00-M25L	●	GYM25LA-D12	●	5
				Modular	R	GYHR3232P00-M25R	●	GYM25RA-D12	●	5
					L	GYHL3232P00-M25L	●	GYM25LA-D12	●	5
		18 *4	36	Modular	R	GYHR1616J00-M20R	●	GYM20RB-D18	●	4
					L	GYHL1616J00-M20L	●	GYM20LB-D18	●	4
				Monoblock	R	GYQR2020K00-D18	●	—	—	7
					L	GYQL2020K00-D18	●	—	—	7
				Modular	R	GYHR2020K00-M20R	●	GYM20RB-D18	●	2
					L	GYHL2020K00-M20L	●	GYM20LB-D18	●	2
		20 *1	40 *2	Modular	R	GYHR2020K00-M25R	●	GYM25RA-D20	●	4
					L	GYHL2020K00-M25L	●	GYM25LA-D20	●	4
				Monoblock	R	GYQR2525M00-D20	●	—	—	7
					L	GYQL2525M00-D20	●	—	—	7
				Modular	R	GYHR2525M00-M25R	●	GYM25RA-D20	●	2
					L	GYHL2525M00-M25L	●	GYM25LA-D20	●	2
				Modular	R	GYHR3225P00-M25R	●	GYM25RA-D20	●	6
					L	GYHL3225P00-M25L	●	GYM25LA-D20	●	6
				Modular	R	GYHR3232P00-M25R	●	GYM25RA-D20	●	6
					L	GYHL3232P00-M25L	●	GYM25LA-D20	●	6

*1 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.
*2 The maximum cut off diameter (**CUTDIA**) varies according to the insert used.
The cut off diameter is double the maximum groove depth (**CDX**) of inserts on pages F011—F015.
*3 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2** and **WF** values may vary.
*4 The maximum groove depth (**CDX**) is limited by the workpiece diameter. For details, please refer to page F102.

● : **Inventory maintained.**



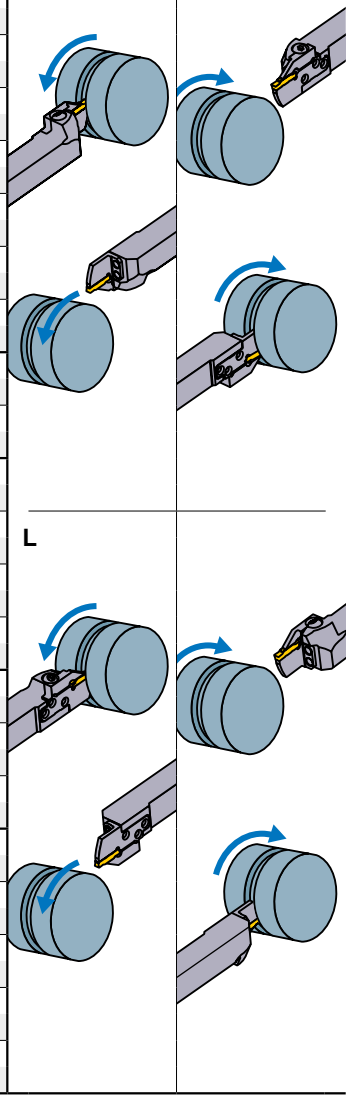
Right hand tool holder shown.

★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ★
GYQR/L○○○○○○○○-○○○	HSC05020 (Clamp Torque : 7.0N·m)	—	HKY40R
GYHR/L○○○○○○○○-M20R/L	GY06013M (Clamp Torque : 6.0N·m)	TS407 (Clamp Torque : 3.5N·m)	①TKY30R ②TKY15D
GYHR/L○○○○○○○○-M25R/L		TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D

Dimensions (mm) ★3								Cutting Mode	
H	B	LF	LH	LH 2	HF	WF	HBH	Clockwise	Anticlockwise
16	16	104	28	44	16	20	4	R	
16	16	104	28	44	16	20	4		
20	20	125	36	—	20	20.15	—		
20	20	125	36	—	20	20.15	—		
20	20	119	28	43	20	23	—		
20	20	119	28	43	20	23	—		
20	20	117	31	52	20	26	5		
20	20	117	31	52	20	26	5		
25	25	150	36	—	25	25.15	—		
25	25	150	36	—	25	25.15	—		
25	25	142	31	49	25	28	—		
25	25	142	31	49	25	28	—		
32	25	162	31	49	32	28	—		
32	25	162	31	49	32	28	—		
32	32	162	31	49	32	35	—		
32	32	162	31	49	32	35	—		
16	16	110	34	50	16	20	4		
16	16	110	34	50	16	20	4		
20	20	125	34	49	20	23	—		
20	20	125	34	49	20	23	—		
20	20	125	39	60	20	26	5		
20	20	125	39	60	20	26	5		
25	25	150	39	57	25	28	—	L	
25	25	150	39	57	25	28	—		
32	25	170	39	57	32	28	—		
32	25	170	39	57	32	28	—		
32	32	170	39	57	32	35	—		
32	32	170	39	57	32	35	—		
16	16	116	40	56	16	20	4		
16	16	116	40	56	16	20	4		
20	20	125	39	—	20	20.1	—		
20	20	125	39	—	20	20.1	—		
20	20	131	40	55	20	23	—		
20	20	131	40	55	20	23	—		
20	20	131	45	66	20	26	5		
20	20	131	45	66	20	26	5		
25	25	150	41	—	25	25.1	—		
25	25	150	41	—	25	25.1	—		
25	25	156	45	63	25	28	—		
25	25	156	45	63	25	28	—		
32	25	176	45	63	32	28	—		
32	25	176	45	63	32	28	—		
32	32	176	45	63	32	35	—		
32	32	176	45	63	32	35	—		



Insert selection

Seat Size	Geometry name
D	GY○○0200/0224D○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011–F013

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GL (Aluminium alloy)	05-GM (Cutting off)	GFGS (Hardened steel)
		Neutral	Neutral	Neutral	Neutral	With hand	Neutral
D	2.00mm	●	●	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

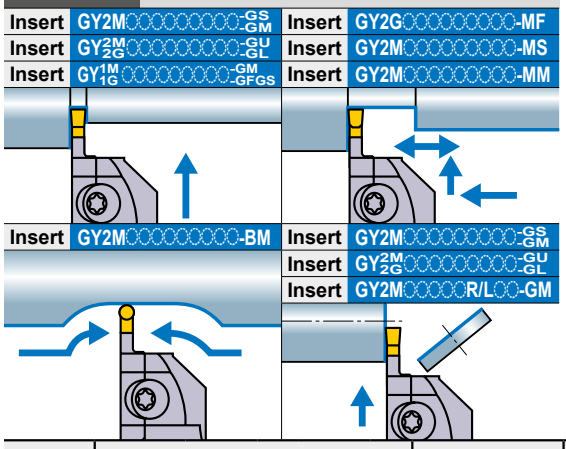
Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying, Recessing)
					Ball shape
D	2.00mm	●	●	●	●
	2.24mm	●			

● : Standard insert with dimensions

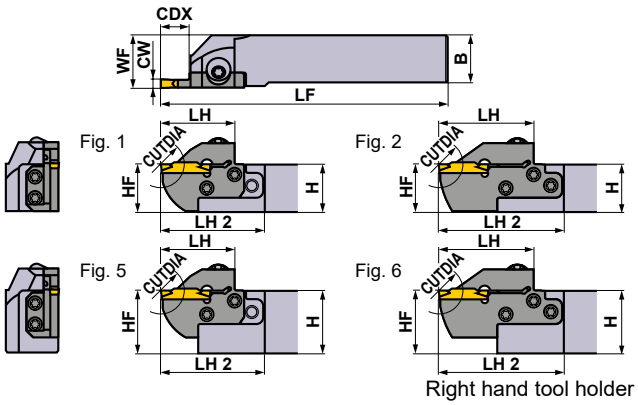
IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F100
CAUTION FOR USE ➤ F105

GY SERIES (EXTERNAL)

1 00° type holder



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.



Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX	CUTDIA	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
E	2.39 2.50 2.74	6	12	Modular	R	GYHR1616J00-M20R	●	GYM20RA-E06	●	3
					L	GYHL1616J00-M20L	●	GYM20LA-E06	●	3
				Modular	R	GYHR2020K00-M20R	●	GYM20RA-E06	●	1
					L	GYHL2020K00-M20L	●	GYM20LA-E06	●	1
				Modular	R	GYHR2020K00-M25R	●	GYM25RA-E06	●	3
					L	GYHL2020K00-M25L	●	GYM25LA-E06	●	3
				Modular	R	GYHR2525M00-M25R	●	GYM25RA-E06	●	1
					L	GYHL2525M00-M25L	●	GYM25LA-E06	●	1
				Modular	R	GYHR3225P00-M25R	●	GYM25RA-E06	●	5
					L	GYHL3225P00-M25L	●	GYM25LA-E06	●	5
				Modular	R	GYHR3232P00-M25R	●	GYM25RA-E06	●	5
					L	GYHL3232P00-M25L	●	GYM25LA-E06	●	5
		10	20	Modular	R	GYHR1616J00-M20R	●	GYM20RA-E10	●	3
					L	GYHL1616J00-M20L	●	GYM20LA-E10	●	3
				Modular	R	GYHR2020K00-M20R	●	GYM20RA-E10	●	1
					L	GYHL2020K00-M20L	●	GYM20LA-E10	●	1
		12	24	Modular	R	GYHR2020K00-M25R	●	GYM25RA-E12	●	3
					L	GYHL2020K00-M25L	●	GYM25LA-E12	●	3
				Modular	R	GYHR2525M00-M25R	●	GYM25RA-E12	●	1
					L	GYHL2525M00-M25L	●	GYM25LA-E12	●	1
				Modular	R	GYHR3225P00-M25R	●	GYM25RA-E12	●	5
					L	GYHL3225P00-M25L	●	GYM25LA-E12	●	5
				Modular	R	GYHR3232P00-M25R	●	GYM25RA-E12	●	5
					L	GYHL3232P00-M25L	●	GYM25LA-E12	●	5
		18 ✶4	36	Modular	R	GYHR1616J00-M20R	●	GYM20RB-E18	●	4
					L	GYHL1616J00-M20L	●	GYM20LB-E18	●	4
				Modular	R	GYHR2020K00-M20R	●	GYM20RB-E18	●	2
					L	GYHL2020K00-M20L	●	GYM20LB-E18	●	2
		20 ✶1	40 ✶2	Modular	R	GYHR2020K00-M25R	●	GYM25RA-E20	●	4
					L	GYHL2020K00-M25L	●	GYM25LA-E20	●	4
				Modular	R	GYHR2525M00-M25R	●	GYM25RA-E20	●	2
					L	GYHL2525M00-M25L	●	GYM25LA-E20	●	2
				Modular	R	GYHR3225P00-M25R	●	GYM25RA-E20	●	6
					L	GYHL3225P00-M25L	●	GYM25LA-E20	●	6
				Modular	R	GYHR3232P00-M25R	●	GYM25RA-E20	●	6
					L	GYHL3232P00-M25L	●	GYM25LA-E20	●	6

✶1 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.
✶2 The maximum cut off diameter (**CUTDIA**) varies according to the insert used.
The cut off diameter is double the maximum groove depth (**CDX**) of inserts on pages F011—F015.
✶3 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2** and **WF** values may vary.
✶4 The maximum groove depth (**CDX**) is limited by the workpiece diameter. For details, please refer to page F102.

● : **Inventory maintained.**

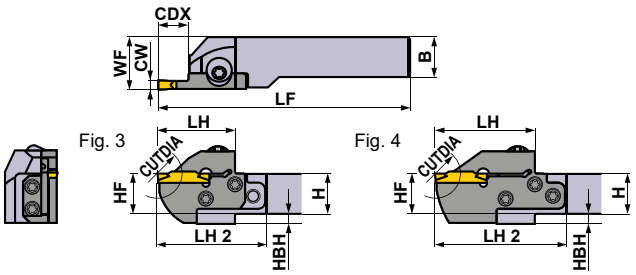


Fig. 3

Fig. 4

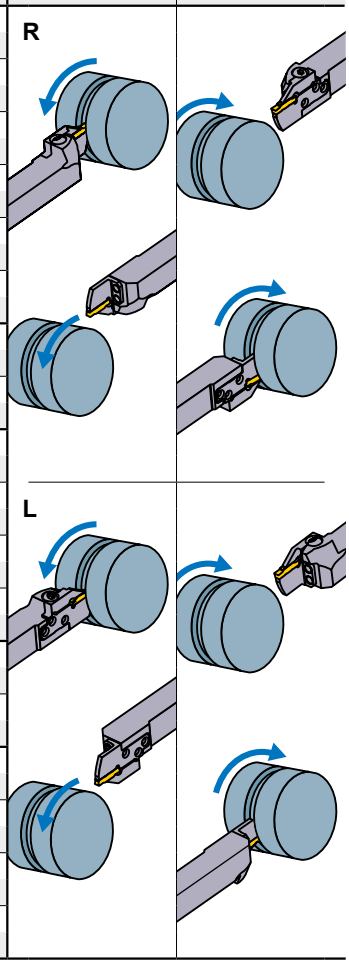
Right hand tool holder shown.

★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ★
GYQR/L○○○○○○○-○○○	HSC05020 (Clamp Torque : 7.0N·m)	—	HKY40R
GYHR/L○○○○○○○-M20R/L	GY06013M (Clamp Torque : 6.0N·m)	TS407 (Clamp Torque : 3.5N·m)	①TKY30R ②TKY15D
GYHR/L○○○○○○○-M25R/L		TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D

Dimensions (mm) ★3								Cutting Mode	
H	B	LF	LH	LH 2	HF	WF	HBH	Clockwise	Anticlockwise
16	16	104	28	44	16	20	4	R	
16	16	104	28	44	16	20	4		
20	20	119	28	43	20	23	—		
20	20	119	28	43	20	23	—		
20	20	117	31	52	20	26	5		
20	20	117	31	52	20	26	5		
25	25	142	31	49	25	28	—		
25	25	142	31	49	25	28	—		
32	25	162	31	49	32	28	—		
32	25	162	31	49	32	28	—		
32	32	162	31	49	32	35	—		
32	32	162	31	49	32	35	—		
16	16	110	34	50	16	20	4		
16	16	110	34	50	16	20	4		
20	20	125	34	49	20	23	—		
20	20	125	34	49	20	23	—		
20	20	125	39	60	20	26	5		
20	20	125	39	60	20	26	5		
25	25	150	39	57	25	28	—	L	
25	25	150	39	57	25	28	—		
32	25	170	39	57	32	28	—		
32	25	170	39	57	32	28	—		
32	32	170	39	57	32	35	—		
32	32	170	39	57	32	35	—		
16	16	116	40	56	16	20	4		
16	16	116	40	56	16	20	4		
20	20	131	40	55	20	23	—		
20	20	131	40	55	20	23	—		
20	20	131	45	66	20	26	5		
20	20	131	45	66	20	26	5		
25	25	156	45	63	25	28	—		
25	25	156	45	63	25	28	—		
32	25	176	45	63	32	28	—		
32	25	176	45	63	32	28	—		
32	32	176	45	63	32	35	—		
32	32	176	45	63	32	35	—		



Insert selection

Seat Size	Geometry name
E	GY○○0239/0250/0274E○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011–F013

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GL (Aluminium alloy)	05-GM (Cutting off)	GFGS (Hardened steel)
		Neutral	Neutral	Neutral	Neutral	With hand	Neutral
E	2.39mm	●	●	●			●
	2.50mm	●	●	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

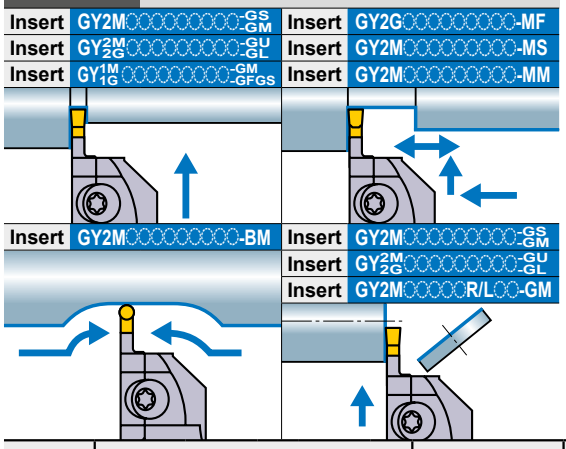
Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying, Recessing)
					Ball shape
E	2.39mm	●			
	2.50mm	●	●	●	●
	2.74mm	●			

● : Standard insert with dimensions

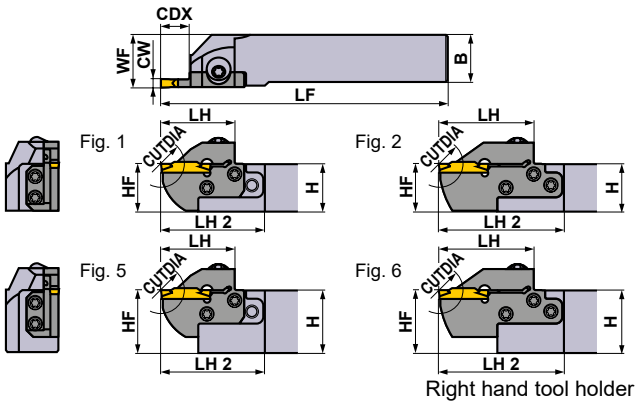
IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F100
CAUTION FOR USE ➤ F105

GY SERIES (EXTERNAL)

1 00° type holder



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

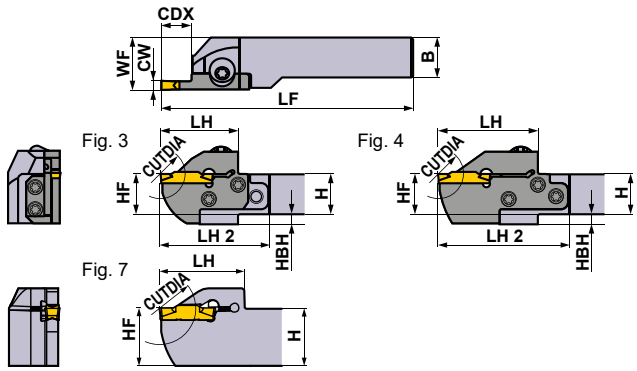


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX	CUTDIA	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
F	3.00 3.18 3.24	6	12	Modular	R	GYHR1616J00-M20R	●	GYM20RA-F06	●	3
					L	GYHL1616J00-M20L	●	GYM20LA-F06	●	3
				Monoblock	R	GYQR2020K00-F06	●	—	—	7
					L	GYQL2020K00-F06	●	—	—	7
				Modular	R	GYHR2020K00-M20R	●	GYM20RA-F06	●	1
					L	GYHL2020K00-M20L	●	GYM20LA-F06	●	1
				Modular	R	GYHR2020K00-M25R	●	GYM25RA-F06	●	3
					L	GYHL2020K00-M25L	●	GYM25LA-F06	●	3
				Monoblock	R	GYQR2525M00-F06	●	—	—	7
					L	GYQL2525M00-F06	●	—	—	7
				Modular	R	GYHR2525M00-M25R	●	GYM25RA-F06	●	1
					L	GYHL2525M00-M25L	●	GYM25LA-F06	●	1
				Modular	R	GYHR3225P00-M25R	●	GYM25RA-F06	●	5
					L	GYHL3225P00-M25L	●	GYM25LA-F06	●	5
				Modular	R	GYHR3232P00-M25R	●	GYM25RA-F06	●	5
					L	GYHL3232P00-M25L	●	GYM25LA-F06	●	5
		10	20	Modular	R	GYHR1616J00-M20R	●	GYM20RA-F10	●	3
					L	GYHL1616J00-M20L	●	GYM20LA-F10	●	3
				Modular	R	GYHR2020K00-M20R	●	GYM20RA-F10	●	1
					L	GYHL2020K00-M20L	●	GYM20LA-F10	●	1
		12	24	Modular	R	GYHR2020K00-M25R	●	GYM25RA-F12	●	3
					L	GYHL2020K00-M25L	●	GYM25LA-F12	●	3
				Modular	R	GYHR2525M00-M25R	●	GYM25RA-F12	●	1
					L	GYHL2525M00-M25L	●	GYM25LA-F12	●	1
				Modular	R	GYHR3225P00-M25R	●	GYM25RA-F12	●	5
					L	GYHL3225P00-M25L	●	GYM25LA-F12	●	5
				Modular	R	GYHR3232P00-M25R	●	GYM25RA-F12	●	5
					L	GYHL3232P00-M25L	●	GYM25LA-F12	●	5
		18 *4	36	Modular	R	GYHR1616J00-M20R	●	GYM20RB-F18	●	4
					L	GYHL1616J00-M20L	●	GYM20LB-F18	●	4
				Monoblock	R	GYQR2020K00-F18	●	—	—	7
					L	GYQL2020K00-F18	●	—	—	7
				Modular	R	GYHR2020K00-M20R	●	GYM20RB-F18	●	2
					L	GYHL2020K00-M20L	●	GYM20LB-F18	●	2
		20 *1	40 *2	Modular	R	GYHR2020K00-M25R	●	GYM25RA-F20	●	4
					L	GYHL2020K00-M25L	●	GYM25LA-F20	●	4
				Monoblock	R	GYQR2525M00-F20	●	—	—	7
					L	GYQL2525M00-F20	●	—	—	7
				Modular	R	GYHR2525M00-M25R	●	GYM25RA-F20	●	2
					L	GYHL2525M00-M25L	●	GYM25LA-F20	●	2
				Modular	R	GYHR3225P00-M25R	●	GYM25RA-F20	●	6
					L	GYHL3225P00-M25L	●	GYM25LA-F20	●	6
				Modular	R	GYHR3232P00-M25R	●	GYM25RA-F20	●	6
					L	GYHL3232P00-M25L	●	GYM25LA-F20	●	6

*1 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.
*2 The maximum cut off diameter (**CUTDIA**) varies according to the insert used.
The cut off diameter is double the maximum groove depth (**CDX**) of inserts on pages F011—F015.
*3 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2** and **WF** values may vary.
*4 The maximum groove depth (**CDX**) is limited by the workpiece diameter. For details, please refer to page F102.

● : **Inventory maintained.**



Right hand tool holder shown.

★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ★
GYQR/L○○○○○○○○-○○○	HSC05020 (Clamp Torque : 7.0N·m)	—	HKY40R
GYHR/L○○○○○○○-M20R/L	GY06013M (Clamp Torque : 6.0N·m)	TS407 (Clamp Torque : 3.5N·m)	①TKY30R ②TKY15D
GYHR/L○○○○○○○-M25R/L		TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D

Dimensions (mm) ★3								Cutting Mode	
H	B	LF	LH	LH 2	HF	WF	HBH	Clockwise	Anticlockwise
16	16	104	28	44	16	20	4	R	
16	16	104	28	44	16	20	4		
20	20	125	36	—	20	20.3	—		
20	20	125	36	—	20	20.3	—		
20	20	119	28	43	20	23	—		
20	20	119	28	43	20	23	—		
20	20	117	31	52	20	26	5		
20	20	117	31	52	20	26	5		
25	25	150	36	—	25	25.3	—		
25	25	150	36	—	25	25.3	—		
25	25	142	31	49	25	28	—		
25	25	142	31	49	25	28	—		
32	25	162	31	49	32	28	—		
32	25	162	31	49	32	28	—		
32	32	162	31	49	32	35	—		
32	32	162	31	49	32	35	—		
16	16	110	34	50	16	20	4		
16	16	110	34	50	16	20	4		
20	20	125	34	49	20	23	—		
20	20	125	34	49	20	23	—		
20	20	125	39	60	20	26	5		
20	20	125	39	60	20	26	5		
25	25	150	39	57	25	28	—	L	
25	25	150	39	57	25	28	—		
32	25	170	39	57	32	28	—		
32	25	170	39	57	32	28	—		
32	32	170	39	57	32	35	—		
32	32	170	39	57	32	35	—		
16	16	116	40	56	16	20	4		
16	16	116	40	56	16	20	4		
20	20	125	39	—	20	20.25	—		
20	20	125	39	—	20	20.25	—		
20	20	131	40	55	20	23	—		
20	20	131	40	55	20	23	—		
20	20	131	45	66	20	26	5		
20	20	131	45	66	20	26	5		
25	25	150	41	—	25	25.25	—		
25	25	150	41	—	25	25.25	—		
25	25	156	45	63	25	28	—		
25	25	156	45	63	25	28	—		
32	25	176	45	63	32	28	—		
32	25	176	45	63	32	28	—		
32	32	176	45	63	32	35	—		
32	32	176	45	63	32	35	—		

Insert selection

Seat Size	Geometry name
F	GY○○0239/0250/0274E○○○○—Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011—F013

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GL (Aluminium alloy)	05-GM (Cutting off)	GFGS (Hardened steel)
		Neutral	Neutral	Neutral	Neutral	With hand	Neutral
F	3.00mm	●	●	●	●	●	●
	3.18mm	●	●	●			●

For multifunctional grooving chipbreaker ➤ F014, F015

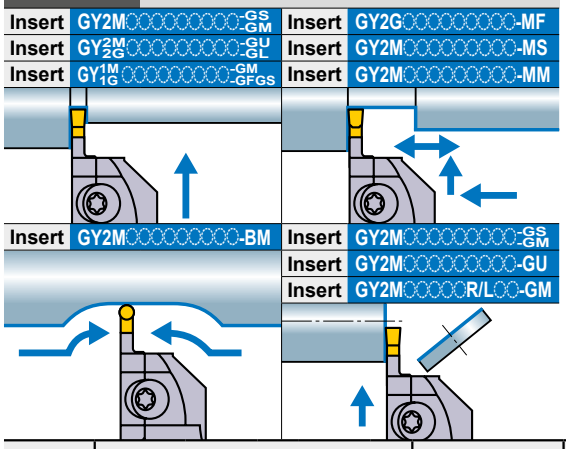
Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying, Recessing)
					Ball shape
F	3.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8			●	
	3.18mm				●
	RE 0.2	●			
	RE 0.4	●			
	3.24mm	●			

● : Standard insert with dimensions

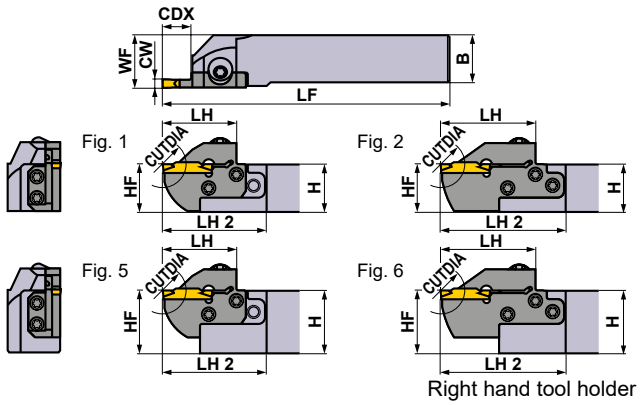
IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F100
CAUTION FOR USE ➤ F105

GY SERIES (EXTERNAL)

1 00° type holder



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

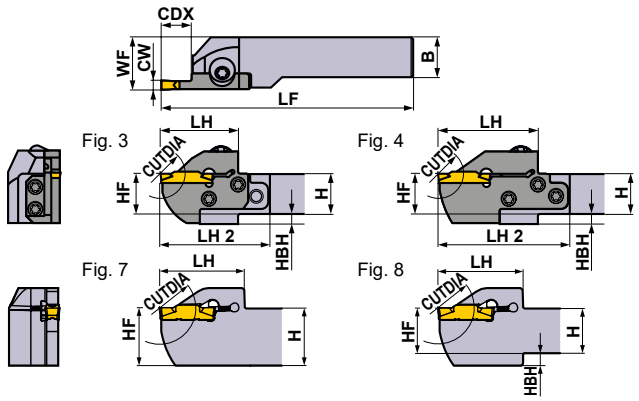


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX	CUTDIA	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
G	4.00 4.24	8	16	Monoblock	R	**GYQR2020K00-G08**	●	—	—	7
					L	**GYQL2020K00-G08**	●	—	—	7
				Modular	R	**GYHR2020K00-M25R**	●	**GYM25RA-G08**	●	3
					L	**GYHL2020K00-M25L**	●	**GYM25LA-G08**	●	3
				Monoblock	R	**GYQR2525M00-G08**	●	—	—	7
					L	**GYQL2525M00-G08**	●	—	—	7
				Modular	R	**GYHR2525M00-M25R**	●	**GYM25RA-G08**	●	1
					L	**GYHL2525M00-M25L**	●	**GYM25LA-G08**	●	1
				Modular	R	**GYHR3225P00-M25R**	●	**GYM25RA-G08**	●	5
					L	**GYHL3225P00-M25L**	●	**GYM25LA-G08**	●	5
				Modular	R	**GYHR3232P00-M25R**	●	**GYM25RA-G08**	●	5
					L	**GYHL3232P00-M25L**	●	**GYM25LA-G08**	●	5
		12	24	Modular	R	**GYHR1616J00-M20R**	●	**GYM20RA-G12**	●	3
					L	**GYHL1616J00-M20L**	●	**GYM20LA-G12**	●	3
				Modular	R	**GYHR2020K00-M20R**	●	**GYM20RA-G12**	●	1
					L	**GYHL2020K00-M20L**	●	**GYM20LA-G12**	●	1
		14	28	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RA-G14**	●	3
					L	**GYHL2020K00-M25L**	●	**GYM25LA-G14**	●	3
				Modular	R	**GYHR2525M00-M25R**	●	**GYM25RA-G14**	●	1
					L	**GYHL2525M00-M25L**	●	**GYM25LA-G14**	●	1
				Modular	R	**GYHR3225P00-M25R**	●	**GYM25RA-G14**	●	5
					L	**GYHL3225P00-M25L**	●	**GYM25LA-G14**	●	5
				Modular	R	**GYHR3232P00-M25R**	●	**GYM25RA-G14**	●	5
					L	**GYHL3232P00-M25L**	●	**GYM25LA-G14**	●	5
		25 ∗1	50 ∗2	Monoblock	R	**GYQR2020K00-G25**	●	—	—	8
					L	**GYQL2020K00-G25**	●	—	—	8
				Modular	R	**GYHR2020K00-M25R**	●	**GYM25RA-G25**	●	4
					L	**GYHL2020K00-M25L**	●	**GYM25LA-G25**	●	4
				Monoblock	R	**GYQR2525M00-G25**	●	—	—	7
					L	**GYQL2525M00-G25**	●	—	—	7
				Modular	R	**GYHR2525M00-M25R**	●	**GYM25RA-G25**	●	2
					L	**GYHL2525M00-M25L**	●	**GYM25LA-G25**	●	2
				Modular	R	**GYHR3225P00-M25R**	●	**GYM25RA-G25**	●	6
					L	**GYHL3225P00-M25L**	●	**GYM25LA-G25**	●	6
				Modular	R	**GYHR3232P00-M25R**	●	**GYM25RA-G25**	●	6
					L	**GYHL3232P00-M25L**	●	**GYM25LA-G25**	●	6

∗1 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.
∗2 The maximum cut off diameter (**CUTDIA**) varies according to the insert used.
The cut off diameter is double the maximum groove depth (**CDX**) of inserts on pages F011—F015.
∗3 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2** and **WF** values may vary.

● : **Inventory maintained.**



Right hand tool holder shown.

★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ★
GYQR/L○○○○○○○○-○○○	HSC05020 (Clamp Torque : 7.0N·m)	—	HKY40R
GYHR/L○○○○○○○-M20R/L	GY06013M (Clamp Torque : 6.0N·m)	TS407 (Clamp Torque : 3.5N·m)	①TKY30R ②TKY15D
GYHR/L○○○○○○○-M25R/L		TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D

Dimensions (mm) ★3								Cutting Mode	
H	B	LF	LH	LH 2	HF	WF	HBH	Clockwise	Anticlockwise
20	20	125	41	—	20	20.35	—	R	
20	20	125	41	—	20	20.35	—		
20	20	119	33	54	20	26	5		
20	20	119	33	54	20	26	5		
25	25	150	41	—	25	25.35	—		
25	25	150	41	—	25	25.35	—		
25	25	144	33	51	25	28	—		
25	25	144	33	51	25	28	—		
32	25	164	33	51	32	28	—		
32	25	164	33	51	32	28	—		
32	32	164	33	51	32	35	—		
32	32	164	33	51	32	35	—		
16	16	110	34	50	16	20	4		
16	16	110	34	50	16	20	4		
20	20	125	34	49	20	23	—		
20	20	125	34	49	20	23	—		
20	20	125	39	60	20	26	5		
20	20	125	39	60	20	26	5		
25	25	150	39	57	25	28	—	L	
25	25	150	39	57	25	28	—		
32	25	170	39	57	32	28	—		
32	25	170	39	57	32	28	—		
32	32	170	39	57	32	35	—		
32	32	170	39	57	32	35	—		
20	20	125	46	—	20	20.35	4		
20	20	125	46	—	20	20.35	4		
20	20	136	50	71	20	26	5		
20	20	136	50	71	20	26	5		
25	25	150	46	—	25	25.35	—		
25	25	150	46	—	25	25.35	—		
25	25	161	50	68	25	28	—		
25	25	161	50	68	25	28	—		
32	25	181	50	68	32	28	—		
32	25	181	50	68	32	28	—		
32	32	181	50	68	32	35	—		
32	32	181	50	68	32	35	—		

Insert selection

Seat Size	Geometry name
G	GY○○0239/0250/0274E○○○○—Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	05-GM (Cutting off)	GFGS (Hardened steel)
		Neutral	Neutral	Neutral	With hand	Neutral
G	4.00mm	●	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

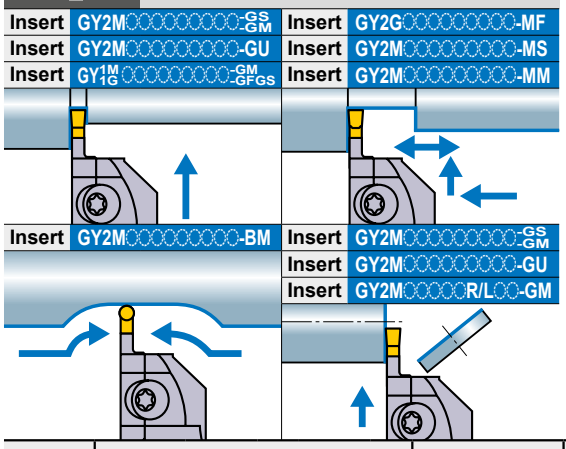
Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying, Recessing)
					Ball shape
G	4.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8	●		●	
	4.24mm	●			

● : Standard insert with dimensions

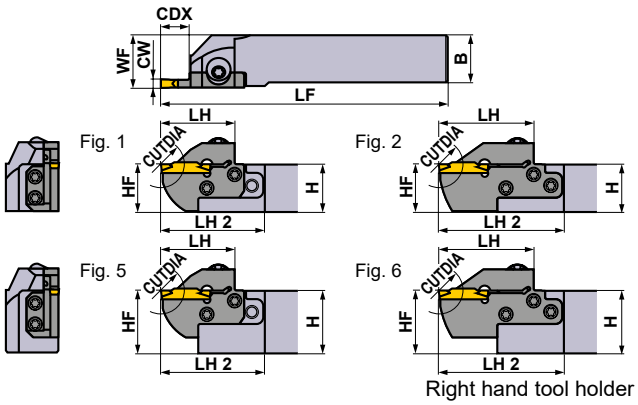
IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F100
CAUTION FOR USE ➤ F105

GY SERIES (EXTERNAL)

1 00° type holder



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

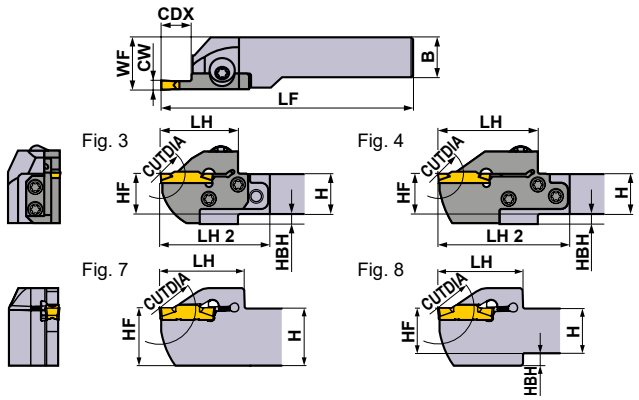


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX	CUTDIA	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
H	4.75 5.00 5.24	8	16	Monoblock	R	**GYQR2020K00-H08**	●	—	—	7
					L	**GYQL2020K00-H08**	●	—	—	7
				Modular	R	**GYHR2020K00-M25R**	●	**GYM25RA-H08**	●	3
					L	**GYHL2020K00-M25L**	●	**GYM25LA-H08**	●	3
				Monoblock	R	**GYQR2525M00-H08**	●	—	—	7
					L	**GYQL2525M00-H08**	●	—	—	7
				Modular	R	**GYHR2525M00-M25R**	●	**GYM25RA-H08**	●	1
					L	**GYHL2525M00-M25L**	●	**GYM25LA-H08**	●	1
				Modular	R	**GYHR3225P00-M25R**	●	**GYM25RA-H08**	●	5
					L	**GYHL3225P00-M25L**	●	**GYM25LA-H08**	●	5
				Modular	R	**GYHR3232P00-M25R**	●	**GYM25RA-H08**	●	5
					L	**GYHL3232P00-M25L**	●	**GYM25LA-H08**	●	5
		12	24	Modular	R	**GYHR1616J00-M20R**	●	**GYM20RA-H12**	●	3
					L	**GYHL1616J00-M20L**	●	**GYM20LA-H12**	●	3
				Modular	R	**GYHR2020K00-M20R**	●	**GYM20RA-H12**	●	1
					L	**GYHL2020K00-M20L**	●	**GYM20LA-H12**	●	1
		14	28	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RA-H14**	●	3
					L	**GYHL2020K00-M25L**	●	**GYM25LA-H14**	●	3
				Modular	R	**GYHR2525M00-M25R**	●	**GYM25RA-H14**	●	1
					L	**GYHL2525M00-M25L**	●	**GYM25LA-H14**	●	1
				Modular	R	**GYHR3225P00-M25R**	●	**GYM25RA-H14**	●	5
					L	**GYHL3225P00-M25L**	●	**GYM25LA-H14**	●	5
				Modular	R	**GYHR3232P00-M25R**	●	**GYM25RA-H14**	●	5
					L	**GYHL3232P00-M25L**	●	**GYM25LA-H14**	●	5
		25 ∗1	50 ∗2	Monoblock	R	**GYQR2020K00-H25**	●	—	—	8
					L	**GYQL2020K00-H25**	●	—	—	8
				Modular	R	**GYHR2020K00-M25R**	●	**GYM25RA-H25**	●	4
					L	**GYHL2020K00-M25L**	●	**GYM25LA-H25**	●	4
				Monoblock	R	**GYQR2525M00-H25**	●	—	—	7
					L	**GYQL2525M00-H25**	●	—	—	7
				Modular	R	**GYHR2525M00-M25R**	●	**GYM25RA-H25**	●	2
					L	**GYHL2525M00-M25L**	●	**GYM25LA-H25**	●	2
				Modular	R	**GYHR3225P00-M25R**	●	**GYM25RA-H25**	●	6
					L	**GYHL3225P00-M25L**	●	**GYM25LA-H25**	●	6
				Modular	R	**GYHR3232P00-M25R**	●	**GYM25RA-H25**	●	6
					L	**GYHL3232P00-M25L**	●	**GYM25LA-H25**	●	6

∗1 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.
∗2 The maximum cut off diameter (**CUTDIA**) varies according to the insert used.
The cut off diameter is double the maximum groove depth (**CDX**) of inserts on pages F011—F015.
∗3 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2** and **WF** values may vary.

● : **Inventory maintained.**



Right hand tool holder shown.

★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ★
GYQR/L○○○○○○○○-○○○	HSC05020 (Clamp Torque : 7.0N·m)	—	HKY40R
GYHR/L○○○○○○○-M20R/L	GY06013M (Clamp Torque : 6.0N·m)	TS407 (Clamp Torque : 3.5N·m)	①TKY30R ②TKY15D
GYHR/L○○○○○○○-M25R/L		TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D

Dimensions (mm) ★3								Cutting Mode	
H	B	LF	LH	LH 2	HF	WF	HBH	Clockwise	Anticlockwise
20	20	125	41	—	20	20.35	—	R	
20	20	125	41	—	20	20.35	—		
20	20	119	33	54	20	26	5		
20	20	119	33	54	20	26	5		
25	25	150	41	—	25	25.35	—		
25	25	150	41	—	25	25.35	—		
25	25	144	33	51	25	28	—		
25	25	144	33	51	25	28	—		
32	25	164	33	51	32	28	—		
32	25	164	33	51	32	28	—		
32	32	164	33	51	32	35	—		
32	32	164	33	51	32	35	—		
16	16	110	34	50	16	20	4		
16	16	110	34	50	16	20	4		
20	20	125	34	49	20	23	—		
20	20	125	34	49	20	23	—		
20	20	125	39	60	20	26	5		
20	20	125	39	60	20	26	5		
25	25	150	39	57	25	28	—		
25	25	150	39	57	25	28	—		
32	25	170	39	57	32	28	—		
32	25	170	39	57	32	28	—		
32	32	170	39	57	32	35	—		
32	32	170	39	57	32	35	—		
20	20	125	46	—	20	20.35	4	L	
20	20	125	46	—	20	20.35	4		
20	20	136	50	71	20	26	5		
20	20	136	50	71	20	26	5		
25	25	150	46	—	25	25.35	—		
25	25	150	46	—	25	25.35	—		
25	25	161	50	68	25	28	—		
25	25	161	50	68	25	28	—		
32	25	181	50	68	32	28	—		
32	25	181	50	68	32	28	—		
32	32	181	50	68	32	35	—		
32	32	181	50	68	32	35	—		

Insert selection

Seat Size	Geometry name
H	GY○○0475/0500/0524H○○○○—Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	05-GM (Cutting off)	GFGS (Hardened steel)
		Neutral	Neutral	Neutral	With hand	Neutral
H	4.75mm	●	●	●		●
	5.00mm	●	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

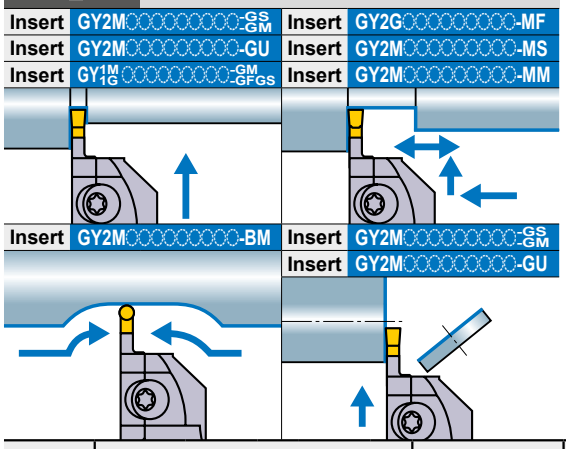
Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying, Recessing)
					Ball shape
H	4.75mm				●
	RE 0.2	●			
	RE 0.4	●			
	RE 0.8	●			
	5.00mm				●
	RE 0.2	●			
	RE 0.4	●	●	●	
	RE 0.8	●	●	●	
	5.24mm	●			

● : Standard insert with dimensions

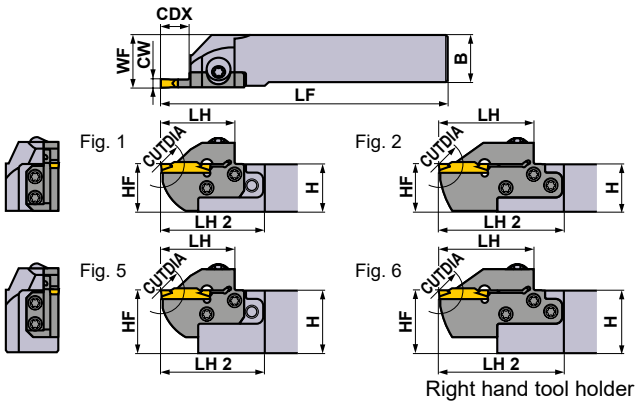
IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F100
CAUTION FOR USE ➤ F105

GY SERIES (EXTERNAL)

1 00° type holder



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

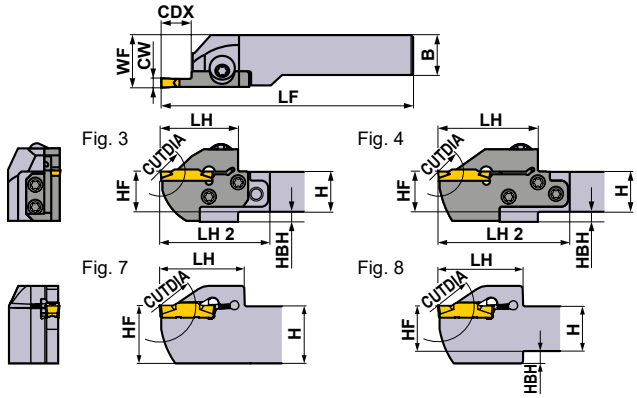


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX	CUTDIA	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
J	6.00 6.31 6.35	8	16	Monoblock	R	GYQR2020K00-J08	●	—	—	7
					L	GYQL2020K00-J08	●	—	—	7
				Modular	R	GYHR2020K00-M25R	●	GYM25RA-J08	●	3
					L	GYHL2020K00-M25L	●	GYM25LA-J08	●	3
				Monoblock	R	GYQR2525M00-J08	●	—	—	7
					L	GYQL2525M00-J08	●	—	—	7
				Modular	R	GYHR2525M00-M25R	●	GYM25RA-J08	●	1
					L	GYHL2525M00-M25L	●	GYM25LA-J08	●	1
				Modular	R	GYHR3225P00-M25R	●	GYM25RA-J08	●	5
					L	GYHL3225P00-M25L	●	GYM25LA-J08	●	5
				Modular	R	GYHR3232P00-M25R	●	GYM25RA-J08	●	5
					L	GYHL3232P00-M25L	●	GYM25LA-J08	●	5
		14	28	Modular	R	GYHR2020K00-M25R	●	GYM25RA-J14	●	3
					L	GYHL2020K00-M25L	●	GYM25LA-J14	●	3
				Modular	R	GYHR2525M00-M25R	●	GYM25RA-J14	●	1
					L	GYHL2525M00-M25L	●	GYM25LA-J14	●	1
				Modular	R	GYHR3225P00-M25R	●	GYM25RA-J14	●	5
					L	GYHL3225P00-M25L	●	GYM25LA-J14	●	5
				Modular	R	GYHR3232P00-M25R	●	GYM25RA-J14	●	5
					L	GYHL3232P00-M25L	●	GYM25LA-J14	●	5
		25 ✶1	50 ✶2	Monoblock	R	GYQR2020K00-J25	●	—	—	8
					L	GYQL2020K00-J25	●	—	—	8
				Modular	R	GYHR2020K00-M25R	●	GYM25RA-J25	●	4
					L	GYHL2020K00-M25L	●	GYM25LA-J25	●	4
				Monoblock	R	GYQR2525M00-J25	●	—	—	7
					L	GYQL2525M00-J25	●	—	—	7
				Modular	R	GYHR2525M00-M25R	●	GYM25RA-J25	●	2
					L	GYHL2525M00-M25L	●	GYM25LA-J25	●	2
				Modular	R	GYHR3225P00-M25R	●	GYM25RA-J25	●	6
					L	GYHL3225P00-M25L	●	GYM25LA-J25	●	6
				Modular	R	GYHR3232P00-M25R	●	GYM25RA-J25	●	6
					L	GYHL3232P00-M25L	●	GYM25LA-J25	●	6

✶1 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.
✶2 The maximum cut off diameter (**CUTDIA**) varies according to the insert used.
The cut off diameter is double the maximum groove depth (**CDX**) of inserts on pages F011—F015.
✶3 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2** and **WF** values may vary.

● : **Inventory maintained.**



Right hand tool holder shown.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYQR/L○○○○○○○○-○○○	HSC05020 (Clamp Torque : 7.0N·m)	—	HKY40R
GYHR/L○○○○○○○○-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D

Dimensions (mm) ∗3								Cutting Mode	
H	B	LF	LH	LH 2	HF	WF	HBH	Clockwise	Anticlockwise
20	20	125	41	—	20	20.35	—	R	
20	20	125	41	—	20	20.35	—		
20	20	119	33	54	20	26	5		
20	20	119	33	54	20	26	5		
25	25	150	41	—	25	25.35	—		
25	25	150	41	—	25	25.35	—		
25	25	144	33	51	25	28	—		
25	25	144	33	51	25	28	—		
32	25	164	33	51	32	28	—		
32	25	164	33	51	32	28	—		
32	32	164	33	51	32	35	—		
32	32	164	33	51	32	35	—		
20	20	125	39	60	20	26	5		
20	20	125	39	60	20	26	5		
25	25	150	39	57	25	28	—		
25	25	150	39	57	25	28	—		
32	25	170	39	57	32	28	—		
32	25	170	39	57	32	28	—		
32	32	170	39	57	32	35	—		
32	32	170	39	57	32	35	—		
20	20	125	46	—	20	20.35	4	L	
20	20	125	46	—	20	20.35	4		
20	20	136	50	71	20	26	5		
20	20	136	50	71	20	26	5		
25	25	150	46	—	25	25.35	—		
25	25	150	46	—	25	25.35	—		
25	25	161	50	68	25	28	—		
25	25	161	50	68	25	28	—		
32	25	181	50	68	32	28	—		
32	25	181	50	68	32	28	—		
32	32	181	50	68	32	35	—		
32	32	181	50	68	32	35	—		

Insert selection

Seat Size	Geometry name
J	GY○○0600/0631/0635J○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	05-GM (Cutting off)	GFGS (Hardened steel)
		Neutral	Neutral	Neutral	With hand	Neutral
J	6.00mm	●	●	●		●
	6.35mm	●	●	●		

For multifunctional grooving chipbreaker ➤ F014, F015

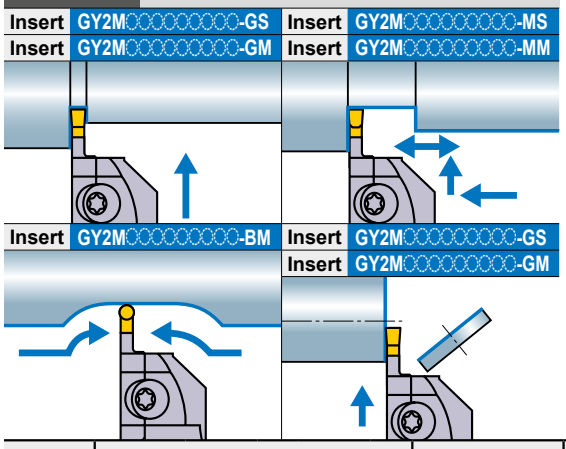
Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying, Recessing)
					Ball shape
J	6.00mm				●
	RE 0.2	●			
	RE 0.4	●	●	●	
	RE 0.8	●	●	●	
	6.31mm	●			
	6.35mm				●
	RE 0.2	●			
	RE 0.4	●			
	RE 0.8	●			

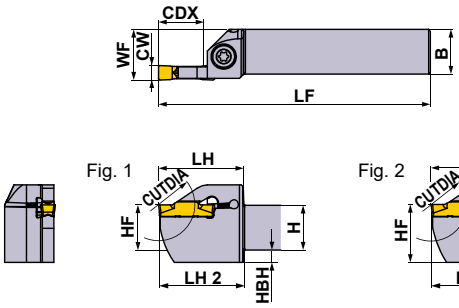
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F100
CAUTION FOR USE ➤ F105

GY SERIES (EXTERNAL)

1 00° type holder





Right hand tool holder shown.

Seat Size	Dimensions (mm)			Type	Hand (R/L)	Order Number				Fig.
	CW	CDX	CUTDIA			Holder	Stock	Modular Blade	Stock	
K	8.00	25 ∗1	50 ∗2	Monoblock	R	**GYPR2525M00-K25**	●	—	—	1
					L	**GYPL2525M00-K25**	●	—	—	1
				Monoblock	R	**GYPR3225P00-K25**	●	—	—	2
					L	**GYPL3225P00-K25**	●	—	—	2
				Monoblock	R	**GYPR3232P00-K25**	●	—	—	3
					L	**GYPL3232P00-K25**	●	—	—	3

∗1 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.
∗2 The maximum cut off diameter (**CUTDIA**) varies according to the insert used.
The cut off diameter is double the maximum groove depth (**CDX**) of inserts on pages F011—F015.
∗3 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2** and **WF** values may vary.

● : **Inventory maintained.**

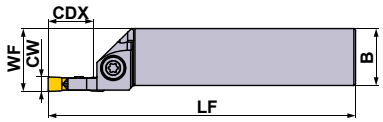
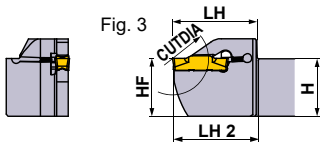


Fig. 3

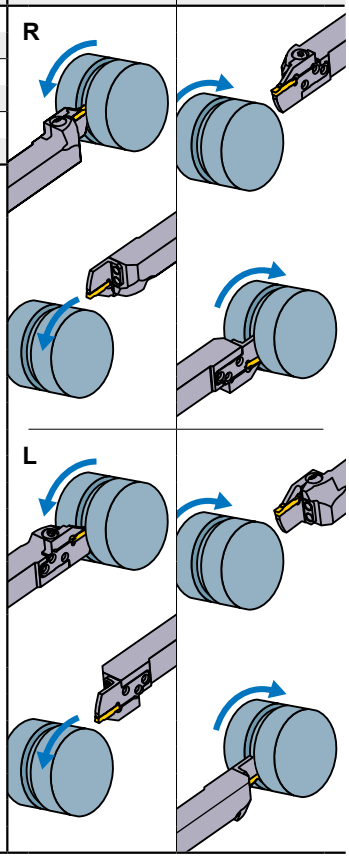


Right hand tool holder shown.

SPARE PARTS

Holder	Clamp Screw	Wrench
GYPR/L○○○○○00-K25	GY06013M (Clamp Torque : 6.0N·m)	TKY30R

	Dimensions (mm) ⁎3								Cutting Mode	
	H	B	LF	LH	LH 2	HF	WF	HBH	Clockwise	Anticlockwise
	25	25	150	47	48	25	28	7	R	
	25	25	150	47	48	25	28	7		
	32	25	170	47	48	32	28	—		
	32	25	170	47	48	32	28	—		
	32	32	170	47	48	32	35	—		
	32	32	170	47	48	32	35	—		
									L	



Insert selection

Seat Size	Geometry name
K	GY○○0800K○○○○−Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	05-GM (Cutting off)	GFGS (Hardened steel)
		Neutral	Neutral	Neutral	With hand	Neutral
K	8.00mm		●	●		

For multifunctional grooving chipbreaker ➤ F014, F015

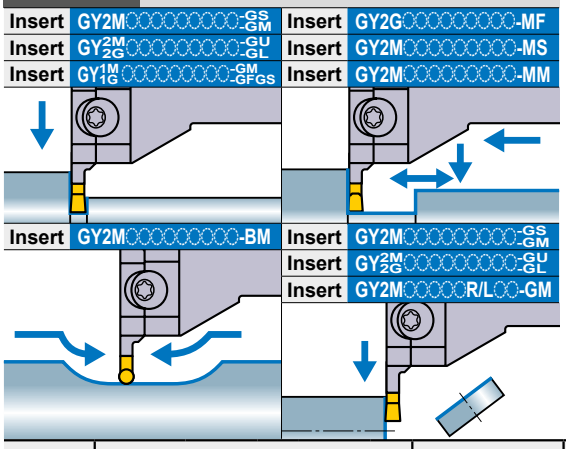
Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying, Recessing)
					Ball shape
K	8.00mm				●
	RE 0.8		●	●	
	RE 1.2			●	

● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F100
CAUTION FOR USE ➤ F105

GY SERIES (EXTERNAL)

2 90° type holder



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use left hand modular blade for right hand holder and right hand modular blade for left hand holder.

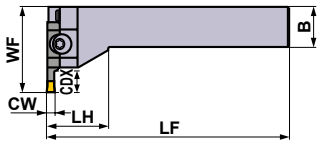


Fig. 1

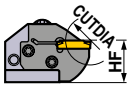
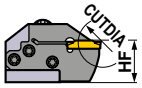
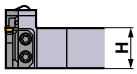


Fig. 2





Right hand tool holder shown.

Seat Size	Dimensions (mm)			Type	Hand (R/L)	Order Number				Fig.
	CW	CDX	CUTDIA			Holder	Stock	Modular Blade	Stock	
D	2.00 2.24	6	12	Modular	R	**GYHR2020K90-M20L**	●	**GYM20LA-D06**	●	1
					L	**GYHL2020K90-M20R**	●	**GYM20RA-D06**	●	1
				Modular	R	**GYHR2525M90-M25L**	●	**GYM25LA-D06**	●	1
					L	**GYHL2525M90-M25R**	●	**GYM25RA-D06**	●	1
		10	20	Modular	R	**GYHR2020K90-M20L**	●	**GYM20LA-D10**	●	1
					L	**GYHL2020K90-M20R**	●	**GYM20RA-D10**	●	1
		12	24	Modular	R	**GYHR2525M90-M25L**	●	**GYM25LA-D12**	●	1
					L	**GYHL2525M90-M25R**	●	**GYM25RA-D12**	●	1
		18 ✶4	36	Modular	R	**GYHR2020K90-M20L**	●	**GYM20LB-D18**	●	2
					L	**GYHL2020K90-M20R**	●	**GYM20RB-D18**	●	2
		20 ✶1	40 ✶2	Modular	R	**GYHR2525M90-M25L**	●	**GYM25LA-D20**	●	2
					L	**GYHL2525M90-M25R**	●	**GYM25RA-D20**	●	2
E	2.39 2.50 2.74	6	12	Modular	R	**GYHR2020K90-M20L**	●	**GYM20LA-E06**	●	1
					L	**GYHL2020K90-M20R**	●	**GYM20RA-E06**	●	1
				Modular	R	**GYHR2525M90-M25L**	●	**GYM25LA-E06**	●	1
					L	**GYHL2525M90-M25R**	●	**GYM25RA-E06**	●	1
		10	20	Modular	R	**GYHR2020K90-M20L**	●	**GYM20LA-E10**	●	1
					L	**GYHL2020K90-M20R**	●	**GYM20RA-E10**	●	1
		12	24	Modular	R	**GYHR2525M90-M25L**	●	**GYM25LA-E12**	●	1
					L	**GYHL2525M90-M25R**	●	**GYM25RA-E12**	●	1
		18 ✶4	36	Modular	R	**GYHR2020K90-M20L**	●	**GYM20LB-E18**	●	2
					L	**GYHL2020K90-M20R**	●	**GYM20RB-E18**	●	2
		20 ✶1	40 ✶2	Modular	R	**GYHR2525M90-M25L**	●	**GYM25LA-E20**	●	2
					L	**GYHL2525M90-M25R**	●	**GYM25RA-E20**	●	2

✶1 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.
✶2 The maximum cut off diameter (**CUTDIA**) varies according to the insert used.
The cut off diameter is double the maximum groove depth (**CDX**) of inserts on pages F011—F015.
✶3 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH** and **WF** values may vary.
✶4 The maximum groove depth (**CDX**) is limited by the workpiece diameter. For details, please refer to page F102.

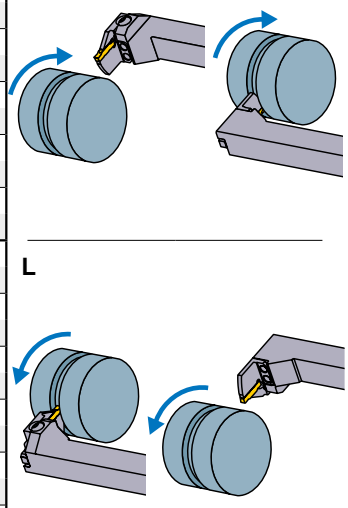
● : **Inventory maintained.**

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR2020K90-M20L	GY06013M (Clamp Torque : 6.0N·m)	TS407 (Clamp Torque : 3.5N·m)	①TKY30R ②TKY15D
GYHL2020K90-M20R			
GYHR2525M90-M25L		TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHL2525M90-M25R			

Dimensions (mm) ∗3						Cutting Mode
H	**B**	**LF**	**LH**	**HF**	**WF**	
20	20	125	35	20	39	**R**
20	20	125	35	20	39	
25	25	150	38	25	45	
25	25	150	38	25	45	
20	20	125	35	20	45	
20	20	125	35	20	45	
25	25	150	38	25	53	
25	25	150	38	25	53	
20	20	125	35	20	51	
20	20	125	35	20	51	
25	25	150	38	25	59	
25	25	150	38	25	59	
20	20	125	35	20	39	**L**
20	20	125	35	20	39	
25	25	150	38	25	45	
25	25	150	38	25	45	
20	20	125	35	20	45	
20	20	125	35	20	45	
25	25	150	38	25	53	
25	25	150	38	25	53	
20	20	125	35	20	51	
20	20	125	35	20	51	
25	25	150	38	25	59	
25	25	150	38	25	59	



Insert selection

Seat Size	Geometry name
D	GY○○0200/0224D○○○○–Chipbreaker shown below
E	GY○○0239/0250/0274E○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011–F013

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GL (Aluminium alloy)	05-GM (Cutting off)	GFGS (Hardened steel)
		Neutral	Neutral	Neutral	Neutral	With hand	Neutral
D	2.00mm	●	●	●	●	●	●
E	2.39mm	●	●	●			●
	2.50mm	●	●	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

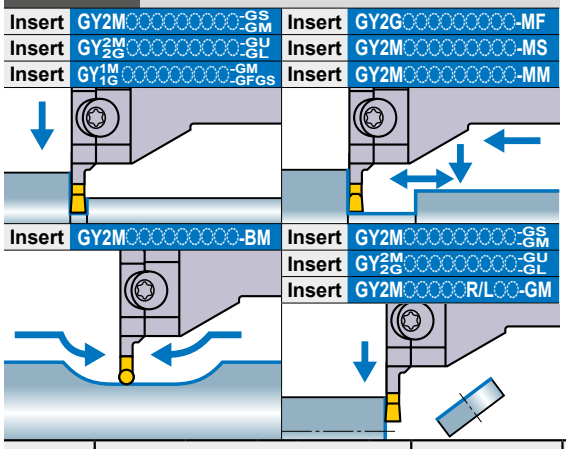
Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying, Recessing)
					Ball shape
D	2.00mm	●	●	●	●
	2.24mm	●			
E	2.39mm	●			
	2.50mm	●	●	●	●
	2.74mm	●			

● : Standard insert with dimensions

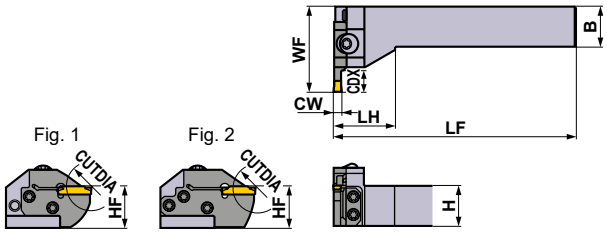
IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F100
CAUTION FOR USE ➤ F105

GY SERIES (EXTERNAL)

2 90° type holder



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use left hand modular blade for right hand holder and right hand modular blade for left hand holder.



Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX	CUTDIA	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
F	3.00 3.18 3.24	6	12	Modular	R	GYHR2020K90-M20L	●	GYM20LA-F06	●	1
					L	GYHL2020K90-M20R	●	GYM20RA-F06	●	1
				Modular	R	GYHR2525M90-M25L	●	GYM25LA-F06	●	1
					L	GYHL2525M90-M25R	●	GYM25RA-F06	●	1
		10	20	Modular	R	GYHR2020K90-M20L	●	GYM20LA-F10	●	1
					L	GYHL2020K90-M20R	●	GYM20RA-F10	●	1
		12	24	Modular	R	GYHR2525M90-M25L	●	GYM25LA-F12	●	1
					L	GYHL2525M90-M25R	●	GYM25RA-F12	●	1
		18∗4	36	Modular	R	GYHR2020K90-M20L	●	GYM20LB-F18	●	2
					L	GYHL2020K90-M20R	●	GYM20RB-F18	●	2
		20∗1	40∗2	Modular	R	GYHR2525M90-M25L	●	GYM25LA-F20	●	2
					L	GYHL2525M90-M25R	●	GYM25RA-F20	●	2
G	4.00 4.24	8	16	Modular	R	GYHR2525M90-M25L	●	GYM25LA-G08	●	1
					L	GYHL2525M90-M25R	●	GYM25RA-G08	●	1
		12	24	Modular	R	GYHR2020K90-M20L	●	GYM20LA-G12	●	1
					L	GYHL2020K90-M20R	●	GYM20RA-G12	●	1
		14	28	Modular	R	GYHR2525M90-M25L	●	GYM25LA-G14	●	1
					L	GYHL2525M90-M25R	●	GYM25RA-G14	●	1
		25∗1	50∗2	Modular	R	GYHR2525M90-M25L	●	GYM25LA-G25	●	2
					L	GYHL2525M90-M25R	●	GYM25RA-G25	●	2

∗1 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.
∗2 The maximum cut off diameter (**CUTDIA**) varies according to the insert used.
The cut off diameter is double the maximum groove depth (**CDX**) of inserts on pages F011—F015.
∗3 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH** and **WF** values may vary.
∗4 The maximum groove depth (**CDX**) is limited by the workpiece diameter. For details, please refer to page F102.

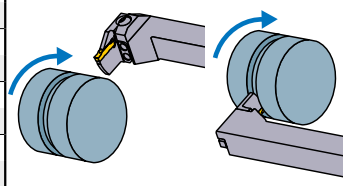
● : **Inventory maintained.**

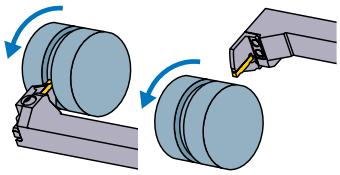
∗ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR2020K90-M20L	GY06013M (Clamp Torque : 6.0N·m)	TS407 (Clamp Torque : 3.5N·m)	①TKY30R ②TKY15D
GYHL2020K90-M20R			
GYHR2525M90-M25L		TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHL2525M90-M25R			

Dimensions (mm) ∗3						Cutting Mode
H	**B**	**LF**	**LH**	**HF**	**WF**	
20	20	125	35	20	39	**R**
20	20	125	35	20	39	
25	25	150	38	25	45	
25	25	150	38	25	45	
20	20	125	35	20	45	
20	20	125	35	20	45	
25	25	150	38	25	53	
25	25	150	38	25	53	
20	20	125	35	20	51	
20	20	125	35	20	51	
25	25	150	38	25	59	
25	25	150	38	25	59	
25	25	150	38	25	47	**L**
25	25	150	38	25	47	
20	20	125	35	20	45	
20	20	125	35	20	45	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	64	
25	25	150	38	25	64	





Insert selection

Seat Size	Geometry name
F	GY○○0300/0318/0324F○○○○–Chipbreaker shown below
G	GY○○0400/0424G○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011–F013

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GL (Aluminium alloy)	05-GM (Cutting off)	GFGS (Hardened steel)
		Neutral	Neutral	Neutral	Neutral	With hand	Neutral
F	3.00mm	●	●	●	●	●	●
	3.18mm	●	●	●			●
G	4.00mm	●	●	●		●	●

For multifunctional grooving chipbreaker ➤ F014, F015

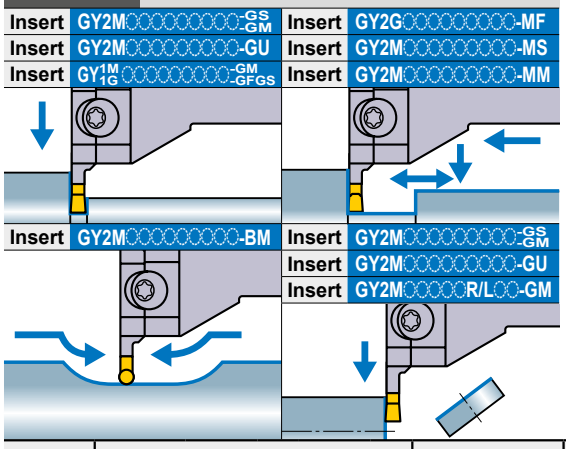
Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying, Recessing)
					Ball shape
F	3.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8			●	
	3.18mm				●
	RE 0.2	●			
	RE 0.4	●			
	3.24mm	●			
G	4.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8	●		●	
	4.24mm	●			

● : Standard insert with dimensions

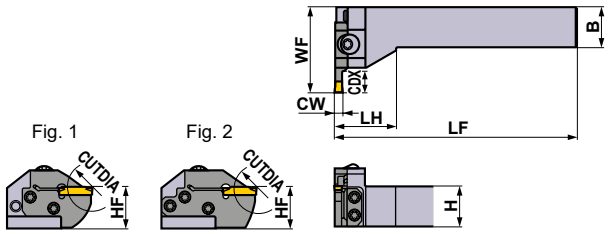
IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F100
CAUTION FOR USE ➤ F105

GY SERIES (EXTERNAL)

2 90° type holder



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use left hand modular blade for right hand holder and right hand modular blade for left hand holder.



Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX	CUTDIA	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
H	4.75 5.00 5.24	8	16	Modular	R	GYHR2525M90-M25L	●	GYM25LA-H08	●	1
					L	GYHL2525M90-M25R	●	GYM25RA-H08	●	1
		12	24	Modular	R	GYHR2020K90-M20L	●	GYM20LA-H12	●	1
					L	GYHL2020K90-M20R	●	GYM20RA-H12	●	1
		14	28	Modular	R	GYHR2525M90-M25L	●	GYM25LA-H14	●	1
					L	GYHL2525M90-M25R	●	GYM25RA-H14	●	1
		25 ✶1	50 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LA-H25	●	2
					L	GYHL2525M90-M25R	●	GYM25RA-H25	●	2
J	6.00 6.31 6.35	8	16	Modular	R	GYHR2525M90-M25L	●	GYM25LA-J08	●	1
					L	GYHL2525M90-M25R	●	GYM25RA-J08	●	1
		14	28	Modular	R	GYHR2525M90-M25L	●	GYM25LA-J14	●	1
					L	GYHL2525M90-M25R	●	GYM25RA-J14	●	1
		25 ✶1	50 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LA-J25	●	2
					L	GYHL2525M90-M25R	●	GYM25RA-J25	●	2

✶1 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.
✶2 The maximum cut off diameter (**CUTDIA**) varies according to the insert used.
The cut off diameter is double the maximum groove depth (**CDX**) of inserts on pages F011—F015.
✶3 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH** and **WF** values may vary.

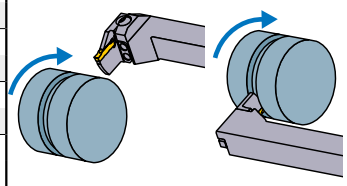
● : **Inventory maintained.**

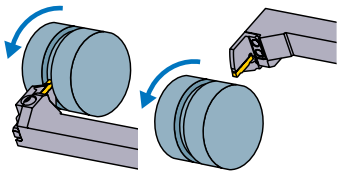
∗ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder Number	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR2020K90-M20L	GY06013M (Clamp Torque : 6.0N·m)	TS407 (Clamp Torque : 3.5N·m)	①TKY30R ②TKY15D
GYHL2020K90-M20R			
GYHR2525M90-M25L		TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHL2525M90-M25R			

	Dimensions (mm) ∗3						Cutting Mode
	H	**B**	**LF**	**LH**	**HF**	**WF**	
	25	25	150	38	25	47	**R**
	25	25	150	38	25	47	
	20	20	125	35	20	45	
	20	20	125	35	20	45	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	64	
	25	25	150	38	25	64	
	25	25	150	38	25	47	**L**
	25	25	150	38	25	47	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	64	
	25	25	150	38	25	64	





Insert selection

Seat Size	Geometry name
H	GY○○0475/0500/0524H○○○○–Chipbreaker shown below
J	GY○○0600/0631/0635J○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	05-GM (Cutting off)	GFGS (Hardened steel)
		Neutral	Neutral	Neutral	With hand	Neutral
H	4.75mm	●	●	●		●
	5.00mm	●	●	●	●	●
J	6.00mm	●	●	●		●
	6.35mm	●	●	●		

For multifunctional grooving chipbreaker ➤ F014, F015

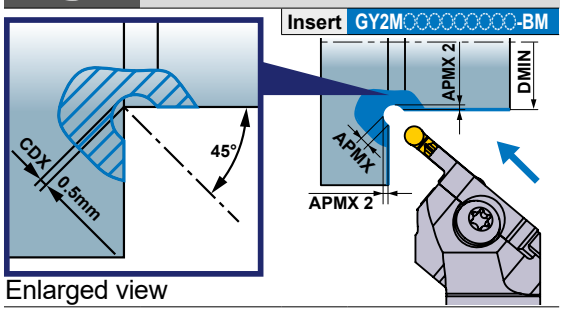
Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying, Recessing)
					Ball shape
H	4.75mm				●
	RE 0.2	●			
	RE 0.4	●			
	RE 0.8	●			
	5.00mm				●
	RE 0.2	●			
	RE 0.4	●	●	●	
	RE 0.8	●	●	●	
	5.24mm	●			
J	6.00mm				●
	RE 0.2	●			
	RE 0.4	●	●	●	
	RE 0.8	●	●	●	
	6.31mm	●			
	6.35mm				●
	RE 0.2	●			
	RE 0.4	●			
	RE 0.8	●			

● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F100
CAUTION FOR USE ➤ F105

GY SERIES (FOR EXTERNAL RECESSING)

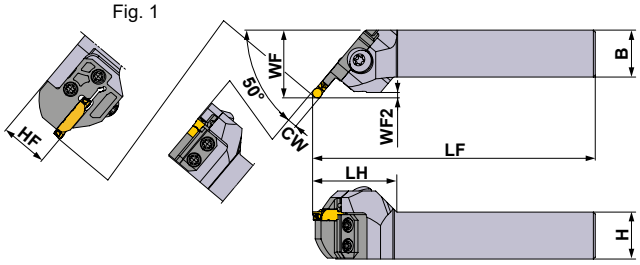
3 For 50° recessing holder



Enlarged view

Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use left hand modular blade for right hand holder and right hand modular blade for left hand holder.

Fig. 1



Right hand tool holder shown.

Seat Size	Dimensions (mm)					Type	Hand (R/L)	Order Number				Fig.	
	CW	CDX	DMIN	APMX	APMX 2			Holder	Stock	Modular Blade	Stock		
D	2.00	0.5	30	1.5	0.646	Modular	R	GYHR2020K50-M20L	●	GYM20LC-D005	●	1	
							L	GYHL2020K50-M20R	●	GYM20RC-D005	●	1	
						Modular	R	GYHR2525M50-M25L	●	GYM25LC-D005	●	1	
							L	GYHL2525M50-M25R	●	GYM25RC-D005	●	1	
E	2.50			1.75	0.72	Modular	R	GYHR2020K50-M20L	●	GYM20LC-E005	●	1	
							L	GYHL2020K50-M20R	●	GYM20RC-E005	●	1	
						Modular	R	GYHR2525M50-M25L	●	GYM25LC-E005	●	1	
							L	GYHL2525M50-M25R	●	GYM25RC-E005	●	1	
F	3.00 3.18			2	0.793	Modular	R	GYHR2020K50-M20L	●	GYM20LC-F005	●	1	
							L	GYHL2020K50-M20R	●	GYM20RC-F005	●	1	
						Modular	R	GYHR2525M50-M25L	●	GYM25LC-F005	●	1	
							L	GYHL2525M50-M25R	●	GYM25RC-F005	●	1	
G	4.00		20	2.5	0.939	Modular	R	GYHR2020K50-M20L	●	GYM20LC-G005	●	1	
							L	GYHL2020K50-M20R	●	GYM20RC-G005	●	1	
						Modular	R	GYHR2525M50-M25L	●	GYM25LC-G005	●	1	
							L	GYHL2525M50-M25R	●	GYM25RC-G005	●	1	
H	4.75 5.00			2.88	1.049	Modular	R	GYHR2020K50-M20L	●	GYM20LC-H005	●	1	
							L	GYHL2020K50-M20R	●	GYM20RC-H005	●	1	
						Modular	R	GYHR2525M50-M25L	●	GYM25LC-H005	●	1	
							L	GYHL2525M50-M25R	●	GYM25RC-H005	●	1	
J	6.00 6.35			3.5	1.232	Modular	R	GYHR2525M50-M25L	●	GYM25LC-J005	●	1	
							L	GYHL2525M50-M25R	●	GYM25RC-J005	●	1	

∗1 The blade for external grooving and face grooving cannot be used due to interference with the workpiece.
∗2 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF**, **LH**, **WF** and **WF2** values may vary.

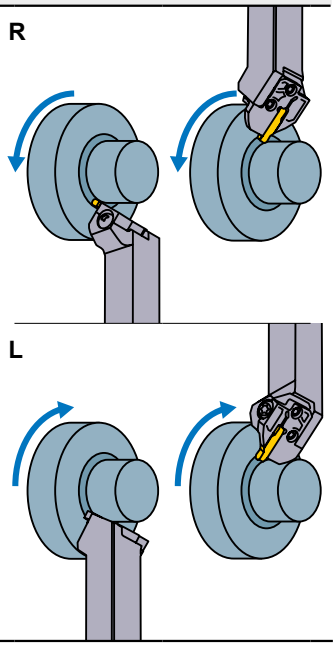
● : Inventory maintained.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (4 pcs.)	Wrench ∗
GYHR/L2020K50-M20R/L	GY06013M (Clamp Torque : 6.0N·m)	TS407 (Clamp Torque : 3.5N·m)	①TKY30R ②TKY25D
GYHR/L2525M50-M25R/L		TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D

	Dimensions (mm) ∗2							Cutting Mode
	H	B	LF	LH	HF	WF	WF2	
	20	20	125	40	20	32	1.6	R
	20	20	125	40	20	32	1.6	
	25	25	150	45	25	35	1.6	
	25	25	150	45	25	35	1.6	
	20	20	125	40	20	32	1.8	
	20	20	125	40	20	32	1.8	
	25	25	150	45	25	35	1.8	
	25	25	150	45	25	35	1.8	
	20	20	125	40	20	32	2.0	
	20	20	125	40	20	32	2.0	
	25	25	150	45	25	35	2.0	
	25	25	150	45	25	35	2.0	
	20	20	125	40	20	32	2.4	
	20	20	125	40	20	32	2.4	
	25	25	150	45	25	35	2.4	
	25	25	150	45	25	35	2.4	
	20	20	125	40	20	33	2.8	
	20	20	125	40	20	33	2.8	
	25	25	150	45	25	36	2.8	
	25	25	150	45	25	36	2.8	
	25	25	150	44	25	36	3.4	
	25	25	150	44	25	36	3.4	



Insert selection

Geometry name

GY2M○○○○○○○○N-BM

For multifunctional grooving chipbreaker ➤ F015

Seat Size	Chipbreaker / CW	BM (Copying, Recessing) Ball shape
D	2.00mm	●
E	2.50mm	●
F	3.00mm	●
	3.18mm	●
G	4.00mm	●
H	4.75mm	●
	5.00mm	●
J	6.00mm	●
	6.35mm	●

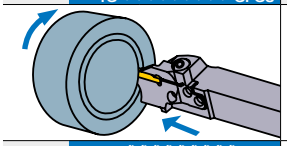
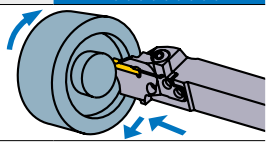
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F104
CAUTION FOR USE ➤ F104

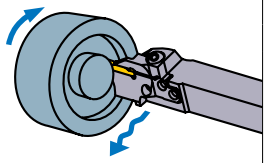
GY SERIES (FACE GROOVING)

4 00° type holder

Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM

Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

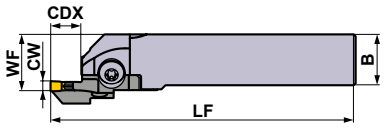


Fig. 1

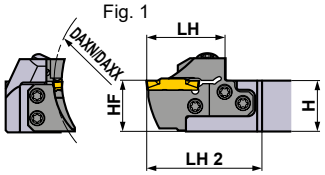
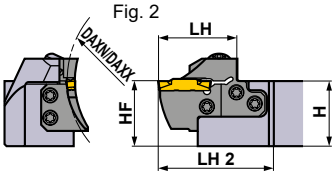


Fig. 2



Right hand tool holder shown.

Seat Size	Dimensions (mm)				Type	Hand (R/L)	Order Number				Fig.
	CW	DAXN	DAXX	CDX			Holder	Stock	Modular Blade	Stock	
D	2.00 2.24	40	50	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-D12-040	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-D12-040	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-D12-040	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-D12-040	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-D12-040	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-D12-040	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-D12-040	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-D12-040	●	2
		50	60	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-D12-050	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-D12-050	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-D12-050	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-D12-050	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-D12-050	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-D12-050	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-D12-050	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-D12-050	●	2
		60	75	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-D12-060	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-D12-060	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-D12-060	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-D12-060	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-D12-060	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-D12-060	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-D12-060	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-D12-060	●	2
		75	100	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-D12-075	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-D12-075	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-D12-075	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-D12-075	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-D12-075	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-D12-075	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-D12-075	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-D12-075	●	2

∗1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.

● : **Inventory maintained.**

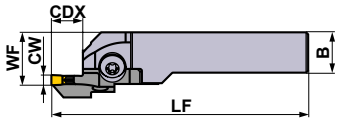
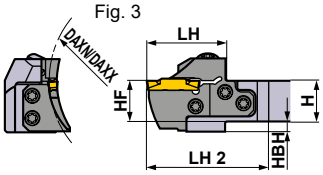


Fig. 3



Right hand tool holder shown.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

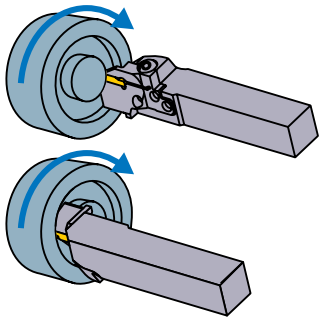
SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

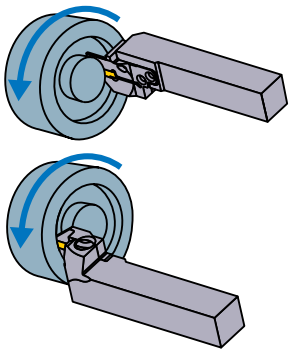
Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—

Cutting Mode

R



L



Insert selection

Seat Size	Geometry name
D	GY○○0200/0224D○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➢ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
D	2.00mm	●	●	●	●

For multifunctional grooving chipbreaker ➢ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
D	2.00mm	●	●	●	●
	2.24mm	●			

● : Standard insert with dimensions

F

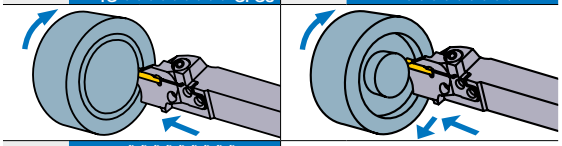
GROOVING / CUTTING OFF

IDENTIFICATION ➢ F008, F009
CUTTING CONDITIONS ➢ F108
CAUTION FOR USE ➢ F110

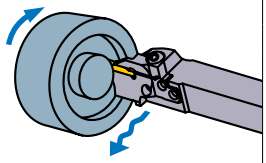
GY SERIES (FACE GROOVING)

4 00° type holder

Insert GY2M○○○○○○○○○-GS/GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/GFGS
Insert GY2M○○○○○○○○○-MM



Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

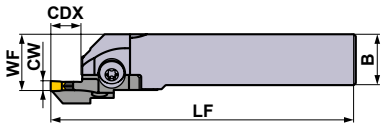


Fig. 1

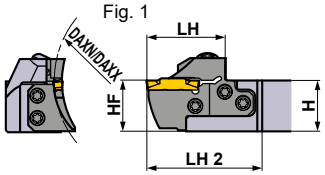
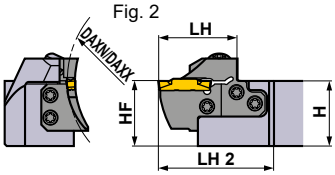


Fig. 2



Right hand tool holder shown.

Seat Size	Dimensions (mm)				Type	Hand (R/L)	Order Number				Fig.	
	CW	DAXN	DAXX	CDX			Holder	Stock	Modular Blade	Stock		
D	2.00 2.24	100	150	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-D12-100	●	3	
						L	GYHL2020K00-M25L	●	GYM25LD-D12-100	●	3	
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-D12-100	●	1	
						L	GYHL2525M00-M25L	●	GYM25LD-D12-100	●	1	
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-D12-100	●	2	
						L	GYHL3225P00-M25L	●	GYM25LD-D12-100	●	2	
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-D12-100	●	2	
						L	GYHL3232P00-M25L	●	GYM25LD-D12-100	●	2	
		135	200	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-D12-135	●	3	
						L	GYHL2020K00-M25L	●	GYM25LD-D12-135	●	3	
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-D12-135	●	1	
						L	GYHL2525M00-M25L	●	GYM25LD-D12-135	●	1	
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-D12-135	●	2	
						L	GYHL3225P00-M25L	●	GYM25LD-D12-135	●	2	
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-D12-135	●	2	
						L	GYHL3232P00-M25L	●	GYM25LD-D12-135	●	2	
		180	250	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-D12-180	●	3	
						L	GYHL2020K00-M25L	●	GYM25LD-D12-180	●	3	
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-D12-180	●	1	
						L	GYHL2525M00-M25L	●	GYM25LD-D12-180	●	1	
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-D12-180	●	2	
						L	GYHL3225P00-M25L	●	GYM25LD-D12-180	●	2	
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-D12-180	●	2	
						L	GYHL3232P00-M25L	●	GYM25LD-D12-180	●	2	

∗1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.

● : **Inventory maintained.**

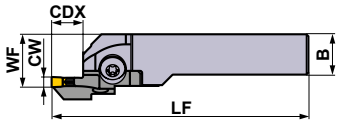
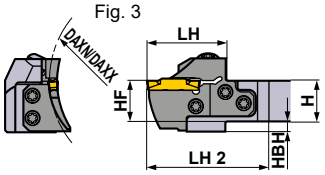


Fig. 3



Right hand tool holder shown.

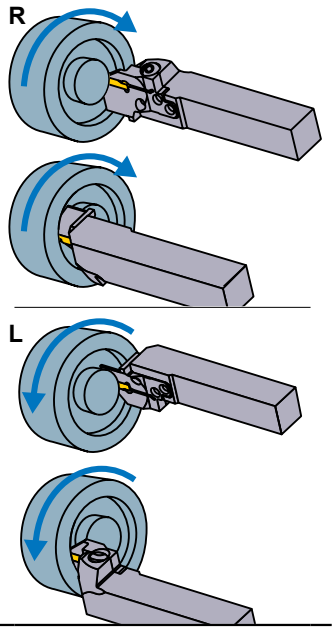
∗ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—

Cutting Mode



Insert selection

Seat Size	Geometry name
D	GY○○0200/0224D○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
D	2.00mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
D	2.00mm	●	●	●	●
	2.24mm	●			

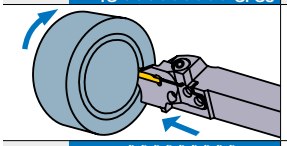
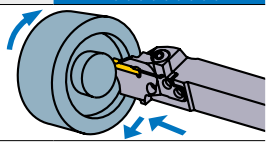
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

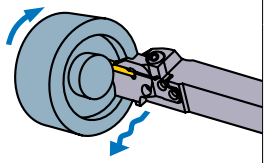
GY SERIES (FACE GROOVING)

4 00° type holder

Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM

Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

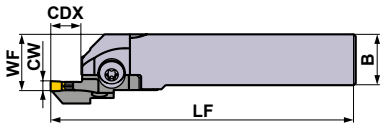


Fig. 1

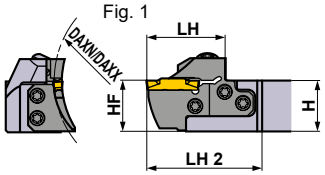
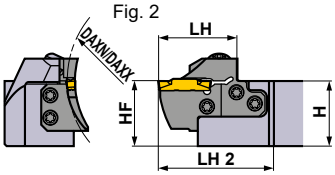


Fig. 2



Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
E	2.39 2.50 2.74	40	50	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-E12-040	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-E12-040	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-E12-040	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-E12-040	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-E12-040	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-E12-040	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-E12-040	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-E12-040	●	2
		50	60	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-E12-050	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-E12-050	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-E12-050	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-E12-050	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-E12-050	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-E12-050	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-E12-050	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-E12-050	●	2
		60	75	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-E12-060	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-E12-060	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-E12-060	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-E12-060	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-E12-060	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-E12-060	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-E12-060	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-E12-060	●	2
		75	100	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-E12-075	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-E12-075	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-E12-075	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-E12-075	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-E12-075	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-E12-075	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-E12-075	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-E12-075	●	2

∗1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.

● : **Inventory maintained.**

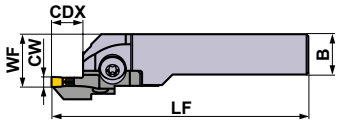
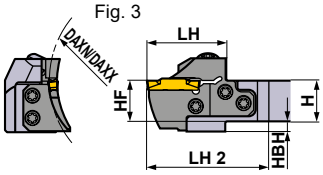


Fig. 3



Right hand tool holder shown.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

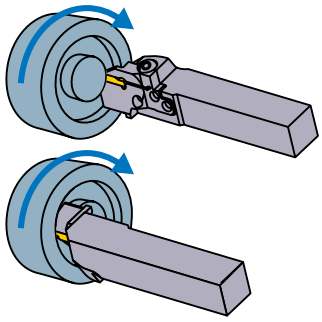
SPARE PARTS

Holder Number	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—

Cutting Mode

R



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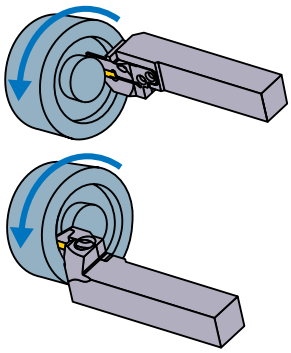


Insert selection

Seat Size	Geometry name
E	GY○○0239/0250/0274E○○○○—Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
E	2.39mm	●	●	●	●
	2.50mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
E	2.39mm	●			
	2.50mm	●	●	●	●
	2.74mm	●			

● : Standard insert with dimensions

F

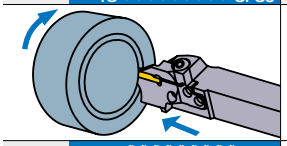
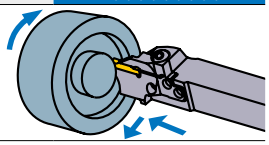
GROOVING / CUTTING OFF

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

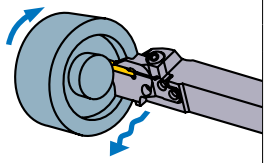
GY SERIES (FACE GROOVING)

4 00° type holder

Insert GY2M○○○○○○○○○-GS/GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/GFGS
Insert GY2M○○○○○○○○○-MM

Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

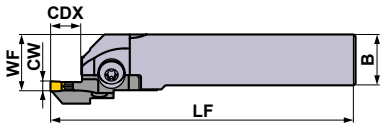


Fig. 1

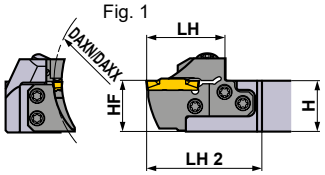
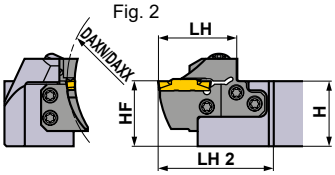


Fig. 2



Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
E	2.39 2.50 2.74	100	150	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-E12-100	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-E12-100	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-E12-100	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-E12-100	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-E12-100	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-E12-100	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-E12-100	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-E12-100	●	2
		135	200	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-E12-135	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-E12-135	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-E12-135	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-E12-135	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-E12-135	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-E12-135	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-E12-135	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-E12-135	●	2
		180	250	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-E12-180	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-E12-180	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-E12-180	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-E12-180	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-E12-180	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-E12-180	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-E12-180	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-E12-180	●	2

∗1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.

● : **Inventory maintained.**

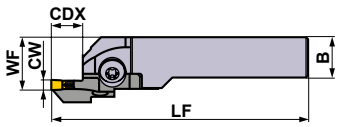
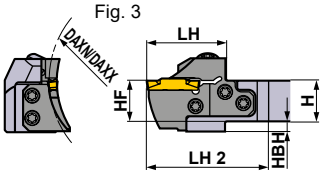


Fig. 3



Right hand tool holder shown.

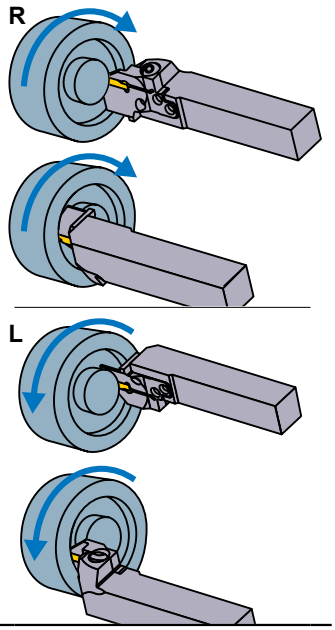
∗ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—

Cutting Mode



Insert selection

Seat Size	Geometry name
E	GY○○0239/0250/0274E○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
E	2.39mm	●	●	●	●
	2.50mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
E	2.39mm	●			
	2.50mm	●	●	●	●
	2.74mm	●			

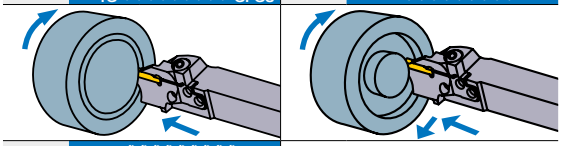
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

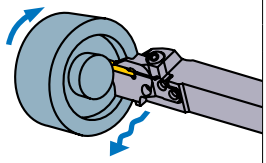
GY SERIES (FACE GROOVING)

4 00° type holder

Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM



Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

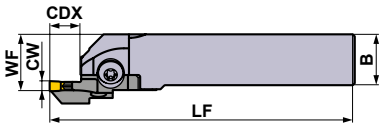


Fig. 1

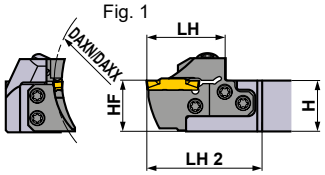
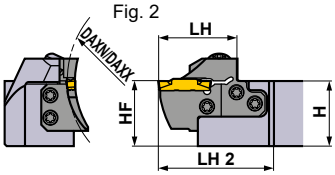


Fig. 2



Right hand tool holder shown.

Seat Size	Dimensions (mm)				Type	Hand (R/L)	Order Number				Fig.
	CW	DAXN	DAXX	CDX			Holder	Stock	Modular Blade	Stock	
F	3.00 3.18 3.24	35	40	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-F12-035	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-F12-035	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-F12-035	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-F12-035	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-F12-035	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-F12-035	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-F12-035	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-F12-035	●	2
		40	50	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-F12-040	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-F12-040	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-F12-040	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-F12-040	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-F12-040	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-F12-040	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-F12-040	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-F12-040	●	2
		50	60	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-F12-050	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-F12-050	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-F12-050	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-F12-050	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-F12-050	●	2
						L	GYHL3225P00-M25L	●	GYM25LD-F12-050	●	2
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-F12-050	●	2
						L	GYHL3232P00-M25L	●	GYM25LD-F12-050	●	2

∗1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.

● : **Inventory maintained.**

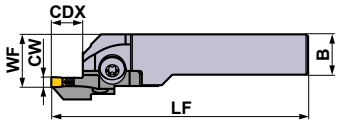
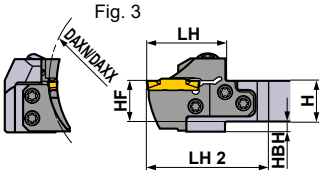


Fig. 3



Right hand tool holder shown.

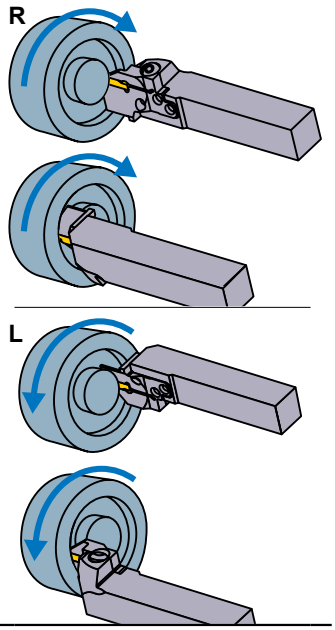
∗ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—

Cutting Mode



Insert selection

Seat Size	Geometry name
F	GY○○0300/0318/0324F○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
F	3.00mm	●	●	●	●
	3.18mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
F	3.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8			●	
	3.18mm				●
	RE 0.2	●			
	RE 0.4	●			
	3.24mm	●			

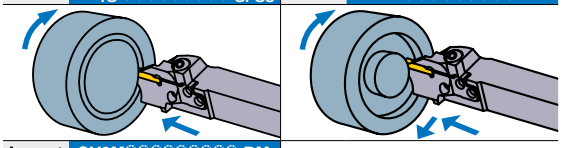
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

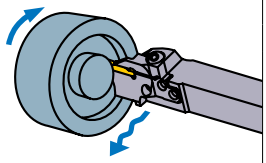
GY SERIES (FACE GROOVING)

4 00° type holder

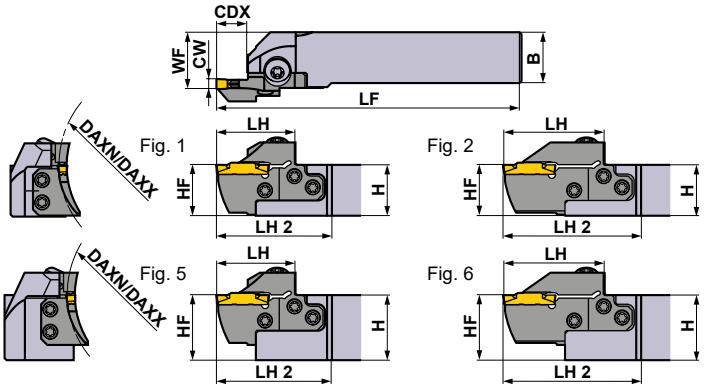
Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM



Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

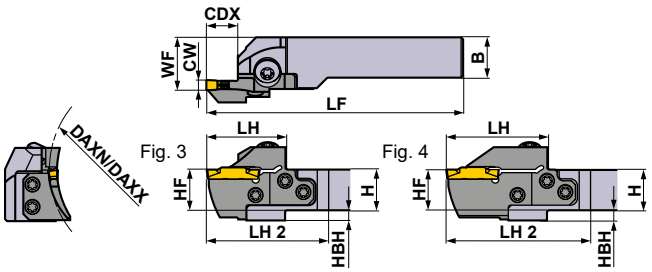


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
F	3.00 3.18 3.24	60	75	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-F12-060	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-F12-060	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-F12-060	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-F12-060	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-F12-060	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-F12-060	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-F12-060	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-F12-060	●	5
				20 ⁎2	Modular	R	GYHR2020K00-M25R	●	GYM25RD-F20-060	●	4
						L	GYHL2020K00-M25L	●	GYM25LD-F20-060	●	4
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-F20-060	●	2
						L	GYHL2525M00-M25L	●	GYM25LD-F20-060	●	2
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-F20-060	●	6
						L	GYHL3225P00-M25L	●	GYM25LD-F20-060	●	6
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-F20-060	●	6
						L	GYHL3232P00-M25L	●	GYM25LD-F20-060	●	6
		75	100	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-F12-075	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-F12-075	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-F12-075	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-F12-075	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-F12-075	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-F12-075	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-F12-075	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-F12-075	●	5
				20 ⁎2	Modular	R	GYHR2020K00-M25R	●	GYM25RD-F20-075	●	4
						L	GYHL2020K00-M25L	●	GYM25LD-F20-075	●	4
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-F20-075	●	2
						L	GYHL2525M00-M25L	●	GYM25LD-F20-075	●	2
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-F20-075	●	6
						L	GYHL3225P00-M25L	●	GYM25LD-F20-075	●	6
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-F20-075	●	6
						L	GYHL3232P00-M25L	●	GYM25LD-F20-075	●	6

⁎1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.
⁎2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

● : **Inventory maintained.**



Right hand tool holder shown.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

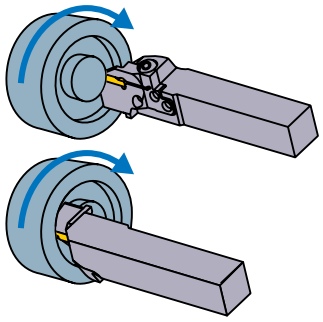
SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

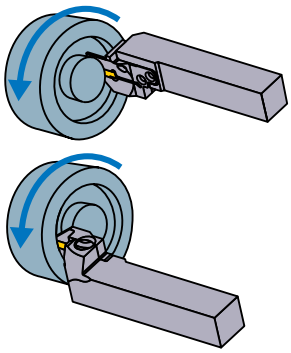
Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	131	45	66	20	26	5
20	20	131	45	66	20	26	5
25	25	156	45	63	25	28	—
25	25	156	45	63	25	28	—
32	25	176	45	63	32	28	—
32	25	176	45	63	32	28	—
32	32	176	45	63	32	35	—
32	32	176	45	63	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	131	45	66	20	26	5
20	20	131	45	66	20	26	5
25	25	156	45	63	25	28	—
25	25	156	45	63	25	28	—
32	25	176	45	63	32	28	—
32	25	176	45	63	32	28	—
32	32	176	45	63	32	35	—
32	32	176	45	63	32	35	—

Cutting Mode

R



L



Insert selection

Seat Size	Geometry name
F	GY○○0300/0318/0324F○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
F	3.00mm	●	●	●	●
	3.18mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
F	3.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8			●	
	3.18mm				●
	RE 0.2	●			
	RE 0.4	●			
	3.24mm	●			

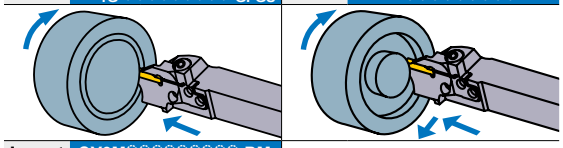
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

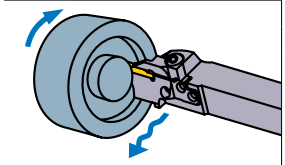
GY SERIES (FACE GROOVING)

4 00° type holder

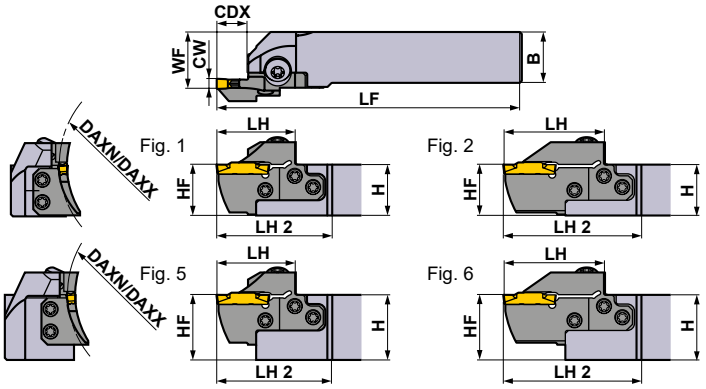
Insert GY2M○○○○○○○○○-GS/GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/GFGS
Insert GY2M○○○○○○○○○-MM



Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

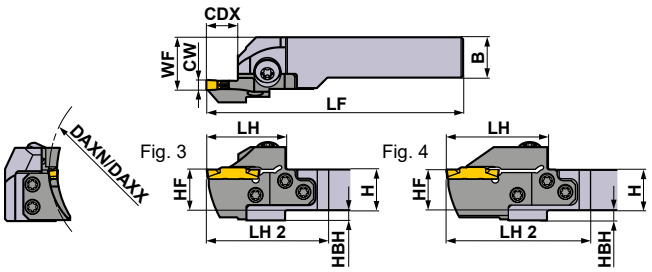


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
F	3.00 3.18 3.24	100	150	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-F12-100	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-F12-100	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-F12-100	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-F12-100	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-F12-100	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-F12-100	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-F12-100	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-F12-100	●	5
				20 ⁎2	Modular	R	GYHR2020K00-M25R	●	GYM25RD-F20-100	●	4
						L	GYHL2020K00-M25L	●	GYM25LD-F20-100	●	4
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-F20-100	●	2
						L	GYHL2525M00-M25L	●	GYM25LD-F20-100	●	2
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-F20-100	●	6
						L	GYHL3225P00-M25L	●	GYM25LD-F20-100	●	6
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-F20-100	●	6
						L	GYHL3232P00-M25L	●	GYM25LD-F20-100	●	6
		135	200	12	Modular	R	GYHR2020K00-M25R	●	GYM25RD-F12-135	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-F12-135	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-F12-135	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-F12-135	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-F12-135	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-F12-135	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-F12-135	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-F12-135	●	5
				20 ⁎2	Modular	R	GYHR2020K00-M25R	●	GYM25RD-F20-135	●	4
						L	GYHL2020K00-M25L	●	GYM25LD-F20-135	●	4
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-F20-135	●	2
						L	GYHL2525M00-M25L	●	GYM25LD-F20-135	●	2
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-F20-135	●	6
						L	GYHL3225P00-M25L	●	GYM25LD-F20-135	●	6
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-F20-135	●	6
						L	GYHL3232P00-M25L	●	GYM25LD-F20-135	●	6

⁎1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.
⁎2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

● : **Inventory maintained.**



Right hand tool holder shown.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

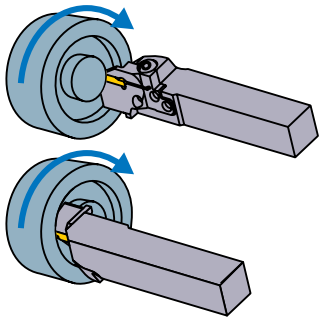
SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

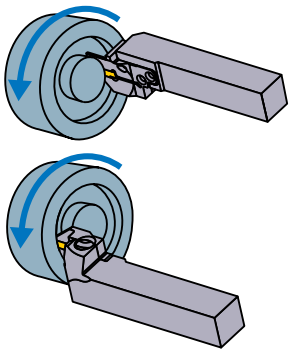
Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	131	45	66	20	26	5
20	20	131	45	66	20	26	5
25	25	156	45	63	25	28	—
25	25	156	45	63	25	28	—
32	25	176	45	63	32	28	—
32	25	176	45	63	32	28	—
32	32	176	45	63	32	35	—
32	32	176	45	63	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	131	45	66	20	26	5
20	20	131	45	66	20	26	5
25	25	156	45	63	25	28	—
25	25	156	45	63	25	28	—
32	25	176	45	63	32	28	—
32	25	176	45	63	32	28	—
32	32	176	45	63	32	35	—
32	32	176	45	63	32	35	—

Cutting Mode

R



L



Insert selection

Seat Size	Geometry name
F	GY○○0300/0318/0324F○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
F	3.00mm	●	●	●	●
	3.18mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
F	3.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8			●	
	3.18mm				●
	RE 0.2	●			
	RE 0.4	●			
	3.24mm	●			

● : Standard insert with dimensions

F

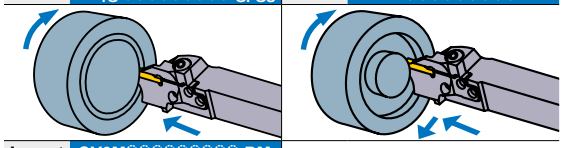
GROOVING / CUTTING OFF

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

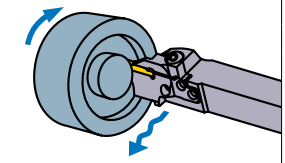
GY SERIES (FACE GROOVING)

4 00° type holder

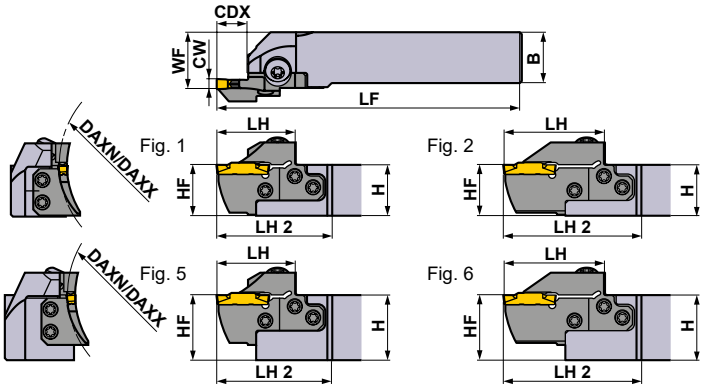
Insert GY2M○○○○○○○○○-GS/GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/GFGS
Insert GY2M○○○○○○○○○-MM



Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

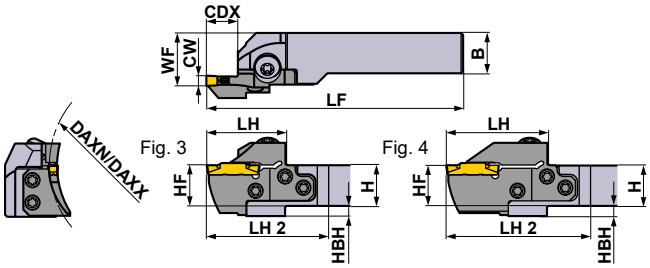


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
F	3.00 3.18 3.24	180	250	12	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-F12-180**	●	3
						L	**GYHL2020K00-M25L**	●	**GYM25LD-F12-180**	●	3
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-F12-180**	●	1
						L	**GYHL2525M00-M25L**	●	**GYM25LD-F12-180**	●	1
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-F12-180**	●	5
						L	**GYHL3225P00-M25L**	●	**GYM25LD-F12-180**	●	5
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-F12-180**	●	5
						L	**GYHL3232P00-M25L**	●	**GYM25LD-F12-180**	●	5
				20 ⁎2	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-F20-180**	●	4
						L	**GYHL2020K00-M25L**	●	**GYM25LD-F20-180**	●	4
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-F20-180**	●	2
						L	**GYHL2525M00-M25L**	●	**GYM25LD-F20-180**	●	2
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-F20-180**	●	6
						L	**GYHL3225P00-M25L**	●	**GYM25LD-F20-180**	●	6
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-F20-180**	●	6
						L	**GYHL3232P00-M25L**	●	**GYM25LD-F20-180**	●	6
		225	999	12	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-F12-225**	●	3
						L	**GYHL2020K00-M25L**	●	**GYM25LD-F12-225**	●	3
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-F12-225**	●	1
						L	**GYHL2525M00-M25L**	●	**GYM25LD-F12-225**	●	1
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-F12-225**	●	5
						L	**GYHL3225P00-M25L**	●	**GYM25LD-F12-225**	●	5
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-F12-225**	●	5
						L	**GYHL3232P00-M25L**	●	**GYM25LD-F12-225**	●	5
				20 ⁎2	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-F20-225**	●	4
						L	**GYHL2020K00-M25L**	●	**GYM25LD-F20-225**	●	4
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-F20-225**	●	2
						L	**GYHL2525M00-M25L**	●	**GYM25LD-F20-225**	●	2
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-F20-225**	●	6
						L	**GYHL3225P00-M25L**	●	**GYM25LD-F20-225**	●	6
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-F20-225**	●	6
						L	**GYHL3232P00-M25L**	●	**GYM25LD-F20-225**	●	6

⁎1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.
⁎2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

● : **Inventory maintained.**



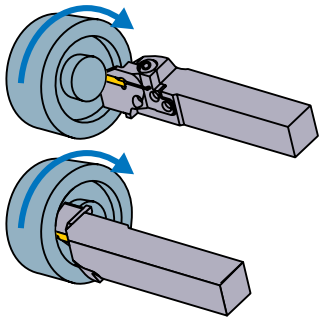
Right hand tool holder shown.

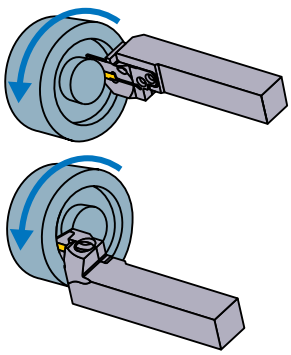
∗ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗ (① ②)
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

Dimensions (mm) ∗1								Cutting Mode
H	B	LF	LH	LH 2	HF	WF	HBH	
20	20	125	39	60	20	26	5	R
20	20	125	39	60	20	26	5	
25	25	150	39	57	25	28	—	
25	25	150	39	57	25	28	—	
32	25	170	39	57	32	28	—	
32	25	170	39	57	32	28	—	
32	32	170	39	57	32	35	—	
32	32	170	39	57	32	35	—	
20	20	131	45	66	20	26	5	
20	20	131	45	66	20	26	5	
25	25	156	45	63	25	28	—	
25	25	156	45	63	25	28	—	
32	25	176	45	63	32	28	—	
32	25	176	45	63	32	28	—	
32	32	176	45	63	32	35	—	
32	32	176	45	63	32	35	—	
20	20	125	39	60	20	26	5	L
20	20	125	39	60	20	26	5	
25	25	150	39	57	25	28	—	
25	25	150	39	57	25	28	—	
32	25	170	39	57	32	28	—	
32	25	170	39	57	32	28	—	
32	32	170	39	57	32	35	—	
32	32	170	39	57	32	35	—	
20	20	131	45	66	20	26	5	
20	20	131	45	66	20	26	5	
25	25	156	45	63	25	28	—	
25	25	156	45	63	25	28	—	
32	25	176	45	63	32	28	—	
32	25	176	45	63	32	28	—	
32	32	176	45	63	32	35	—	
32	32	176	45	63	32	35	—	





Insert selection

Seat Size	Geometry name
F	GY○○0300/0318/0324F○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
F	3.00mm	●	●	●	●
	3.18mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
F	3.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8			●	
	3.18mm				●
	RE 0.2	●			
	RE 0.4	●			
	3.24mm	●			

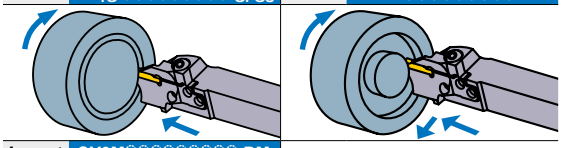
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

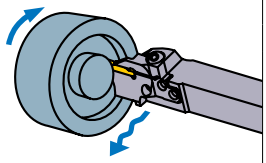
GY SERIES (FACE GROOVING)

4 00° type holder

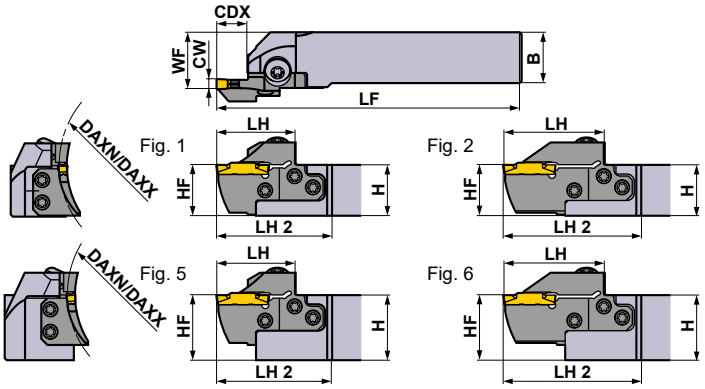
Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM



Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

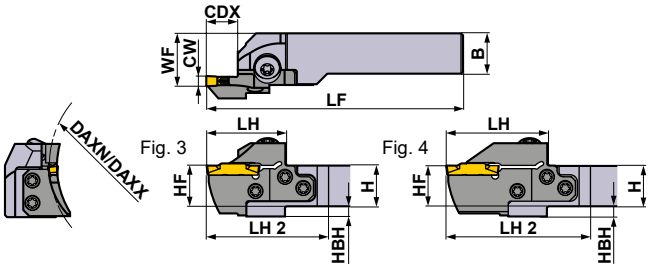


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
G	4.00 4.24	40	50	14	Modular	R	GYHR2020K00-M25R	●	GYM25RD-G14-040	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-G14-040	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-G14-040	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-G14-040	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-G14-040	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-G14-040	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-G14-040	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-G14-040	●	5
		50	60	14	Modular	R	GYHR2020K00-M25R	●	GYM25RD-G14-050	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-G14-050	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-G14-050	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-G14-050	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-G14-050	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-G14-050	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-G14-050	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-G14-050	●	5
		60	85	14	Modular	R	GYHR2020K00-M25R	●	GYM25RD-G14-060	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-G14-060	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-G14-060	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-G14-060	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-G14-060	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-G14-060	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-G14-060	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-G14-060	●	5
				25 ∗2	Modular	R	GYHR2020K00-M25R	●	GYM25RD-G25-060	●	4
						L	GYHL2020K00-M25L	●	GYM25LD-G25-060	●	4
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-G25-060	●	2
						L	GYHL2525M00-M25L	●	GYM25LD-G25-060	●	2
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-G25-060	●	6
						L	GYHL3225P00-M25L	●	GYM25LD-G25-060	●	6
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-G25-060	●	6
						L	GYHL3232P00-M25L	●	GYM25LD-G25-060	●	6

∗1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.
∗2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

● : **Inventory maintained.**



Right hand tool holder shown.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

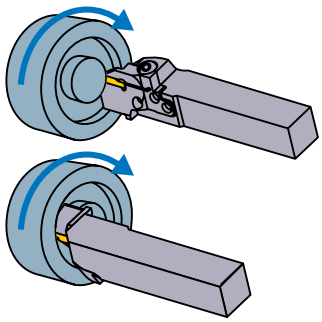
SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

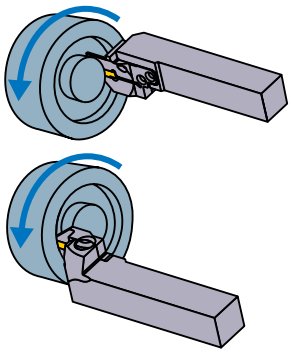
Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	136	50	71	20	26	5
20	20	136	50	71	20	26	5
25	25	161	50	68	25	28	—
25	25	161	50	68	25	28	—
32	25	181	50	68	32	28	—
32	25	181	50	68	32	28	—
32	32	181	50	68	32	35	—
32	32	181	50	68	32	35	—

Cutting Mode

R



L



Insert selection

Seat Size	Geometry name
G	GY○○0400/0424G○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
G	4.00mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
G	4.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8	●		●	
	4.24mm	●			

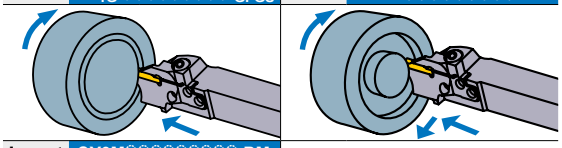
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

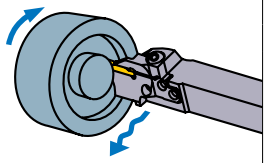
GY SERIES (FACE GROOVING)

4 00° type holder

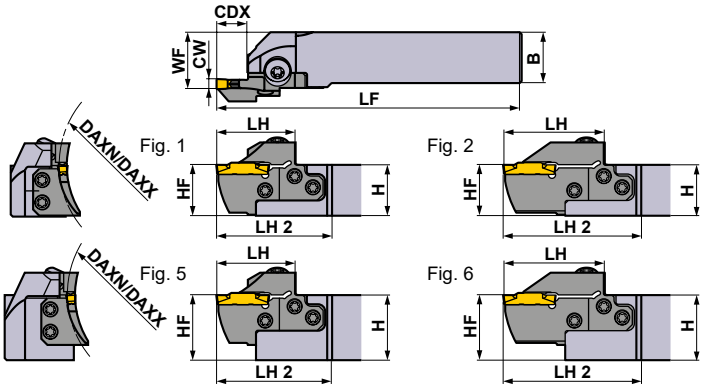
Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM



Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

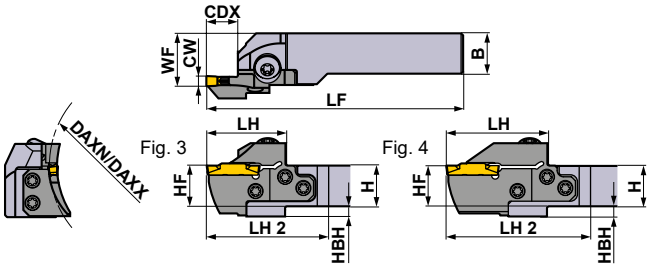


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
G	4.00 4.24	85	125	14	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-G14-085**	●	3
						L	**GYHL2020K00-M25L**	●	**GYM25LD-G14-085**	●	3
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-G14-085**	●	1
						L	**GYHL2525M00-M25L**	●	**GYM25LD-G14-085**	●	1
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-G14-085**	●	5
						L	**GYHL3225P00-M25L**	●	**GYM25LD-G14-085**	●	5
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-G14-085**	●	5
						L	**GYHL3232P00-M25L**	●	**GYM25LD-G14-085**	●	5
				25 ⁎2	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-G25-085**	●	4
						L	**GYHL2020K00-M25L**	●	**GYM25LD-G25-085**	●	4
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-G25-085**	●	2
						L	**GYHL2525M00-M25L**	●	**GYM25LD-G25-085**	●	2
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-G25-085**	●	6
						L	**GYHL3225P00-M25L**	●	**GYM25LD-G25-085**	●	6
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-G25-085**	●	6
						L	**GYHL3232P00-M25L**	●	**GYM25LD-G25-085**	●	6
		125	200	14	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-G14-125**	●	3
						L	**GYHL2020K00-M25L**	●	**GYM25LD-G14-125**	●	3
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-G14-125**	●	1
						L	**GYHL2525M00-M25L**	●	**GYM25LD-G14-125**	●	1
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-G14-125**	●	5
						L	**GYHL3225P00-M25L**	●	**GYM25LD-G14-125**	●	5
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-G14-125**	●	5
						L	**GYHL3232P00-M25L**	●	**GYM25LD-G14-125**	●	5
				25 ⁎2	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-G25-125**	●	4
						L	**GYHL2020K00-M25L**	●	**GYM25LD-G25-125**	●	4
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-G25-125**	●	2
						L	**GYHL2525M00-M25L**	●	**GYM25LD-G25-125**	●	2
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-G25-125**	●	6
						L	**GYHL3225P00-M25L**	●	**GYM25LD-G25-125**	●	6
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-G25-125**	●	6
						L	**GYHL3232P00-M25L**	●	**GYM25LD-G25-125**	●	6

⁎1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.
⁎2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

● : **Inventory maintained.**



Right hand tool holder shown.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

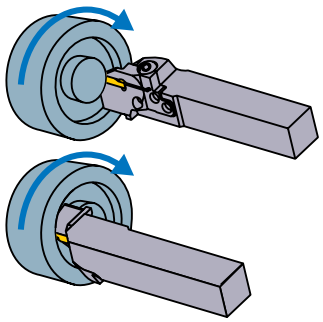
SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	136	50	71	20	26	5
20	20	136	50	71	20	26	5
25	25	161	50	68	25	28	—
25	25	161	50	68	25	28	—
32	25	181	50	68	32	28	—
32	25	181	50	68	32	28	—
32	32	181	50	68	32	35	—
32	32	181	50	68	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	136	50	71	20	26	5
20	20	136	50	71	20	26	5
25	25	161	50	68	25	28	—
25	25	161	50	68	25	28	—
32	25	181	50	68	32	28	—
32	25	181	50	68	32	28	—
32	32	181	50	68	32	35	—
32	32	181	50	68	32	35	—

Cutting Mode

R



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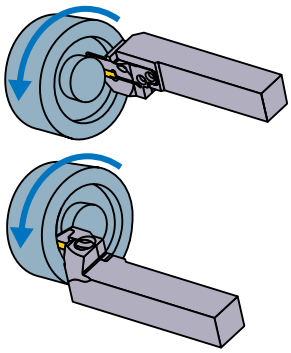


Insert selection

Seat Size	Geometry name
G	GY○○0400/0424G○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
G	4.00mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
G	4.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8	●		●	
	4.24mm	●			

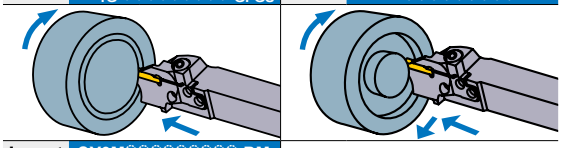
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

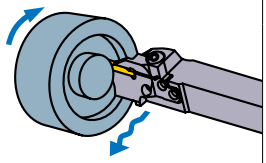
GY SERIES (FACE GROOVING)

4 00° type holder

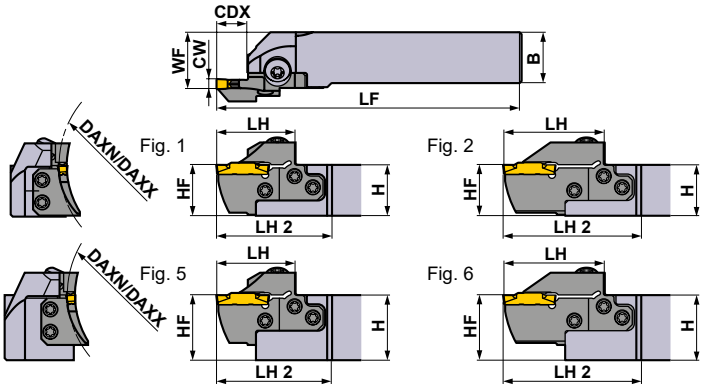
Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM



Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

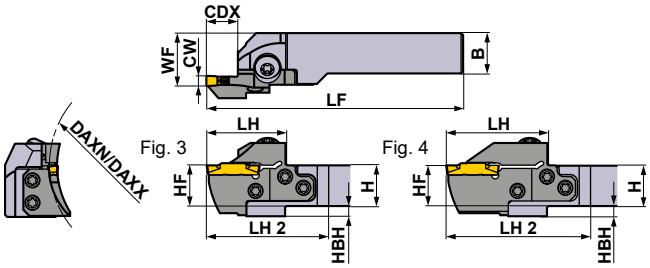


Right hand tool holder shown.

Seat Size	Dimensions (mm)				Type	Hand (R/L)	Order Number				Fig.
	CW	DAXN	DAXX	CDX			Holder	Stock	Modular Blade	Stock	
G	4.00 4.24	180	280	14	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-G14-180**	●	3
						L	**GYHL2020K00-M25L**	●	**GYM25LD-G14-180**	●	3
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-G14-180**	●	1
						L	**GYHL2525M00-M25L**	●	**GYM25LD-G14-180**	●	1
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-G14-180**	●	5
						L	**GYHL3225P00-M25L**	●	**GYM25LD-G14-180**	●	5
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-G14-180**	●	5
						L	**GYHL3232P00-M25L**	●	**GYM25LD-G14-180**	●	5
				25 ⁎2	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-G25-180**	●	4
						L	**GYHL2020K00-M25L**	●	**GYM25LD-G25-180**	●	4
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-G25-180**	●	2
						L	**GYHL2525M00-M25L**	●	**GYM25LD-G25-180**	●	2
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-G25-180**	●	6
						L	**GYHL3225P00-M25L**	●	**GYM25LD-G25-180**	●	6
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-G25-180**	●	6
						L	**GYHL3232P00-M25L**	●	**GYM25LD-G25-180**	●	6
		250	999	14	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-G14-250**	●	3
						L	**GYHL2020K00-M25L**	●	**GYM25LD-G14-250**	●	3
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-G14-250**	●	1
						L	**GYHL2525M00-M25L**	●	**GYM25LD-G14-250**	●	1
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-G14-250**	●	5
						L	**GYHL3225P00-M25L**	●	**GYM25LD-G14-250**	●	5
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-G14-250**	●	5
						L	**GYHL3232P00-M25L**	●	**GYM25LD-G14-250**	●	5
				25 ⁎2	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-G25-250**	●	4
						L	**GYHL2020K00-M25L**	●	**GYM25LD-G25-250**	●	4
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-G25-250**	●	2
						L	**GYHL2525M00-M25L**	●	**GYM25LD-G25-250**	●	2
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-G25-250**	●	6
						L	**GYHL3225P00-M25L**	●	**GYM25LD-G25-250**	●	6
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-G25-250**	●	6
						L	**GYHL3232P00-M25L**	●	**GYM25LD-G25-250**	●	6

⁎1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.
⁎2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

● : **Inventory maintained.**



Right hand tool holder shown.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

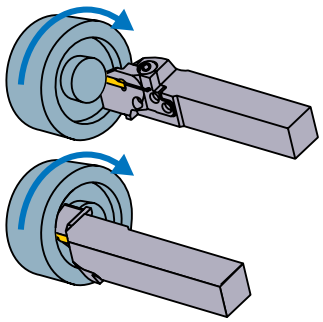
SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗ (①, ②)
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

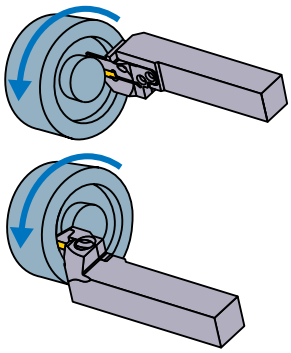
Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	136	50	71	20	26	5
20	20	136	50	71	20	26	5
25	25	161	50	68	25	28	—
25	25	161	50	68	25	28	—
32	25	181	50	68	32	28	—
32	25	181	50	68	32	28	—
32	32	181	50	68	32	35	—
32	32	181	50	68	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	136	50	71	20	26	5
20	20	136	50	71	20	26	5
25	25	161	50	68	25	28	—
25	25	161	50	68	25	28	—
32	25	181	50	68	32	28	—
32	25	181	50	68	32	28	—
32	32	181	50	68	32	35	—
32	32	181	50	68	32	35	—

Cutting Mode

R



L



Insert selection

Seat Size	Geometry name
G	GY○○0400/0424G○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
G	4.00mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
G	4.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8	●		●	
	4.24mm	●			

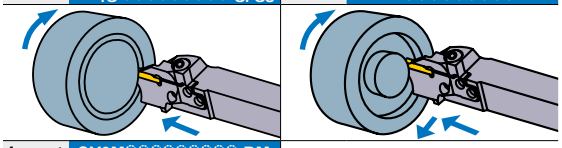
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

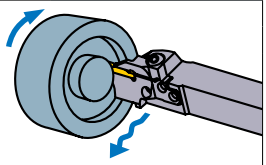
GY SERIES (FACE GROOVING)

4 00° type holder

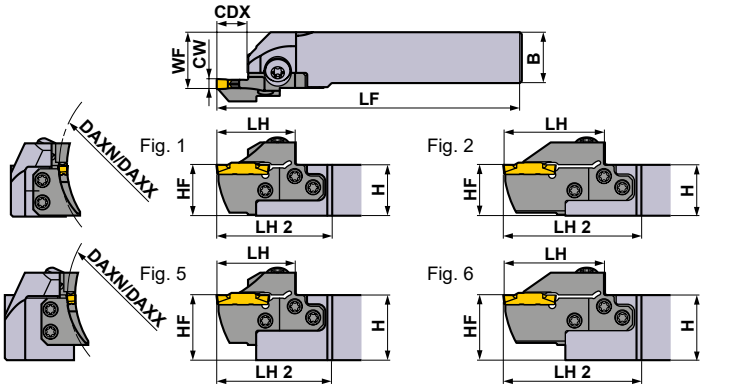
Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM



Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

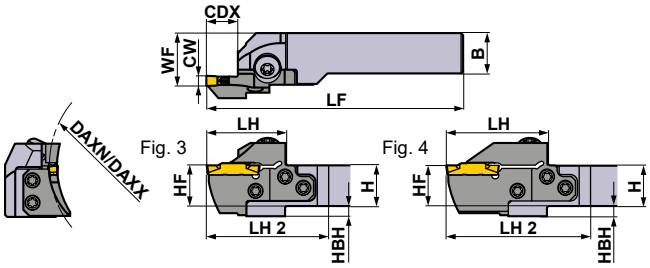


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
H	4.75 5.00 5.24	50	60	14	Modular	R	GYHR2020K00-M25R	●	GYM25RD-H14-050	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-H14-050	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-H14-050	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-H14-050	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-H14-050	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-H14-050	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-H14-050	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-H14-050	●	5
		60	85	14	Modular	R	GYHR2020K00-M25R	●	GYM25RD-H14-060	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-H14-060	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-H14-060	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-H14-060	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-H14-060	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-H14-060	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-H14-060	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-H14-060	●	5
				25 ✶2	Modular	R	GYHR2020K00-M25R	●	GYM25RD-H25-060	●	4
						L	GYHL2020K00-M25L	●	GYM25LD-H25-060	●	4
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-H25-060	●	2
						L	GYHL2525M00-M25L	●	GYM25LD-H25-060	●	2
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-H25-060	●	6
						L	GYHL3225P00-M25L	●	GYM25LD-H25-060	●	6
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-H25-060	●	6
						L	GYHL3232P00-M25L	●	GYM25LD-H25-060	●	6

✶1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.
✶2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

● : **Inventory maintained.**



Right hand tool holder shown.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

	Dimensions (mm) ∗1								Cutting Mode
	H	B	LF	LH	LH 2	HF	WF	HBH	
	20	20	125	39	60	20	26	5	R
	20	20	125	39	60	20	26	5	
	25	25	150	39	57	25	28	—	
	25	25	150	39	57	25	28	—	
	32	25	170	39	57	32	28	—	
	32	25	170	39	57	32	28	—	
	32	32	170	39	57	32	35	—	
	32	32	170	39	57	32	35	—	
	20	20	125	39	60	20	26	5	
	20	20	125	39	60	20	26	5	
	25	25	150	39	57	25	28	—	
	25	25	150	39	57	25	28	—	
	32	25	170	39	57	32	28	—	L
	32	25	170	39	57	32	28	—	
	32	32	170	39	57	32	35	—	
	32	32	170	39	57	32	35	—	
	20	20	136	50	71	20	26	5	
	20	20	136	50	71	20	26	5	
	25	25	161	50	68	25	28	—	
	25	25	161	50	68	25	28	—	
	32	25	181	50	68	32	28	—	
	32	25	181	50	68	32	28	—	
	32	32	181	50	68	32	35	—	
	32	32	181	50	68	32	35	—	

Insert selection

Seat Size	Geometry name
H	GY○○0475/0500/0524H○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
H	4.75mm	●	●	●	●
	5.00mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
H	4.75mm				●
	RE 0.2	●			
	RE 0.4	●			
	RE 0.8	●			
	5.00mm				●
	RE 0.2	●			
	RE 0.4	●	●	●	
	RE 0.8	●	●	●	
	5.24mm	●			

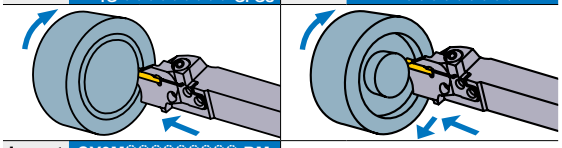
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

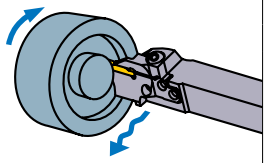
GY SERIES (FACE GROOVING)

4 00° type holder

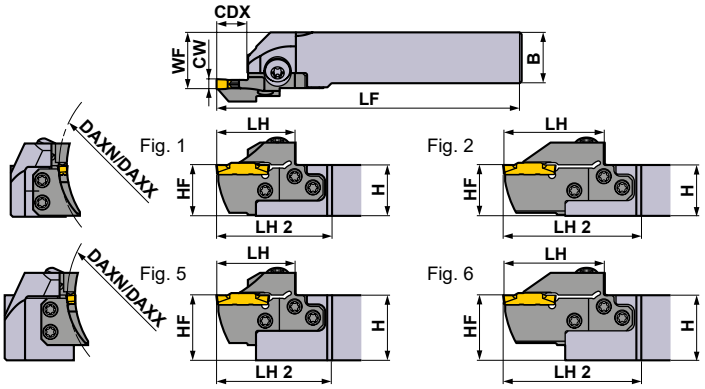
Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM



Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

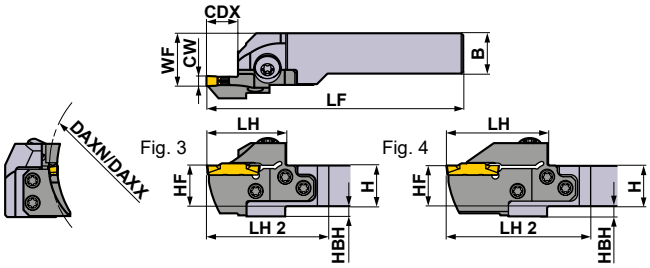


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
H	4.75 5.00 5.24	85	125	14	Modular	R	GYHR2020K00-M25R	●	GYM25RD-H14-085	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-H14-085	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-H14-085	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-H14-085	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-H14-085	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-H14-085	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-H14-085	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-H14-085	●	5
				25 ⋆2	Modular	R	GYHR2020K00-M25R	●	GYM25RD-H25-085	●	4
						L	GYHL2020K00-M25L	●	GYM25LD-H25-085	●	4
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-H25-085	●	2
						L	GYHL2525M00-M25L	●	GYM25LD-H25-085	●	2
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-H25-085	●	6
						L	GYHL3225P00-M25L	●	GYM25LD-H25-085	●	6
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-H25-085	●	6
						L	GYHL3232P00-M25L	●	GYM25LD-H25-085	●	6
		125	200	14	Modular	R	GYHR2020K00-M25R	●	GYM25RD-H14-125	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-H14-125	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-H14-125	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-H14-125	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-H14-125	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-H14-125	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-H14-125	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-H14-125	●	5
				25 ⋆2	Modular	R	GYHR2020K00-M25R	●	GYM25RD-H25-125	●	4
						L	GYHL2020K00-M25L	●	GYM25LD-H25-125	●	4
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-H25-125	●	2
						L	GYHL2525M00-M25L	●	GYM25LD-H25-125	●	2
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-H25-125	●	6
						L	GYHL3225P00-M25L	●	GYM25LD-H25-125	●	6
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-H25-125	●	6
						L	GYHL3232P00-M25L	●	GYM25LD-H25-125	●	6

⋆1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.
⋆2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

● : **Inventory maintained.**



Right hand tool holder shown.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

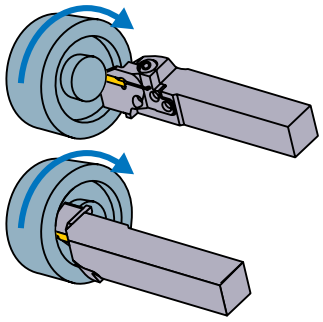
SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

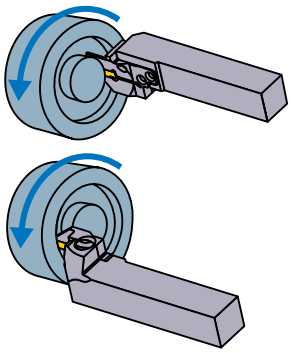
Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	136	50	71	20	26	5
20	20	136	50	71	20	26	5
25	25	161	50	68	25	28	—
25	25	161	50	68	25	28	—
32	25	181	50	68	32	28	—
32	25	181	50	68	32	28	—
32	32	181	50	68	32	35	—
32	32	181	50	68	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	136	50	71	20	26	5
20	20	136	50	71	20	26	5
25	25	161	50	68	25	28	—
25	25	161	50	68	25	28	—
32	25	181	50	68	32	28	—
32	25	181	50	68	32	28	—
32	32	181	50	68	32	35	—
32	32	181	50	68	32	35	—

Cutting Mode

R



L



Insert selection

Seat Size	Geometry name
H	GY○○0475/0500/0524H○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
H	4.75mm	●	●	●	●
	5.00mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
H	4.75mm				●
	RE 0.2	●			
	RE 0.4	●			
	RE 0.8	●			
	5.00mm				●
	RE 0.2	●			
	RE 0.4	●	●	●	
	RE 0.8	●	●	●	
	5.24mm	●			

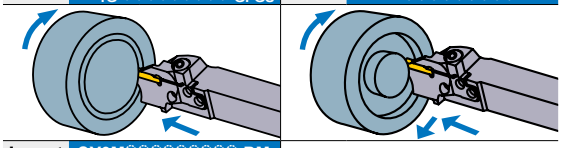
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

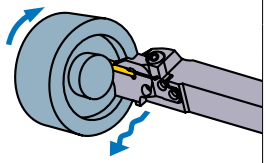
GY SERIES (FACE GROOVING)

4 00° type holder

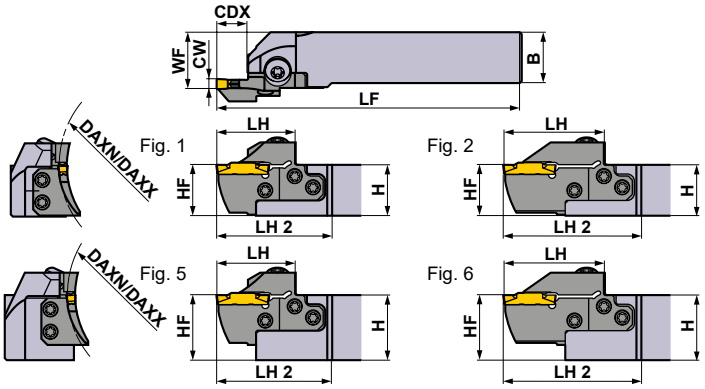
Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM



Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

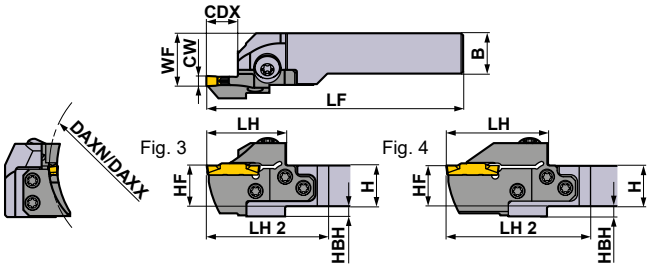


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
H	4.75 5.00 5.24	180	280	14	Modular	R	GYHR2020K00-M25R	●	GYM25RD-H14-180	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-H14-180	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-H14-180	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-H14-180	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-H14-180	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-H14-180	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-H14-180	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-H14-180	●	5
				25 ⋆2	Modular	R	GYHR2020K00-M25R	●	GYM25RD-H25-180	●	4
						L	GYHL2020K00-M25L	●	GYM25LD-H25-180	●	4
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-H25-180	●	2
						L	GYHL2525M00-M25L	●	GYM25LD-H25-180	●	2
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-H25-180	●	6
						L	GYHL3225P00-M25L	●	GYM25LD-H25-180	●	6
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-H25-180	●	6
						L	GYHL3232P00-M25L	●	GYM25LD-H25-180	●	6
		250	999	14	Modular	R	GYHR2020K00-M25R	●	GYM25RD-H14-250	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-H14-250	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-H14-250	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-H14-250	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-H14-250	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-H14-250	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-H14-250	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-H14-250	●	5
				25 ⋆2	Modular	R	GYHR2020K00-M25R	●	GYM25RD-H25-250	●	4
						L	GYHL2020K00-M25L	●	GYM25LD-H25-250	●	4
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-H25-250	●	2
						L	GYHL2525M00-M25L	●	GYM25LD-H25-250	●	2
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-H25-250	●	6
						L	GYHL3225P00-M25L	●	GYM25LD-H25-250	●	6
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-H25-250	●	6
						L	GYHL3232P00-M25L	●	GYM25LD-H25-250	●	6

⋆1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.
⋆2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

● : **Inventory maintained.**



Right hand tool holder shown.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

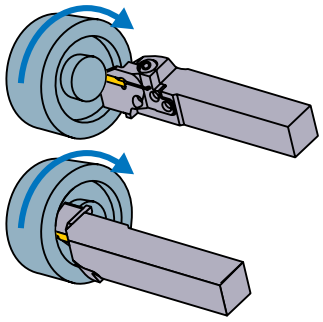
SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

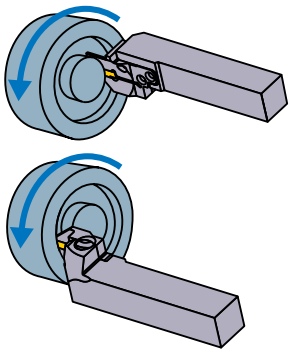
Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	136	50	71	20	26	5
20	20	136	50	71	20	26	5
25	25	161	50	68	25	28	—
25	25	161	50	68	25	28	—
32	25	181	50	68	32	28	—
32	25	181	50	68	32	28	—
32	32	181	50	68	32	35	—
32	32	181	50	68	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	136	50	71	20	26	5
20	20	136	50	71	20	26	5
25	25	161	50	68	25	28	—
25	25	161	50	68	25	28	—
32	25	181	50	68	32	28	—
32	25	181	50	68	32	28	—
32	32	181	50	68	32	35	—
32	32	181	50	68	32	35	—

Cutting Mode

R



L



Insert selection

Seat Size	Geometry name
H	GY○○0475/0500/0524H○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
H	4.75mm	●	●	●	●
	5.00mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
H	4.75mm				●
	RE 0.2	●			
	RE 0.4	●			
	RE 0.8	●			
	5.00mm				●
	RE 0.2	●			
	RE 0.4	●	●	●	
	RE 0.8	●	●	●	
	5.24mm	●			

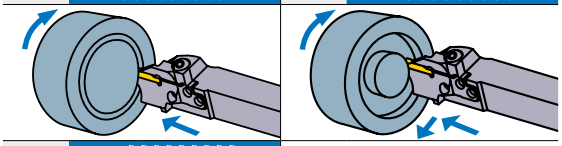
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

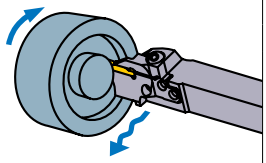
GY SERIES (FACE GROOVING)

4 00° type holder

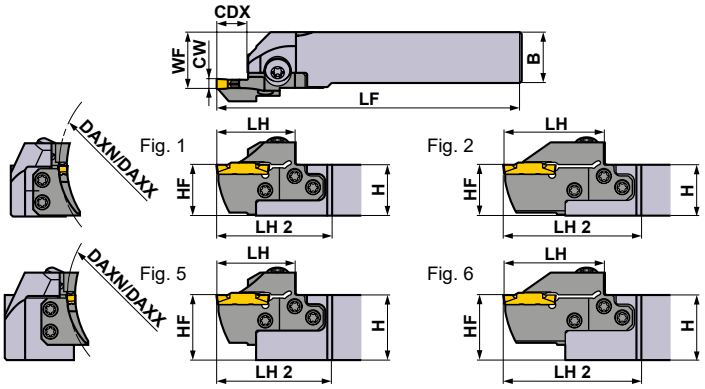
Insert GY2M○○○○○○○○○-GS -GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1G○○○○○○○○○-GFGS
Insert GY2M○○○○○○○○○-MM



Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

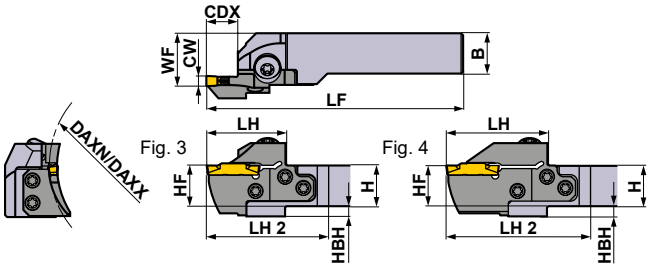


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
J	6.00 6.31 6.35	50	70	14	Modular	R	GYHR2020K00-M25R	●	GYM25RD-J14-050	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-J14-050	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-J14-050	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-J14-050	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-J14-050	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-J14-050	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-J14-050	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-J14-050	●	5
		70	110	14	Modular	R	GYHR2020K00-M25R	●	GYM25RD-J14-070	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-J14-070	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-J14-070	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-J14-070	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-J14-070	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-J14-070	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-J14-070	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-J14-070	●	5
				25 ✶2	Modular	R	GYHR2020K00-M25R	●	GYM25RD-J25-070	●	4
						L	GYHL2020K00-M25L	●	GYM25LD-J25-070	●	4
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-J25-070	●	2
						L	GYHL2525M00-M25L	●	GYM25LD-J25-070	●	2
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-J25-070	●	6
						L	GYHL3225P00-M25L	●	GYM25LD-J25-070	●	6
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-J25-070	●	6
						L	GYHL3232P00-M25L	●	GYM25LD-J25-070	●	6
		110	200	14	Modular	R	GYHR2020K00-M25R	●	GYM25RD-J14-110	●	3
						L	GYHL2020K00-M25L	●	GYM25LD-J14-110	●	3
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-J14-110	●	1
						L	GYHL2525M00-M25L	●	GYM25LD-J14-110	●	1
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-J14-110	●	5
						L	GYHL3225P00-M25L	●	GYM25LD-J14-110	●	5
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-J14-110	●	5
						L	GYHL3232P00-M25L	●	GYM25LD-J14-110	●	5
				25 ✶2	Modular	R	GYHR2020K00-M25R	●	GYM25RD-J25-110	●	4
						L	GYHL2020K00-M25L	●	GYM25LD-J25-110	●	4
					Modular	R	GYHR2525M00-M25R	●	GYM25RD-J25-110	●	2
						L	GYHL2525M00-M25L	●	GYM25LD-J25-110	●	2
					Modular	R	GYHR3225P00-M25R	●	GYM25RD-J25-110	●	6
						L	GYHL3225P00-M25L	●	GYM25LD-J25-110	●	6
					Modular	R	GYHR3232P00-M25R	●	GYM25RD-J25-110	●	6
						L	GYHL3232P00-M25L	●	GYM25LD-J25-110	●	6

✶1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.
✶2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

● : **Inventory maintained.**



Right hand tool holder shown.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

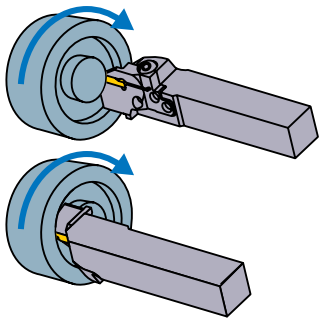
SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	136	50	71	20	26	5
20	20	136	50	71	20	26	5
25	25	161	50	68	25	28	—
25	25	161	50	68	25	28	—
32	25	181	50	68	32	28	—
32	25	181	50	68	32	28	—
32	32	181	50	68	32	35	—
32	32	181	50	68	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	136	50	71	20	26	5
20	20	136	50	71	20	26	5
25	25	161	50	68	25	28	—
25	25	161	50	68	25	28	—
32	25	181	50	68	32	28	—
32	25	181	50	68	32	28	—
32	32	181	50	68	32	35	—
32	32	181	50	68	32	35	—

Cutting Mode

R



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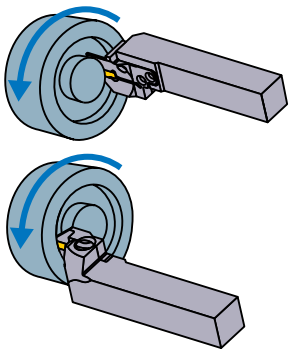


Insert selection

Seat Size	Geometry name
J	GY○○0600/0631/0635J○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
J	6.00mm	●	●	●	●
	6.35mm	●	●	●	

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
J	6.00mm				●
	RE 0.2	●			
	RE 0.4	●	●	●	
	RE 0.8	●	●	●	
	6.31mm	●			
	6.35mm				●
	RE 0.2	●			
	RE 0.4	●			
	RE 0.8	●			

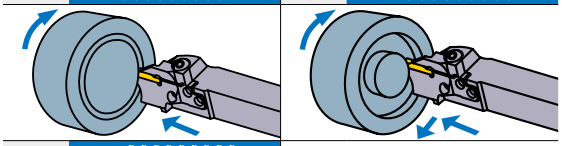
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

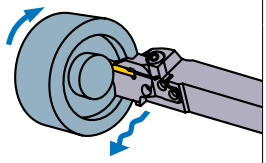
GY SERIES (FACE GROOVING)

4 00° type holder

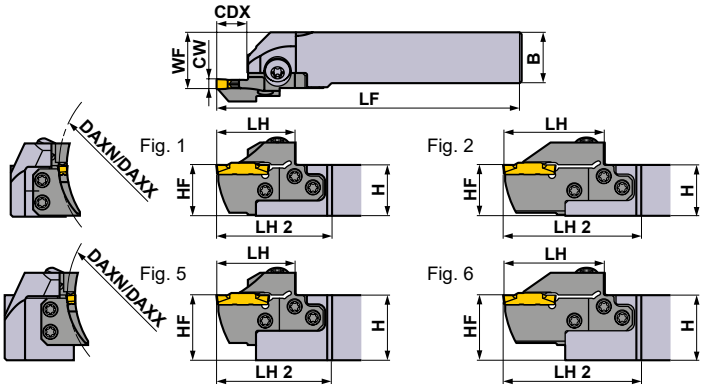
Insert GY2M○○○○○○○○○-GS -GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1G○○○○○○○○○-GFGS
Insert GY2M○○○○○○○○○-MM



Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use right hand modular blade for right hand holder and left hand modular blade for left hand holder.

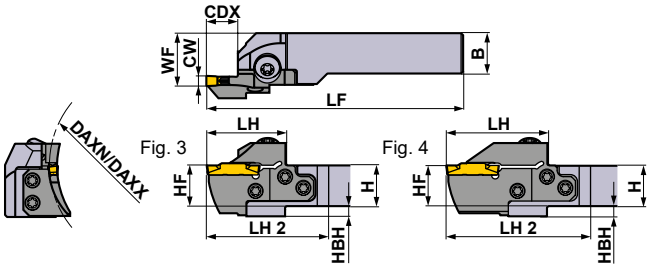


Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
J	6.00 6.31 6.35	170	280	14	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-J14-170**	●	3
						L	**GYHL2020K00-M25L**	●	**GYM25LD-J14-170**	●	3
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-J14-170**	●	1
						L	**GYHL2525M00-M25L**	●	**GYM25LD-J14-170**	●	1
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-J14-170**	●	5
						L	**GYHL3225P00-M25L**	●	**GYM25LD-J14-170**	●	5
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-J14-170**	●	5
						L	**GYHL3232P00-M25L**	●	**GYM25LD-J14-170**	●	5
				25 ⋆2	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-J25-170**	●	4
						L	**GYHL2020K00-M25L**	●	**GYM25LD-J25-170**	●	4
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-J25-170**	●	2
						L	**GYHL2525M00-M25L**	●	**GYM25LD-J25-170**	●	2
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-J25-170**	●	6
						L	**GYHL3225P00-M25L**	●	**GYM25LD-J25-170**	●	6
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-J25-170**	●	6
						L	**GYHL3232P00-M25L**	●	**GYM25LD-J25-170**	●	6
		250	999	14	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-J14-250**	●	3
						L	**GYHL2020K00-M25L**	●	**GYM25LD-J14-250**	●	3
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-J14-250**	●	1
						L	**GYHL2525M00-M25L**	●	**GYM25LD-J14-250**	●	1
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-J14-250**	●	5
						L	**GYHL3225P00-M25L**	●	**GYM25LD-J14-250**	●	5
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-J14-250**	●	5
						L	**GYHL3232P00-M25L**	●	**GYM25LD-J14-250**	●	5
				25 ⋆2	Modular	R	**GYHR2020K00-M25R**	●	**GYM25RD-J25-250**	●	4
						L	**GYHL2020K00-M25L**	●	**GYM25LD-J25-250**	●	4
					Modular	R	**GYHR2525M00-M25R**	●	**GYM25RD-J25-250**	●	2
						L	**GYHL2525M00-M25L**	●	**GYM25LD-J25-250**	●	2
					Modular	R	**GYHR3225P00-M25R**	●	**GYM25RD-J25-250**	●	6
						L	**GYHL3225P00-M25L**	●	**GYM25LD-J25-250**	●	6
					Modular	R	**GYHR3232P00-M25R**	●	**GYM25RD-J25-250**	●	6
						L	**GYHL3232P00-M25L**	●	**GYM25LD-J25-250**	●	6

⋆1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH**, **LH2**, and **WF** values may vary.
⋆2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

● : **Inventory maintained.**



Right hand tool holder shown.

∗ Wrench : ① : Clamp Screw, ② : Blade Screw

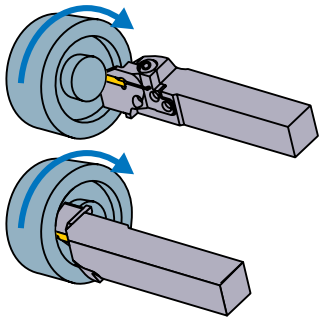
SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ∗
GYHR/L2020K00-M25R/L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHR/L2525M00-M25R/L			
GYHR/L3225P00-M25R/L			
GYHR/L3232P00-M25R/L			

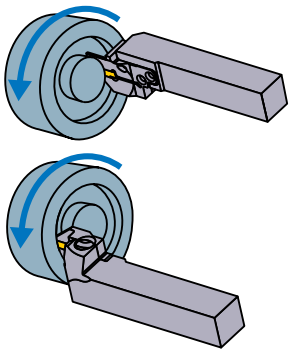
Dimensions (mm) ∗1							
H	B	LF	LH	LH 2	HF	WF	HBH
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	136	50	71	20	26	5
20	20	136	50	71	20	26	5
25	25	161	50	68	25	28	—
25	25	161	50	68	25	28	—
32	25	181	50	68	32	28	—
32	25	181	50	68	32	28	—
32	32	181	50	68	32	35	—
32	32	181	50	68	32	35	—
20	20	125	39	60	20	26	5
20	20	125	39	60	20	26	5
25	25	150	39	57	25	28	—
25	25	150	39	57	25	28	—
32	25	170	39	57	32	28	—
32	25	170	39	57	32	28	—
32	32	170	39	57	32	35	—
32	32	170	39	57	32	35	—
20	20	136	50	71	20	26	5
20	20	136	50	71	20	26	5
25	25	161	50	68	25	28	—
25	25	161	50	68	25	28	—
32	25	181	50	68	32	28	—
32	25	181	50	68	32	28	—
32	32	181	50	68	32	35	—
32	32	181	50	68	32	35	—

Cutting Mode

R



L



Insert selection

Seat Size	Geometry name
J	GY○○0600/0631/0635J○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
J	6.00mm	●	●	●	●
	6.35mm	●	●	●	

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
J	6.00mm				●
	RE 0.2	●			
	RE 0.4	●	●	●	
	RE 0.8	●	●	●	
	6.31mm	●			
	6.35mm				●
	RE 0.2	●			
	RE 0.4	●			
	RE 0.8	●			

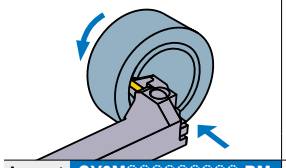
● : Standard insert with dimensions

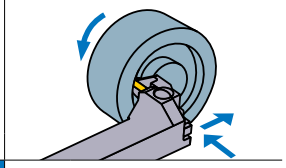
IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

GY SERIES (FACE GROOVING)

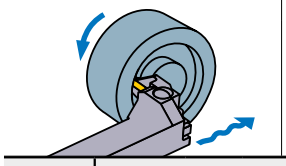
5 90° type holder

Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM





Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use left hand modular blade for right hand holder and right hand modular blade for left hand holder.

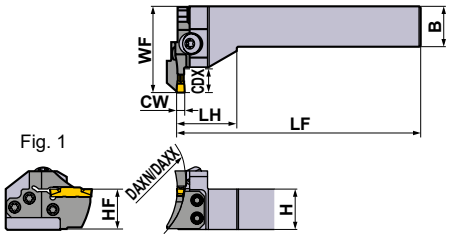


Fig. 1

Right hand tool holder shown.

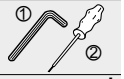
Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
D	2.00 2.24	40	50	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-D12-040	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-D12-040	●	1
		50	60	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-D12-050	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-D12-050	●	1
		60	75	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-D12-060	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-D12-060	●	1
		75	100	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-D12-075	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-D12-075	●	1
		100	150	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-D12-100	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-D12-100	●	1
		135	200	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-D12-135	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-D12-135	●	1
		180	250	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-D12-180	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-D12-180	●	1
E	2.39 2.50 2.74	40	50	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-E12-040	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-E12-040	●	1
		50	60	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-E12-050	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-E12-050	●	1
		60	75	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-E12-060	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-E12-060	●	1
		75	100	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-E12-075	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-E12-075	●	1
		100	150	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-E12-100	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-E12-100	●	1
		135	200	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-E12-135	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-E12-135	●	1
		180	250	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-E12-180	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-E12-180	●	1

∗1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH** and **WF** values may vary.

● : Inventory maintained.

★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	5 pcs. Blade Screw	 Wrench ★
GYHR2525M90-M25L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHL2525M90-M25R			

	Dimensions (mm) ★1						Cutting Mode
	H	**B**	**LF**	**LH**	**HF**	**WF**	
	25	25	150	38	25	53	R
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	L
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	

Insert selection

Seat Size	Geometry name
D	GY○○0200/0224D○○○○–Chipbreaker shown below
E	GY○○0239/0250/0274E○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
D	2.00mm	●	●	●	●
E	2.39mm	●	●	●	●
	2.50mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
D	2.00mm	●	●	●	●
	2.24mm	●			
E	2.39mm	●			
	2.50mm	●	●	●	●
	2.74mm	●			

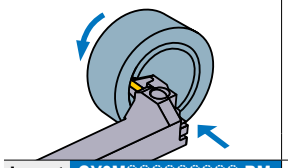
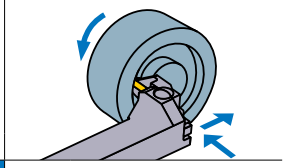
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

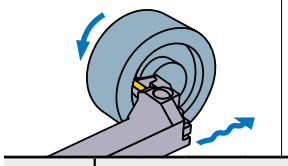
GY SERIES (FACE GROOVING)

5 90° type holder

Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM

Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use left hand modular blade for right hand holder and right hand modular blade for left hand holder.

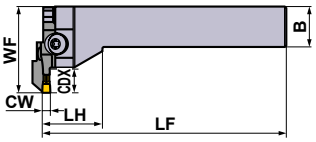


Fig. 1

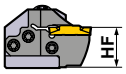
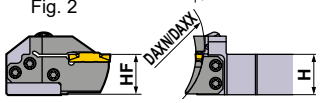


Fig. 2



Right hand tool holder shown.

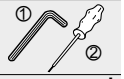
Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
F	3.00 3.18 3.24	35	40	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F12-035	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-F12-035	●	1
		40	50	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F12-040	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-F12-040	●	1
		50	60	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F12-050	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-F12-050	●	1
		60	75	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F12-060	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-F12-060	●	1
				20 ⋆2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F20-060	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-F20-060	●	2
		75	100	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F12-075	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-F12-075	●	1
				20 ⋆2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F20-075	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-F20-075	●	2
		100	150	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F12-100	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-F12-100	●	1
				20 ⋆2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F20-100	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-F20-100	●	2
		135	200	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F12-135	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-F12-135	●	1
				20 ⋆2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F20-135	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-F20-135	●	2
		180	250	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F12-180	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-F12-180	●	1
				20 ⋆2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F20-180	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-F20-180	●	2
		225	999	12	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F12-225	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-F12-225	●	1
				20 ⋆2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-F20-225	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-F20-225	●	2

⋆1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH** and **WF** values may vary.
⋆2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

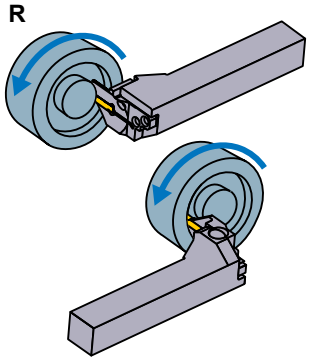
● : Inventory maintained.

★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	5 pcs. Blade Screw	 Wrench ★
GYHR2525M90-M25L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHL2525M90-M25R			

Dimensions (mm) ★1						Cutting Mode
H	**B**	**LF**	**LH**	**HF**	**WF**	
25	25	150	38	25	53	R
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	59	
25	25	150	38	25	59	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	59	
25	25	150	38	25	59	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	59	
25	25	150	38	25	59	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	59	
25	25	150	38	25	59	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	59	
25	25	150	38	25	59	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	59	
25	25	150	38	25	59	



Insert selection

Seat Size	Geometry name
F	GY○○0300/0318/0324F○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
F	3.00mm	●	●	●	●
	3.18mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
F	3.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8			●	
	3.18mm				●
	RE 0.2	●			
	RE 0.4	●			
	3.24mm	●			

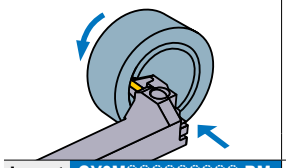
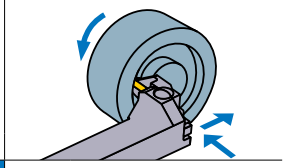
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

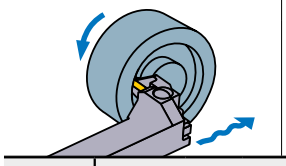
GY SERIES (FACE GROOVING)

5 90° type holder

Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM

Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use left hand modular blade for right hand holder and right hand modular blade for left hand holder.

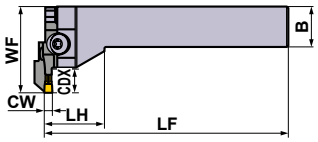


Fig. 1

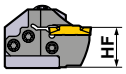
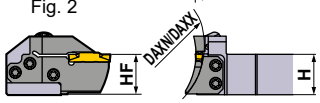


Fig. 2



Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
G	4.00 4.24	40	50	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-G14-040	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-G14-040	●	1
		50	60	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-G14-050	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-G14-050	●	1
		60	85	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-G14-060	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-G14-060	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-G25-060	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-G25-060	●	2
		85	125	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-G14-085	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-G14-085	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-G25-085	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-G25-085	●	2
		125	200	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-G14-125	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-G14-125	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-G25-125	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-G25-125	●	2
		180	280	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-G14-180	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-G14-180	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-G25-180	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-G25-180	●	2
		250	999	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-G14-250	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-G14-250	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-G25-250	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-G25-250	●	2

✶1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH** and **WF** values may vary.
✶2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

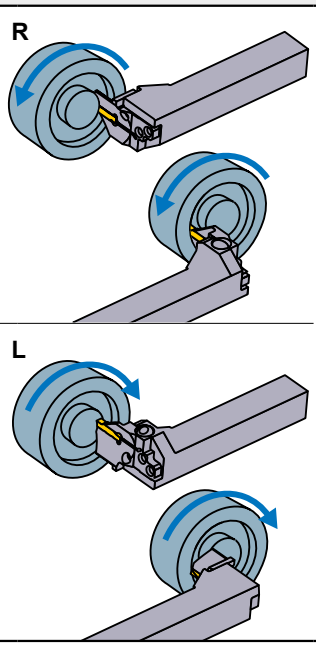
● : **Inventory maintained.**

★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ★
GYHR2525M90-M25L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHL2525M90-M25R			

Dimensions (mm) ★1						Cutting Mode
H	**B**	**LF**	**LH**	**HF**	**WF**	
25	25	150	38	25	53	R
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	64	
25	25	150	38	25	64	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	64	
25	25	150	38	25	64	
25	25	150	38	25	53	L
25	25	150	38	25	53	
25	25	150	38	25	64	
25	25	150	38	25	64	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	64	
25	25	150	38	25	64	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	64	
25	25	150	38	25	64	



Insert selection

Seat Size	Geometry name
G	GY○○0400/0424G○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
G	4.00mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
G	4.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8	●		●	
	4.24mm	●			

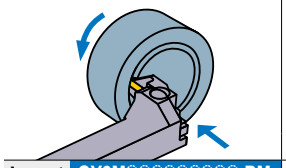
● : Standard insert with dimensions

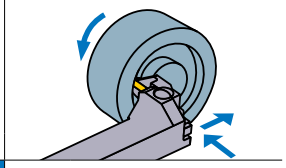
IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

GY SERIES (FACE GROOVING)

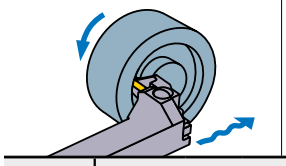
5 90° type holder

Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM





Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use left hand modular blade for right hand holder and right hand modular blade for left hand holder.

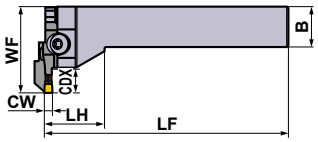


Fig. 1

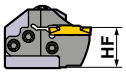
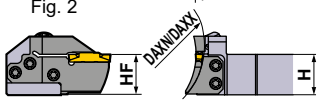


Fig. 2



Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
H	4.75 5.00 5.24	50	60	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-H14-050	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-H14-050	●	1
		60	85	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-H14-060	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-H14-060	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-H25-060	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-H25-060	●	2
		85	125	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-H14-085	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-H14-085	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-H25-085	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-H25-085	●	2
		125	200	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-H14-125	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-H14-125	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-H25-125	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-H25-125	●	2
		180	280	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-H14-180	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-H14-180	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-H25-180	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-H25-180	●	2
		250	999	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-H14-250	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-H14-250	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-H25-250	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-H25-250	●	2

✶1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH** and **WF** values may vary.
✶2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

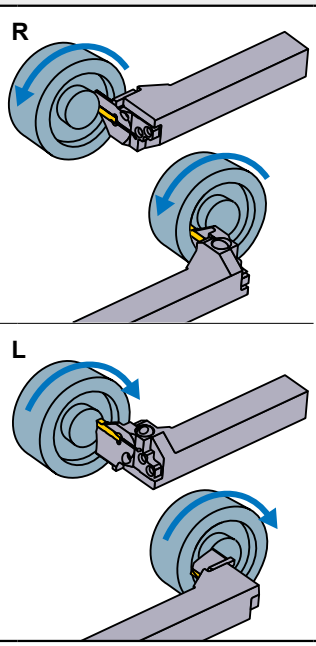
● : **Inventory maintained.**

★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ★
GYHR2525M90-M25L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHL2525M90-M25R			

	Dimensions (mm) ★1						Cutting Mode
	H	**B**	**LF**	**LH**	**HF**	**WF**	
	25	25	150	38	25	53	R
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	64	
	25	25	150	38	25	64	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	64	
	25	25	150	38	25	64	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	64	L
	25	25	150	38	25	64	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	64	
	25	25	150	38	25	64	
	25	25	150	38	25	53	
	25	25	150	38	25	53	
	25	25	150	38	25	64	
	25	25	150	38	25	64	



Insert selection

Seat Size	Geometry name
H	GY○○0475/0500/0524H○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
H	4.75mm	●	●	●	●
	5.00mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
H	4.75mm				●
	RE 0.2	●			
	RE 0.4	●			
	RE 0.8	●			
	5.00mm				●
	RE 0.2	●			
	RE 0.4	●	●	●	
	RE 0.8	●	●	●	
	5.24mm	●			

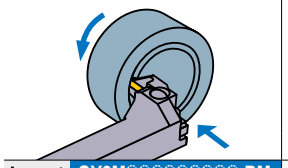
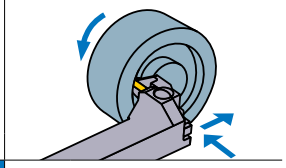
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

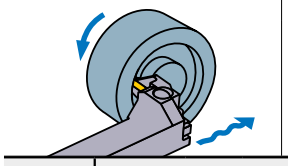
GY SERIES (FACE GROOVING)

5 90° type holder

Insert GY2M○○○○○○○○○-GS/-GM
Insert GY2G○○○○○○○○○-MF
Insert GY2M○○○○○○○○○-GU
Insert GY2M○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○-GM/-GFGS
Insert GY2M○○○○○○○○○-MM

Insert GY2M○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use left hand modular blade for right hand holder and right hand modular blade for left hand holder.

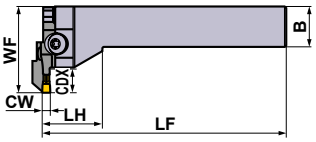


Fig. 1

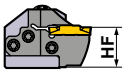
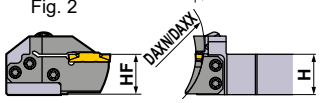


Fig. 2



Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	DAXN	DAXX	CDX	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
J	6.00 6.31 6.35	50	70	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-J14-050	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-J14-050	●	1
		70	110	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-J14-070	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-J14-070	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-J25-070	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-J25-070	●	2
		110	200	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-J14-110	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-J14-110	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-J25-110	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-J25-110	●	2
		170	280	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-J14-170	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-J14-170	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-J25-170	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-J25-170	●	2
		250	999	14	Modular	R	GYHR2525M90-M25L	●	GYM25LD-J14-250	●	1
						L	GYHL2525M90-M25R	●	GYM25RD-J14-250	●	1
				25 ✶2	Modular	R	GYHR2525M90-M25L	●	GYM25LD-J25-250	●	2
						L	GYHL2525M90-M25R	●	GYM25RD-J25-250	●	2

✶1 Dimensions shown are when standard insert is used. If other insert geometries are used then **LF**, **LH** and **WF** values may vary.
✶2 The maximum groove depth (**CDX**) varies according to the insert used. Please refer to the maximum groove depth (**CDX**) of inserts on pages F011—F015.

● : **Inventory maintained.**

★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	Clamp Screw	Blade Screw (5 pcs.)	Wrench ★
GYHR2525M90-M25L	GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYHL2525M90-M25R			

Dimensions (mm) ★1						Cutting Mode
H	**B**	**LF**	**LH**	**HF**	**WF**	
25	25	150	38	25	53	R
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	64	
25	25	150	38	25	64	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	64	
25	25	150	38	25	64	
25	25	150	38	25	53	
25	25	150	38	25	53	
25	25	150	38	25	64	L
25	25	150	38	25	64	
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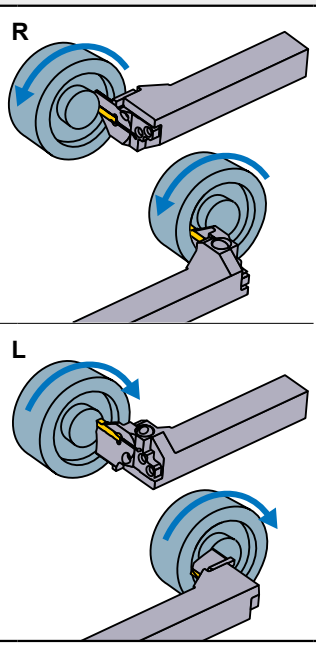
25	25	150	38	25	64	
25	25	150	38	25	64	



Insert selection

Seat Size	Geometry name
J	GY○○0600/0631/0635J○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
J	6.00mm	●	●	●	●
	6.35mm	●	●	●	

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball shape
J	6.00mm				●
	RE 0.2	●			
	RE 0.4	●	●	●	
	RE 0.8	●	●	●	
	6.31mm	●			
	6.35mm				●
	RE 0.2	●			
	RE 0.4	●			
	RE 0.8	●			

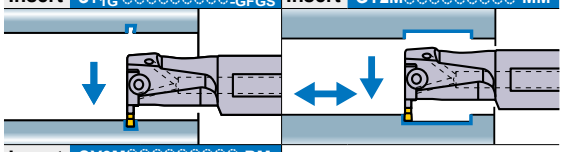
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F108
CAUTION FOR USE ➤ F110

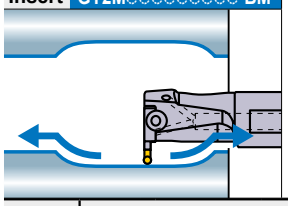
GY SERIES (INTERNAL GROOVING)

6 90° type holder

Insert GY2M○○○○○○○○○○-GS/GM
Insert GY2G○○○○○○○○○○-MF
Insert GY2M/2G○○○○○○○○○○-GU/GL
Insert GY2M○○○○○○○○○○-MS
Insert GY1M/1G○○○○○○○○○○-GM/GFGS
Insert GY2M○○○○○○○○○○-MM

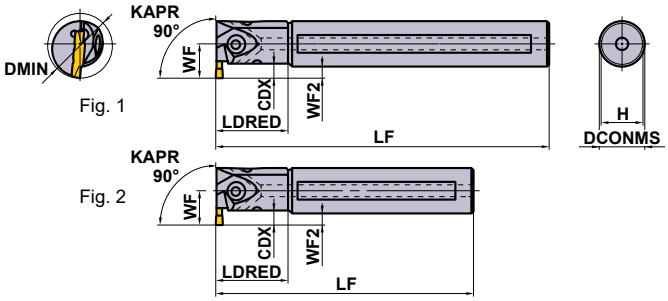


Insert GY2M○○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use left hand modular blade for right hand modular blade for left hand holder.

●Monoblock type (Air / coolant through)



Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX *3	DMIN	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
D	2.00 2.24	6	25	Monoblock	R	GYAR20K90A-D06	●	—	—	2
					L	GYAL20K90A-D06	●	—	—	2
				Monoblock	R	GYAR20Q90A-D06	●	—	—	1
					L	GYAL20Q90A-D06	●	—	—	1
			32	Monoblock	R	GYAR25K90B-D06	●	—	—	2
					L	GYAL25K90B-D06	●	—	—	2
				Monoblock	R	GYAR25R90B-D06	●	—	—	1
					L	GYAL25R90B-D06	●	—	—	1
		4—9.5 *1	40	Modular	R	GYDR32L90C-M20L	●	GYM20LA-D10	●	4
					L	GYDL32L90C-M20R	●	GYM20RA-D10	●	4
				Modular	R	GYDR32S90C-M20L	●	GYM20LA-D10	●	3
					L	GYDL32S90C-M20R	●	GYM20RA-D10	●	3
		5.5—9.5 *1	50	Modular	R	GYDR40M90D-M20L	●	GYM20LA-D10	●	4
					L	GYDL40M90D-M20R	●	GYM20RA-D10	●	4
				Modular	R	GYDR40T90D-M20L	●	GYM20LA-D10	●	3
					L	GYDL40T90D-M20R	●	GYM20RA-D10	●	3
		7—11.5 *1	60	Modular	R	GYDR40M90D-M25L	●	GYM25LA-D12	●	4
					L	GYDL40M90D-M25R	●	GYM25RA-D12	●	4
				Modular	R	GYDR40T90D-M25L	●	GYM25LA-D12	●	3
					L	GYDL40T90D-M25R	●	GYM25RA-D12	●	3
			70	Modular	R	GYDR50P90F-M25L	●	GYM25LA-D12	●	4
					L	GYDL50P90F-M25R	●	GYM25RA-D12	●	4
				Modular	R	GYDR50T90F-M25L	●	GYM25LA-D12	●	3
					L	GYDL50T90F-M25R	●	GYM25RA-D12	●	3

*1 The maximum groove depth (**CDX**) varies according to the cutting diameter (**DMIN**). For details, please refer to page F115.
*2 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF, LDRED, WF** and **WF2** values may vary.
*3 The maximum groove depth (**CDX**) is a value within the dimension **LDRED**.

● : Inventory maintained.

●Modular blade type (Air / coolant through)

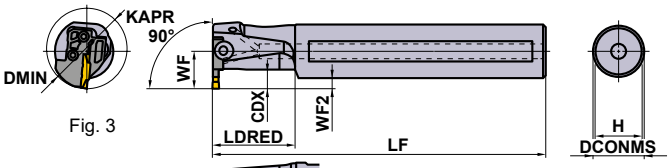


Fig. 3

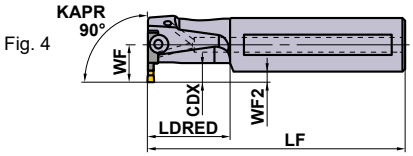


Fig. 4

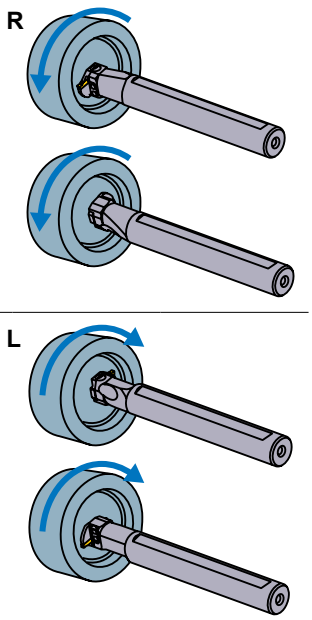
Right hand tool holder shown.

★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	① ② Clamp Screw	4 pcs. Blade Screw	① ② Wrench ★
GYAR/L20○90A-○06	①GY05016S (Clamp Torque : 5.0N·m)	–	①TKY20R
GYAR/L25○90B-○06			
GYDR/L32○90C-M20L/R	②GY06013M (Clamp Torque : 6.0N·m)	TS407 (Clamp Torque : 3.5N·m)	①TKY30R ②TKY15D
GYDR/L40○90D-M20L/R			
GYDR/L40○90D-M25L/R	②GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYDR/L50○90F-M25L/R			

	Dimensions (mm) ★2						Cutting Mode
	DCONMS	LF	LDRED	WF	WF2	H	
	20	125	30	14.5	4.5	18	R
	20	125	30	14.5	4.5	18	
	20	180	30	14.5	4.5	18	
	20	180	30	14.5	4.5	18	
	25	125	40	19	6.5	23	
	25	125	40	19	6.5	23	
	25	200	40	19	6.5	23	
	25	200	40	19	6.5	23	
	32	140	50	22	6	30	
	32	140	50	22	6	30	
	32	250	50	22	6	30	
	32	250	50	22	6	30	
	40	150	60	28	8	37	L
	40	150	60	28	8	37	
	40	300	60	28	8	37	
	40	300	60	28	8	37	
	40	150	60	28	8	37	
	40	150	60	28	8	37	
	40	300	60	28	8	37	
	40	300	60	28	8	37	
	50	170	80	34	9	47	
	50	170	80	34	9	47	
	50	300	80	34	9	47	
	50	300	80	34	9	47	



Insert selection

Seat Size	Geometry name
D	GY○○0200/0224D○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011–F013

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GL (Aluminium alloy)	GFGS (Hardened steel)
D	2.00mm	●	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball nose
D	2.00mm	●	●	●	●
	2.24mm	●			

● : Standard insert with dimensions

F

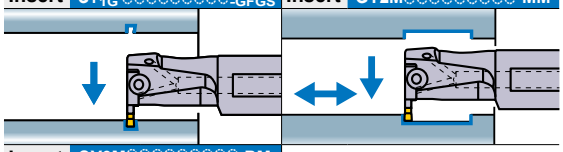
GROOVING / CUTTING OFF

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F114
CAUTION FOR USE ➤ F116

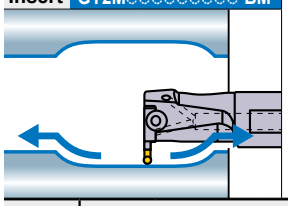
GY SERIES (INTERNAL GROOVING)

6 90° type holder

Insert GY2M□□□□□□□□□-GS/GM
Insert GY2G□□□□□□□□□-MF
Insert GY2M□□□□□□□□□-GU/GL
Insert GY2M□□□□□□□□□-MS
Insert GY1M/1G□□□□□□□□□-GM/GFGS
Insert GY2M□□□□□□□□□-MM



Insert GY2M□□□□□□□□□-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use left hand modular blade for right hand holder and right hand modular blade for left hand holder.

●Monoblock type (Air / coolant through)

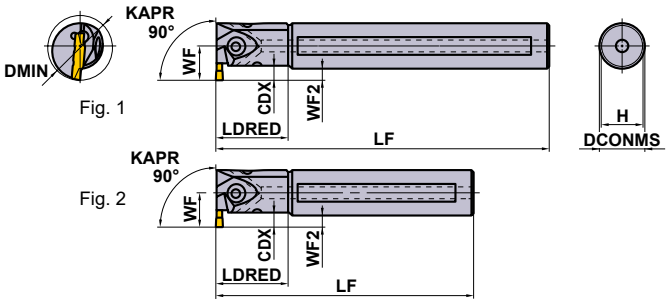


Fig. 1

Fig. 2

Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX *3	DMIN	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
E	2.39 2.50 2.74	6	25	Monoblock	R	GYAR20K90A-E06	●	—	—	2
					L	GYAL20K90A-E06	●	—	—	2
				Monoblock	R	GYAR20Q90A-E06	●	—	—	1
					L	GYAL20Q90A-E06	●	—	—	1
			32	Monoblock	R	GYAR25K90B-E06	●	—	—	2
					L	GYAL25K90B-E06	●	—	—	2
				Monoblock	R	GYAR25R90B-E06	●	—	—	1
					L	GYAL25R90B-E06	●	—	—	1
		4—9.5 *1	40	Modular	R	GYDR32L90C-M20L	●	GYM20LA-E10	●	4
					L	GYDL32L90C-M20R	●	GYM20RA-E10	●	4
				Modular	R	GYDR32S90C-M20L	●	GYM20LA-E10	●	3
					L	GYDL32S90C-M20R	●	GYM20RA-E10	●	3
		5.5—9.5 *1	50	Modular	R	GYDR40M90D-M20L	●	GYM20LA-E10	●	4
					L	GYDL40M90D-M20R	●	GYM20RA-E10	●	4
				Modular	R	GYDR40T90D-M20L	●	GYM20LA-E10	●	3
					L	GYDL40T90D-M20R	●	GYM20RA-E10	●	3
		7—11.5 *1	60	Modular	R	GYDR40M90D-M25L	●	GYM25LA-E12	●	4
					L	GYDL40M90D-M25R	●	GYM25RA-E12	●	4
				Modular	R	GYDR40T90D-M25L	●	GYM25LA-E12	●	3
					L	GYDL40T90D-M25R	●	GYM25RA-E12	●	3
			70	Modular	R	GYDR50P90F-M25L	●	GYM25LA-E12	●	4
					L	GYDL50P90F-M25R	●	GYM25RA-E12	●	4
				Modular	R	GYDR50T90F-M25L	●	GYM25LA-E12	●	3
					L	GYDL50T90F-M25R	●	GYM25RA-E12	●	3

*1 The maximum groove depth (**CDX**) varies according to the cutting diameter (**DMIN**). For details, please refer to page F115.
*2 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF, LDRED, WF** and **WF2** values may vary.
*3 The maximum groove depth (**CDX**) is a value within the dimension **LDRED**.

● : Inventory maintained.

●Modular blade type (Air / coolant through)

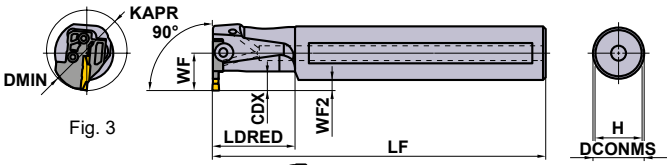


Fig. 3

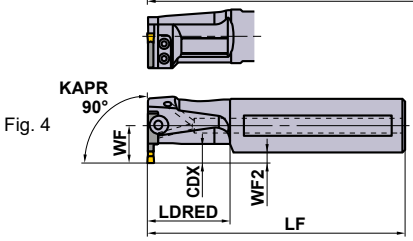


Fig. 4

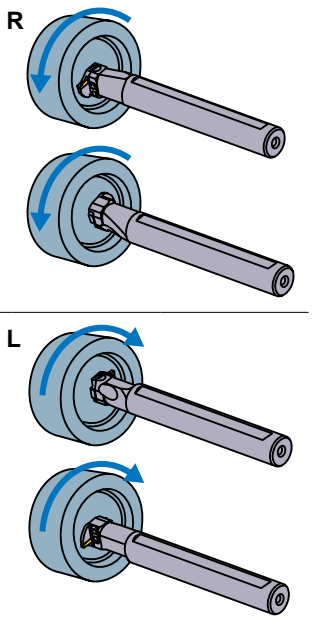
Right hand tool holder shown.

★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	① ② Clamp Screw	4 pcs. Blade Screw	① ② Wrench ★
GYAR/L20○90A-○06	①GY05016S (Clamp Torque : 5.0N·m)	–	①TKY20R
GYAR/L25○90B-○06			
GYDR/L32○90C-M20L/R	②GY06013M (Clamp Torque : 6.0N·m)	TS407 (Clamp Torque : 3.5N·m)	①TKY30R ②TKY15D
GYDR/L40○90D-M20L/R			
GYDR/L40○90D-M25L/R	②GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYDR/L50○90F-M25L/R			

	Dimensions (mm) ★2						Cutting Mode
	DCONMS	LF	LDRED	WF	WF2	H	
	20	125	30	14.5	4.5	18	R
	20	125	30	14.5	4.5	18	
	20	180	30	14.5	4.5	18	
	20	180	30	14.5	4.5	18	
	25	125	40	19	6.5	23	
	25	125	40	19	6.5	23	
	25	200	40	19	6.5	23	
	25	200	40	19	6.5	23	
	32	140	50	22	6	30	
	32	140	50	22	6	30	
	32	250	50	22	6	30	
	32	250	50	22	6	30	
	40	150	60	28	8	37	L
	40	150	60	28	8	37	
	40	300	60	28	8	37	
	40	300	60	28	8	37	
	40	150	60	28	8	37	
	40	150	60	28	8	37	
	40	300	60	28	8	37	
	40	300	60	28	8	37	
	50	170	80	34	9	47	
	50	170	80	34	9	47	
	50	300	80	34	9	47	
	50	300	80	34	9	47	



Insert selection

Seat Size	Geometry name
E	GY○○0239/0250/0274E○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011–F013

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GL (Aluminium alloy)	GFGS (Hardened steel)
E	2.39mm	●	●	●		●
	2.50mm	●	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball nose
E	2.39mm	●			
	2.50mm	●	●	●	●
	2.74mm	●			

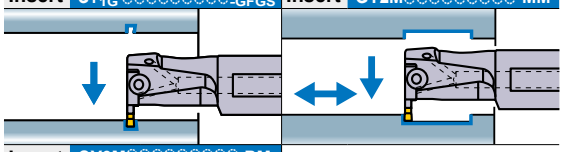
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F114
CAUTION FOR USE ➤ F116

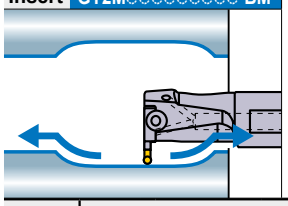
GY SERIES (INTERNAL GROOVING)

6 90° type holder

Insert GY2M○○○○○○○○○○-GS/GM
Insert GY2M/2G○○○○○○○○○○-GU/GL
Insert GY1M/1G○○○○○○○○○○-GM/GFGS
Insert GY2G○○○○○○○○○○-MF
Insert GY2M○○○○○○○○○○-MS
Insert GY2M○○○○○○○○○○-MM



Insert GY2M○○○○○○○○○○-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use left hand modular blade for right hand holder and right hand modular blade for left hand holder.

●Monoblock type (Air / coolant through)

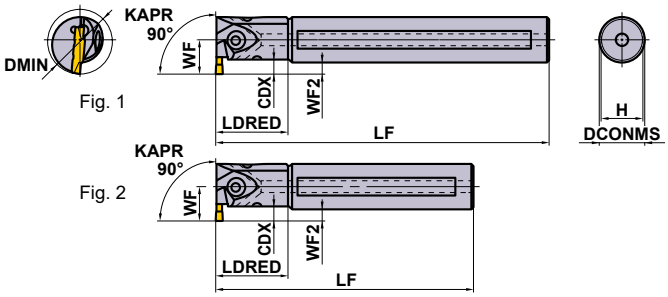


Fig. 1

Fig. 2

Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX *3	DMIN	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
F	3.00 3.18 3.24	6	25	Monoblock	R	GYAR20K90A-F06	●	—	—	2
					L	GYAL20K90A-F06	●	—	—	2
				Monoblock	R	GYAR20Q90A-F06	●	—	—	1
					L	GYAL20Q90A-F06	●	—	—	1
			32	Monoblock	R	GYAR25K90B-F06	●	—	—	2
					L	GYAL25K90B-F06	●	—	—	2
				Monoblock	R	GYAR25R90B-F06	●	—	—	1
					L	GYAL25R90B-F06	●	—	—	1
		4—9.5 *1	40	Modular	R	GYDR32L90C-M20L	●	GYM20LA-F10	●	4
					L	GYDL32L90C-M20R	●	GYM20RA-F10	●	4
				Modular	R	GYDR32S90C-M20L	●	GYM20LA-F10	●	3
					L	GYDL32S90C-M20R	●	GYM20RA-F10	●	3
		5.5—9.5 *1	50	Modular	R	GYDR40M90D-M20L	●	GYM20LA-F10	●	4
					L	GYDL40M90D-M20R	●	GYM20RA-F10	●	4
				Modular	R	GYDR40T90D-M20L	●	GYM20LA-F10	●	3
					L	GYDL40T90D-M20R	●	GYM20RA-F10	●	3
		7—11.5 *1	60	Modular	R	GYDR40M90D-M25L	●	GYM25LA-F12	●	4
					L	GYDL40M90D-M25R	●	GYM25RA-F12	●	4
				Modular	R	GYDR40T90D-M25L	●	GYM25LA-F12	●	3
					L	GYDL40T90D-M25R	●	GYM25RA-F12	●	3
			70	Modular	R	GYDR50P90F-M25L	●	GYM25LA-F12	●	4
					L	GYDL50P90F-M25R	●	GYM25RA-F12	●	4
				Modular	R	GYDR50T90F-M25L	●	GYM25LA-F12	●	3
					L	GYDL50T90F-M25R	●	GYM25RA-F12	●	3
G	4.00 4.24	7	32	Monoblock	R	GYAR25K90B-G07	●	—	—	2
					L	GYAL25K90B-G07	●	—	—	2
				Monoblock	R	GYAR25R90B-G07	●	—	—	1
					L	GYAL25R90B-G07	●	—	—	1
		4.5—11.5 *1	40	Modular	R	GYDR32L90C-M20L	●	GYM20LA-G12	●	4
					L	GYDL32L90C-M20R	●	GYM20RA-G12	●	4
				Modular	R	GYDR32S90C-M20L	●	GYM20LA-G12	●	3
					L	GYDL32S90C-M20R	●	GYM20RA-G12	●	3
		6—11.5 *1	50	Modular	R	GYDR40M90D-M20L	●	GYM20LA-G12	●	4
					L	GYDL40M90D-M20R	●	GYM20RA-G12	●	4
				Modular	R	GYDR40T90D-M20L	●	GYM20LA-G12	●	3
					L	GYDL40T90D-M20R	●	GYM20RA-G12	●	3
		7.5—13 *1	60	Modular	R	GYDR40M90D-M25L	●	GYM25LA-G14	●	4
					L	GYDL40M90D-M25R	●	GYM25RA-G14	●	4
				Modular	R	GYDR40T90D-M25L	●	GYM25LA-G14	●	3
					L	GYDL40T90D-M25R	●	GYM25RA-G14	●	3
			70	Modular	R	GYDR50P90F-M25L	●	GYM25LA-G14	●	4
					L	GYDL50P90F-M25R	●	GYM25RA-G14	●	4
				Modular	R	GYDR50T90F-M25L	●	GYM25LA-G14	●	3
					L	GYDL50T90F-M25R	●	GYM25RA-G14	●	3

*1 The maximum groove depth (**CDX**) varies according to the cutting diameter (**DMIN**). For details, please refer to page F115.
*2 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF, LDRED, WF** and **WF2** values may vary.
*3 The maximum groove depth (**CDX**) is a value within the dimension **LDRED**.

● : Inventory maintained.

●Modular blade type (Air / coolant through)

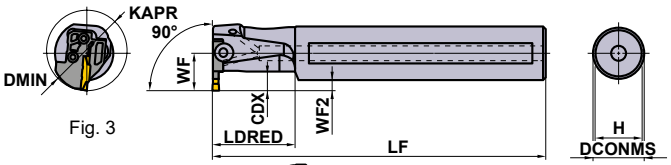


Fig. 3

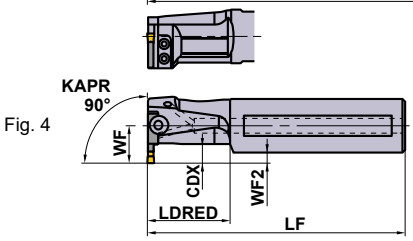


Fig. 4

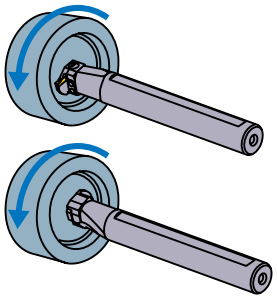
Right hand tool holder shown.

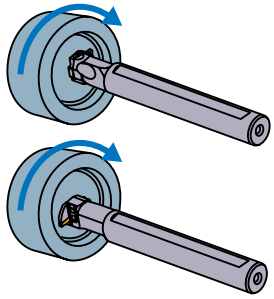
★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	① ② Clamp Screw	4 pcs. Blade Screw	① ② Wrench ★
GYAR/L20○90A-F06 GYAR/L25○90B-○○○	①GY05016S (Clamp Torque : 5.0N·m)	–	①TKY20R
GYDR/L32○90C-M20L/R GYDR/L40○90D-M20L/R	②GY06013M (Clamp Torque : 6.0N·m)	TS407 (Clamp Torque : 3.5N·m)	①TKY30R ②TKY15D
GYDR/L40○90D-M25L/R GYDR/L50○90F-M25L/R	②GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D

Dimensions (mm) ★2						Cutting Mode
DCONMS	LF	LDRED	WF	WF2	H	
20	125	30	14.5	4.5	18	R
20	125	30	14.5	4.5	18	
20	180	30	14.5	4.5	18	
20	180	30	14.5	4.5	18	
25	125	40	19	6.5	23	
25	125	40	19	6.5	23	
25	200	40	19	6.5	23	
25	200	40	19	6.5	23	
32	140	50	22	6	30	
32	140	50	22	6	30	
32	250	50	22	6	30	
32	250	50	22	6	30	
40	150	60	28	8	37	
40	150	60	28	8	37	
40	300	60	28	8	37	
40	300	60	28	8	37	
40	150	60	28	8	37	
40	150	60	28	8	37	
40	300	60	28	8	37	
40	300	60	28	8	37	
50	170	80	34	9	47	
50	170	80	34	9	47	
50	300	80	34	9	47	L
50	300	80	34	9	47	
25	125	40	19	6.5	23	
25	125	40	19	6.5	23	
25	200	40	19	6.5	23	
25	200	40	19	6.5	23	
32	140	50	22	6	30	
32	140	50	22	6	30	
32	250	50	22	6	30	
32	250	50	22	6	30	
40	150	60	28	8	37	
40	150	60	28	8	37	
40	300	60	28	8	37	
40	300	60	28	8	37	
40	150	60	28	8	37	
40	150	60	28	8	37	
40	300	60	28	8	37	
40	300	60	28	8	37	
50	170	80	34	9	47	
50	170	80	34	9	47	
50	300	80	34	9	47	
50	300	80	34	9	47	





Insert selection

Seat Size	Geometry name
F	GY○○0300/0318/0324F○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011–F013

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GL (Aluminium alloy)	GFGS (Hardened steel)
F	3.00mm	●	●	●	●	●
	3.18mm	●	●	●		●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball nose
F	3.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8			●	
	3.18mm				●
	RE 0.2	●			
	RE 0.4	●			
	3.24mm	●			

Seat Size	Geometry name
G	GY○○0400/0424G○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	Chipbreaker / CW	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
G	4.00mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	Chipbreaker / CW	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball nose
G	4.00mm				●
	RE 0.2	●	●	●	
	RE 0.4	●	●	●	
	RE 0.8	●		●	
	4.24mm	●			

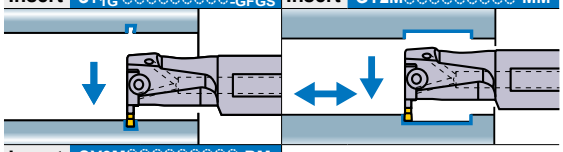
● : Standard insert with dimensions

IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F114
CAUTION FOR USE ➤ F116

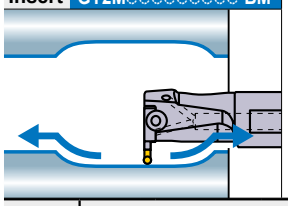
GY SERIES (INTERNAL GROOVING)

6 90° type holder

Insert GY2M□□□□□□□□□-GS/GM
Insert GY2G□□□□□□□□□-MF
Insert GY2M□□□□□□□□□-GU
Insert GY2M□□□□□□□□□-MS
Insert GY1M/1G□□□□□□□□□-GM/GFGS
Insert GY2M□□□□□□□□□-MM



Insert GY2M□□□□□□□□□-BM



Note 1) For modular blades and modular holders, please order separately.
Note 2) Please use left hand modular blade for right hand holder and right hand modular blade for left hand holder.

●Monoblock type (Air / coolant through)

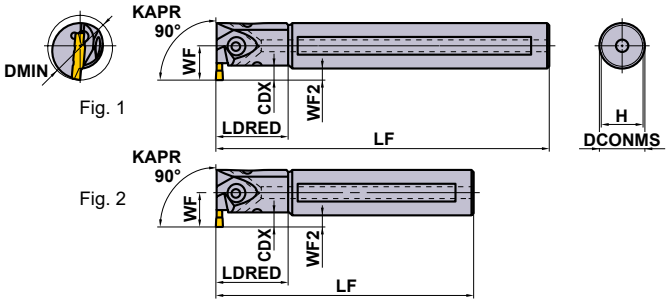


Fig. 1

Fig. 2

Right hand tool holder shown.

Seat Size	Dimensions (mm) CW	CDX *3	DMIN	Type	Hand (R/L)	Order Number Holder	Stock	Modular Blade	Stock	Fig.
H	4.75 5.00 5.24	7	32	Monoblock	R	GYAR25K90B-H07	●	—	—	2
					L	GYAL25K90B-H07	●	—	—	2
				Monoblock	R	GYAR25R90B-H07	●	—	—	1
					L	GYAL25R90B-H07	●	—	—	1
		4.5—11.5 *1	40	Modular	R	GYDR32L90C-M20L	●	GYM20LA-H12	●	4
					L	GYDL32L90C-M20R	●	GYM20RA-H12	●	4
				Modular	R	GYDR32S90C-M20L	●	GYM20LA-H12	●	3
					L	GYDL32S90C-M20R	●	GYM20RA-H12	●	3
		6—11.5 *1	50	Modular	R	GYDR40M90D-M20L	●	GYM20LA-H12	●	4
					L	GYDL40M90D-M20R	●	GYM20RA-H12	●	4
				Modular	R	GYDR40T90D-M20L	●	GYM20LA-H12	●	3
					L	GYDL40T90D-M20R	●	GYM20RA-H12	●	3
		7.5—13 *1	60	Modular	R	GYDR40M90D-M25L	●	GYM25LA-H14	●	4
					L	GYDL40M90D-M25R	●	GYM25RA-H14	●	4
				Modular	R	GYDR40T90D-M25L	●	GYM25LA-H14	●	3
					L	GYDL40T90D-M25R	●	GYM25RA-H14	●	3
			70	Modular	R	GYDR50P90F-M25L	●	GYM25LA-H14	●	4
					L	GYDL50P90F-M25R	●	GYM25RA-H14	●	4
				Modular	R	GYDR50T90F-M25L	●	GYM25LA-H14	●	3
					L	GYDL50T90F-M25R	●	GYM25RA-H14	●	3
J	6.00 6.31 6.35	7.5—13 *1	60	Modular	R	GYDR40M90D-M25L	●	GYM25LA-J14	●	4
					L	GYDL40M90D-M25R	●	GYM25RA-J14	●	4
				Modular	R	GYDR40T90D-M25L	●	GYM25LA-J14	●	3
					L	GYDL40T90D-M25R	●	GYM25RA-J14	●	3
			70	Modular	R	GYDR50P90F-M25L	●	GYM25LA-J14	●	4
					L	GYDL50P90F-M25R	●	GYM25RA-J14	●	4
				Modular	R	GYDR50T90F-M25L	●	GYM25LA-J14	●	3
					L	GYDL50T90F-M25R	●	GYM25RA-J14	●	3

*1 The maximum groove depth (**CDX**) varies according to the cutting diameter (**DMIN**). For details, please refer to page F115.
*2 Dimensions shown are when the standard insert is used. If other insert geometries are used then **LF, LDRED, WF** and **WF2** values may vary.
*3 The maximum groove depth (**CDX**) is a value within the dimension **LDRED**.

● : Inventory maintained.

●**Modular blade type (Air / coolant through)**

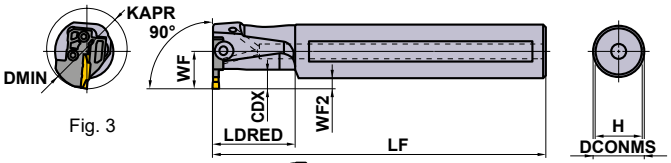


Fig. 3

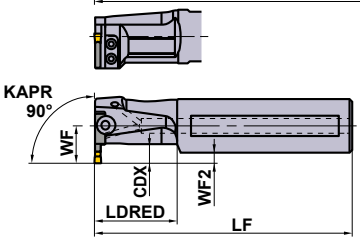


Fig. 4

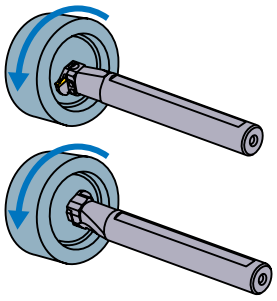
Right hand tool holder shown.

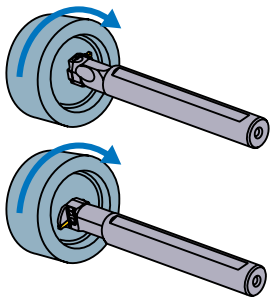
★ Wrench : ① : Clamp Screw, ② : Blade Screw

SPARE PARTS

Holder	① ② Clamp Screw	4 pcs. Blade Screw	① ② Wrench ★
GYAR/L25○90B-○07	①GY05016S (Clamp Torque : 5.0N·m)	–	①TKY20R
GYDR/L32○90C-M20L/R	②GY06013M (Clamp Torque : 6.0N·m)	TS407 (Clamp Torque : 3.5N·m)	①TKY30R ②TKY15D
GYDR/L40○90D-M20L/R			
GYDR/L40○90D-M25L/R	②GY06013M (Clamp Torque : 6.0N·m)	TS55 (Clamp Torque : 5.0N·m)	①TKY30R ②TKY25D
GYDR/L50○90F-M25L/R			

Dimensions (mm) ★2						Cutting Mode
DCONMS	LF	LDRED	WF	WF2	H	
25	125	40	19	6.5	23	R
25	125	40	19	6.5	23	
25	200	40	19	6.5	23	
25	200	40	19	6.5	23	
32	140	50	22	6	30	
32	140	50	22	6	30	
32	250	50	22	6	30	
32	250	50	22	6	30	
40	150	60	28	8	37	
40	150	60	28	8	37	
40	300	60	28	8	37	
40	300	60	28	8	37	
40	150	60	28	8	37	
40	150	60	28	8	37	
40	300	60	28	8	37	
40	300	60	28	8	37	
50	170	80	34	9	47	
50	170	80	34	9	47	
50	300	80	34	9	47	
50	300	80	34	9	47	
40	150	60	28	8	37	L
40	150	60	28	8	37	
40	300	60	28	8	37	
40	300	60	28	8	37	
50	170	80	34	9	47	
50	170	80	34	9	47	
50	300	80	34	9	47	
50	300	80	34	9	47	





Insert selection

Seat Size	Geometry name
H	GY○○0475/0500/0524H○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
H	4.75mm	●	●	●	●
	5.00mm	●	●	●	●

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball nose
H	4.75mm				●
	RE 0.2	●			
	RE 0.4	●			
	RE 0.8	●			
	5.00mm				●
	RE 0.2	●			
	RE 0.4	●	●	●	
	RE 0.8	●	●	●	
	5.24mm	●			

Seat Size	Geometry name
J	GY○○0600/0631/0635J○○○○–Chipbreaker shown below

For grooving/cutting off chipbreaker ➤ F011, F012

Seat Size	CW \ Chipbreaker	GU (For gummy steel)	GS (Low)	GM (Medium)	GFGS (Hardened steel)
J	6.00mm	●	●	●	
	6.35mm	●	●	●	

For multifunctional grooving chipbreaker ➤ F014, F015

Seat Size	CW \ Chipbreaker	MF (Finish)	MS (Low)	MM (Medium)	BM (Copying)
					Ball nose
J	6.00mm				●
	RE 0.2	●			
	RE 0.4	●	●	●	
	RE 0.8	●	●	●	
	6.31mm	●			
	6.35mm				●
	RE 0.2	●			
	RE 0.4	●			
	RE 0.8	●			

● : Standard insert with dimensions

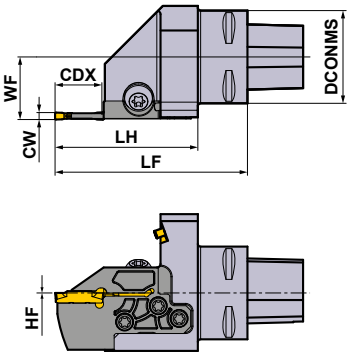
IDENTIFICATION ➤ F008, F009
CUTTING CONDITIONS ➤ F114
CAUTION FOR USE ➤ F116

GY SERIES (EXTERNAL / FACE GROOVING)

PSC 00° type holder

P M K N S H

Note 1) Please order the modular blade and modular holder separately.
Note 2) Please set the right hand modular blade at the right hand holder and the left hand modular blade at the left hand holder.



Right hand tool holder shown.

(mm)

Order Number	Stock	Hand (R/L)	Coolant	Mounting Size	DCONMS	CW
C4-GYHERM00-M25R	●	R	External	PSC40	40	2.0—6.35
C4-GYHELM00-M25L	●	L	External	PSC40	40	2.0—6.35
C5-GYHERM00-M25R	●	R	External	PSC50	50	2.0—6.35
C5-GYHELM00-M25L	●	L	External	PSC50	50	2.0—6.35
∗ C6-GYHERM00-M25R	●	R	External	PSC60	60	2.0—6.35
∗ C6-GYHELM00-M25L	●	L	External	PSC60	60	2.0—6.35

∗ The tools marked ∗ in the table cannot be fitted on the Yamazaki Mazak INTEGREX i, j and e series.

Set Dimensions with Modular Blades

Holder Type	Modular Blade Type	Standard CW	CDX	WF	HF	LF	LH
C4-GYHER/LM00-M25R/L	GYM25R/L○-D06	2.0	6	27.0	0	69	47.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-D12	2.0	12	27.0	0	77	55.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-D20	2.0	20	27.0	0	83	61.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-E06	2.5	6	27.0	0	69	47.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-E12	2.5	12	27.0	0	77	55.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-E20	2.5	20	27.0	0	83	61.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-F06	3.0	6	27.0	0	69	47.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-F12	3.0	12	27.0	0	77	55.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-F20	3.0	20	27.0	0	83	61.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-G08	4.0	8	27.0	0	71	49.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-G14	4.0	14	27.0	0	77	55.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-G25	4.0	25	27.0	0	88	66.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-H08	5.0	8	27.0	0	71	49.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-H14	5.0	14	27.0	0	77	55.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-H25	5.0	25	27.0	0	88	66.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-J08	6.0	8	27.0	0	71	49.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-J14	6.0	14	27.0	0	77	55.6
C4-GYHER/LM00-M25R/L	GYM25R/L○-J25	6.0	25	27.0	0	88	66.6

∗Modular blade type: Blades for face machining indicate a code for the minimum face grooving diameter. Example: GYM25RD-D12-040
The "○" symbol is a position to insert the letter "A" for external diameter machining or „D" for face machining.
Note 1) The indicated dimensions are values for standard inserts (GM breakers). If other inserts are mounted, LF and LH may differ.

● : Inventory maintained.

(mm)

Holder Type	Modular Blade Type	Standard CW	CDX	WF	HF	LF	LH
C5-GYHER/LM00-M25R/L	**GYM25R/L○-D06**	2.0	6	35.0	0	69	47.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-D12**	2.0	12	35.0	0	77	55.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-D20**	2.0	20	35.0	0	83	61.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-E06**	2.5	6	35.0	0	69	47.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-E12**	2.5	12	35.0	0	77	55.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-E20**	2.5	20	35.0	0	83	61.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-F06**	3.0	6	35.0	0	69	47.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-F12**	3.0	12	35.0	0	77	55.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-F20**	3.0	20	35.0	0	83	61.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-G08**	4.0	8	35.0	0	71	49.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-G14**	4.0	14	35.0	0	77	55.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-G25**	4.0	25	35.0	0	88	66.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-H08**	5.0	8	35.0	0	71	49.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-H14**	5.0	14	35.0	0	77	55.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-H25**	5.0	25	35.0	0	88	66.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-J08**	6.0	8	35.0	0	71	49.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-J14**	6.0	14	35.0	0	77	55.6
C5-GYHER/LM00-M25R/L	**GYM25R/L○-J25**	6.0	25	35.0	0	88	66.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-D06**	2.0	6	45.0	0	71	47.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-D12**	2.0	12	45.0	0	79	55.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-D20**	2.0	20	45.0	0	85	61.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-E06**	2.5	6	45.0	0	71	47.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-E12**	2.5	12	45.0	0	79	55.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-E20**	2.5	20	45.0	0	85	61.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-F06**	3.0	6	45.0	0	71	47.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-F12**	3.0	12	45.0	0	79	55.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-F20**	3.0	20	45.0	0	85	61.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-G08**	4.0	8	45.0	0	73	49.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-G14**	4.0	14	45.0	0	79	55.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-G25**	4.0	25	45.0	0	90	66.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-H08**	5.0	8	45.0	0	73	49.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-H14**	5.0	14	45.0	0	79	55.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-H25**	5.0	25	45.0	0	90	66.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-J08**	6.0	8	45.0	0	73	49.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-J14**	6.0	14	45.0	0	79	55.6
C6-GYHER/LM00-M25R/L	**GYM25R/L○-J25**	6.0	25	45.0	0	90	66.6

∗Modular blade type: Blades for face machining indicate a code for the minimum face grooving diameter. Example: GYM25RD-D12-040
The "○" symbol is a position to insert the letter "A" for external diameter machining or "D" for face machining.
Note 1) The indicated dimensions are values for standard inserts (GM breakers). If other inserts are mounted, LF and LH may differ.

SPARE PARTS

∗		∗							
Clamp Screw		Blade Screw		Plug		Nozzle		Wrench 1	Wrench 2
Order Number	Pcs.	Order Number	Pcs.	Order Number	Pcs.	Order Number	Pcs.	Order Number	Order Number
GY06013M	1	TS55	5	HSD05004S	1	NZ22042080S	1	TKY25D	TKY30R

∗ Clamp Torque (N • m) : GY06013M=6.0, TS55=5.0
Nozzle Exchange Key : NZKH050S

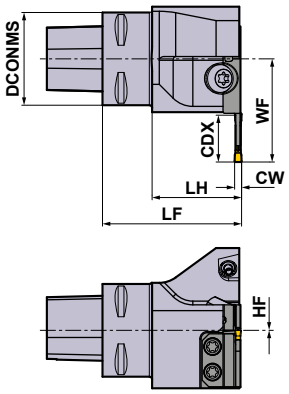
IDENTIFICATION ➤ F008, F010
INSERTS ➤ F011—F015
CUTTING CONDITIONS ➤ F100, F108
CAUTION FOR USE ➤ F105, F110

GY SERIES (EXTERNAL / FACE GROOVING)

PSC 90° type holder

P M K N S H

Note 1) Please order the modular blade and modular holder separately.
Note 2) Please set the left hand modular blade at the right hand holder and the right hand modular blade at the left hand holder.



Left hand tool holder shown.

(mm)

Order Number	Stock	Hand (R/L)	Coolant	Mounting Size	DCONMS	CW
C4-GYHERM90-M25L	●	R	External	PSC40	40	2.0—6.35
C4-GYHELM90-M25R	●	L	External	PSC40	40	2.0—6.35
C5-GYHERM90-M25L	●	R	External	PSC50	50	2.0—6.35
C5-GYHELM90-M25R	●	L	External	PSC50	50	2.0—6.35
C6-GYHERM90-M25L	●	R	External	PSC60	60	2.0—6.35
C6-GYHELM90-M25R	●	L	External	PSC60	60	2.0—6.35

Set Dimensions with Modular Blades

Holder Type	Modular Blade Type	Standard CW	CDX	WF	HF	LF	LH
C4-GYHER/LM90-M25L/R	**GYM25L/R○-D06**	2.0	6	30.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-D12**	2.0	12	38.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-D20**	2.0	20	44.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-E06**	2.5	6	30.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-E12**	2.5	12	38.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-E20**	2.5	20	44.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-F06**	3.0	6	30.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-F12**	3.0	12	38.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-F20**	3.0	20	44.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-G08**	4.0	8	32.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-G14**	4.0	14	38.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-G25**	4.0	25	49.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-H08**	5.0	8	32.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-H14**	5.0	14	38.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-H25**	5.0	25	49.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-J08**	6.0	8	32.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-J14**	6.0	14	38.5	0	60	38.6
C4-GYHER/LM90-M25L/R	**GYM25L/R○-J25**	6.0	25	49.5	0	60	38.6

∗Modular blade type: Blades for face machining indicate a code for the minimum face grooving diameter. Example: GYM25RD-D12-040
The "○" symbol is a position to insert the letter "A" for external diameter machining or "D" for face machining.
Note 1) The indicated dimensions are values for standard inserts (GM breakers). If other inserts are mounted, LF and LH may differ.

● : **Inventory maintained.**

(mm)

Holder Type	Modular Blade Type	Standard CW	CDX	WF	HF	LF	LH
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-D06**	2.0	6	33.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-D12**	2.0	12	41.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-D20**	2.0	20	47.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-E06**	2.5	6	33.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-E12**	2.5	12	41.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-E20**	2.5	20	47.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-F06**	3.0	6	33.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-F12**	3.0	12	41.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-F20**	3.0	20	47.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-G08**	4.0	8	35.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-G14**	4.0	14	41.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-G25**	4.0	25	52.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-H08**	5.0	8	35.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-H14**	5.0	14	41.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-H25**	5.0	25	52.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-J08**	6.0	8	35.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-J14**	6.0	14	41.0	0	60	38.6
C5-GYHER/LM90-M25L/R	**GYM25L/R◌-J25**	6.0	25	52.0	0	60	38.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-D06**	2.0	6	40.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-D12**	2.0	12	48.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-D20**	2.0	20	54.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-E06**	2.5	6	40.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-E12**	2.5	12	48.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-E20**	2.5	20	54.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-F06**	3.0	6	40.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-F12**	3.0	12	48.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-F20**	3.0	20	54.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-G08**	4.0	8	42.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-G14**	4.0	14	48.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-G25**	4.0	25	59.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-H08**	5.0	8	42.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-H14**	5.0	14	48.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-H25**	5.0	25	59.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-J08**	6.0	8	42.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-J14**	6.0	14	48.0	0	70	46.6
C6-GYHER/LM90-M25L/R	**GYM25L/R◌-J25**	6.0	25	59.0	0	70	46.6

∗Modular blade type: Blades for face machining indicate a code for the minimum face grooving diameter. Example: GYM25RD-D12-040
The "◌" symbol is a position to insert the letter "A" for external diameter machining or "D" for face machining.
Note 1) The indicated dimensions are values for standard inserts (GM breakers). If other inserts are mounted, LF and LH may differ.

SPARE PARTS

*		*							
Clamp Screw		Blade Screw		Plug		Nozzle		Wrench 1	Wrench 2
Order Number	Pcs.	Order Number	Pcs.	Order Number	Pcs.	Order Number	Pcs.	Order Number	Order Number
GY06013M	1	TS55	5	HSD05004S	1	NZ22042080S	1	TKY25D	TKY30R

∗ Clamp Torque (N • m) : GY06013M=6.0, TS55=5.0
Nozzle Exchange Key : NZKH050S

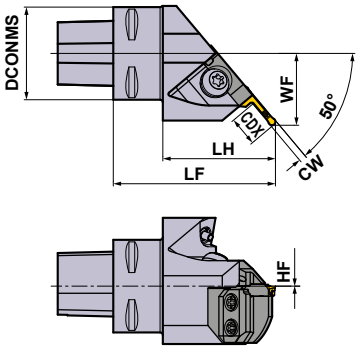
IDENTIFICATION ➤ F008, F010
INSERTS ➤ F011—F015
CUTTING CONDITIONS ➤ F100, F108
CAUTION FOR USE ➤ F105, F110

GY SERIES (FOR RECESSING)

PSC For 50° recessing holder

P M K N S H

Note 1) Please order the modular blade and modular holder separately.
Note 2) Please set the left hand modular blade at the right hand holder and the right hand modular blade at the left hand holder.



Left hand tool holder shown.

(mm)

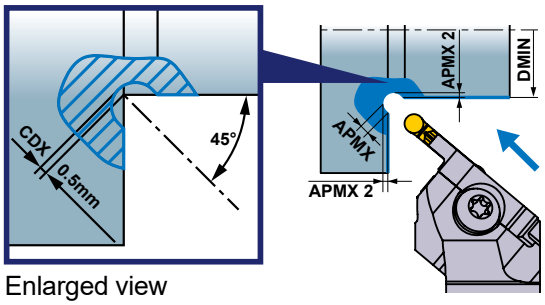
Order Number	Stock	Hand (R/L)	Coolant	Mounting Size	DCONMS	CW
C4-GYHERM50-M25L	●	R	External	PSC40	40	2.0—6.35
C4-GYHELM50-M25R	●	L	External	PSC40	40	2.0—6.35
C5-GYHERM50-M25L	●	R	External	PSC50	50	2.0—6.35
C5-GYHELM50-M25R	●	L	External	PSC50	50	2.0—6.35
C6-GYHERM50-M25L	●	R	External	PSC60	60	2.0—6.35
C6-GYHELM50-M25R	●	L	External	PSC60	60	2.0—6.35

SPARE PARTS

*		*							
Clamp Screw		Blade Screw		Plug		Nozzle		Wrench 1	Wrench 2
Order Number	Pcs.	Order Number	Pcs.	Order Number	Pcs.	Order Number	Pcs.	Order Number	Order Number
GY06013M	1	TS55	4	HSD05004S	1	NZ22042080S	1	TKY25D	TKY30R

* Clamp Torque (N • m) : GY06013M=6.0, TS55=5.0
Nozzle Exchange Key : NZKH050S

● : Inventory maintained.



Enlarged view

Set Dimensions with Modular Blades

(mm)

Holder Type	Modular Blade Type	Standard CW	CDX	DMIN	APMX	APMX2	WF	HF	LF	LH
C4-GYHER/LM50-M25L/R	**GYM25L/RC-D005**	2.0	0.5	30	1.50	0.646	30.6	0	70.2	48.8
C4-GYHER/LM50-M25L/R	**GYM25L/RC-E005**	2.5	0.5	30	1.75	0.720	30.8	0	70.1	48.7
C4-GYHER/LM50-M25L/R	**GYM25L/RC-F005**	3.0	0.5	30	2.00	0.793	31.0	0	70.0	48.6
C4-GYHER/LM50-M25L/R	**GYM25L/RC-G005**	4.0	0.5	20	2.50	0.939	31.4	0	69.8	48.4
C4-GYHER/LM50-M25L/R	**GYM25L/RC-H005**	5.0	0.5	20	2.88	1.049	31.8	0	69.6	48.2
C4-GYHER/LM50-M25L/R	**GYM25L/RC-J005**	6.0	0.5	20	3.50	1.232	32.4	0	69.4	48.0
C5-GYHER/LM50-M25L/R	**GYM25L/RC-D005**	2.0	0.5	30	1.50	0.646	32.6	0	70.2	48.8
C5-GYHER/LM50-M25L/R	**GYM25L/RC-E005**	2.5	0.5	30	1.75	0.720	32.8	0	70.1	48.7
C5-GYHER/LM50-M25L/R	**GYM25L/RC-F005**	3.0	0.5	30	2.00	0.793	33.0	0	70.0	48.6
C5-GYHER/LM50-M25L/R	**GYM25L/RC-G005**	4.0	0.5	20	2.50	0.939	33.4	0	69.8	48.4
C5-GYHER/LM50-M25L/R	**GYM25L/RC-H005**	5.0	0.5	20	2.88	1.049	33.8	0	69.6	48.2
C5-GYHER/LM50-M25L/R	**GYM25L/RC-J005**	6.0	0.5	20	3.50	1.232	34.4	0	69.4	48.0
C6-GYHER/LM50-M25L/R	**GYM25L/RC-D005**	2.0	0.5	30	1.50	0.646	39.6	0	70.2	46.8
C6-GYHER/LM50-M25L/R	**GYM25L/RC-E005**	2.5	0.5	30	1.75	0.720	39.8	0	70.1	46.7
C6-GYHER/LM50-M25L/R	**GYM25L/RC-F005**	3.0	0.5	30	2.00	0.793	40.0	0	70.0	46.6
C6-GYHER/LM50-M25L/R	**GYM25L/RC-G005**	4.0	0.5	20	2.50	0.939	40.4	0	69.8	46.4
C6-GYHER/LM50-M25L/R	**GYM25L/RC-H005**	5.0	0.5	20	2.88	1.049	40.8	0	69.6	46.2
C6-GYHER/LM50-M25L/R	**GYM25L/RC-J005**	6.0	0.5	20	3.50	1.232	41.4	0	69.4	46.0

DMIN = Min. Cut Diameter

∗Modular blade type: Blades for face machining indicate a code for the minimum face grooving diameter. Example: GYM25RD-D12-040
The "◌" symbol is a position to insert the letter "A" for external diameter machining or "D" for face machining.

Note 1) The indicated dimensions are values for standard inserts (BM breakers). If other inserts are mounted, LF and LH may differ.

IDENTIFICATION	➤ F008, F010
INSERTS	➤ F015
CUTTING CONDITIONS	➤ F104
CAUTION FOR USE	➤ F104

RECOMMENDED CUTTING SPEED [For External Grooving / Cutting Off]

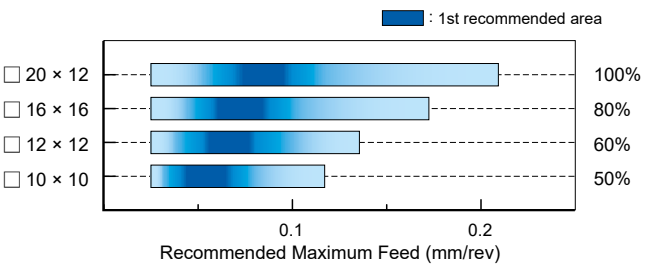
	Material	Hardness	Grade	Cutting Speed (m/min) 50 100 150 200 250 300 500
P	Mild Steel	≤160HB	VP20RT	100–220
			VP10RT	110–230
			NX2525	90–210
	Carbon Steel Alloy Steel	160–280HB	VP20RT	80–180
			VP10RT	90–190
			MY5015	110–250
			NX2525	70–170
		280HB≤	VP20RT	60–140
			VP10RT	70–150
			MY5015	90–210
			NX2525	55–135
M	Stainless Steel	≤270HB	VP20RT	60–140
			VP10RT	70–150
K	Gray Cast Iron	Tensile Strength ≤300MPa	VP20RT	80–180
			VP10RT	90–180
			MY5015	140–300
	Ductile Cast Iron	Tensile Strength ≤800MPa	VP20RT	60–140
			VP10RT	70–150
			MY5015	90–210
S	Heat Resistant Alloy Titanium Alloy	–	MP9015	40–100
			MP9025	30–90
			VP20RT	30–60
			VP10RT/ RT9010	40–70
H	Hardened steel	50HRC≤	BC8110	80–120
N	Aluminium Alloy	Content Si<5%	RT9010	200–500
	Aluminium Alloy	Content 5%≤Si≤10%	RT9010	200–500
	Aluminium Alloy	Content Si>10%	RT9010	100–200

Note 1) For RT9010, VP10RT, VP20RT and MY5015, wet cutting is recommended.

RECOMMENDED CUTTING CONDITIONS [For External Grooving / Cutting Off]

Recommended cutting conditions when combining a GYHR/L2525M00/90-M25R/L modular holder and GYM25R/LA-○○○ modular blade.

■ In the case of mono block type holder for Swiss style lathes



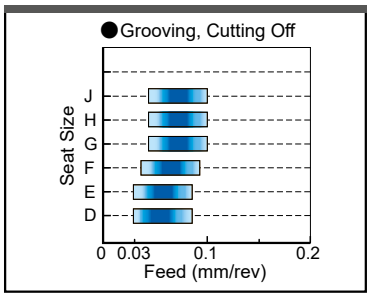
Please refer to the tables above on recommended cutting conditions for external grooving and cutting off.
Apply the percentage ratio shown on each shank size with the values in the table.

RECOMMENDED CUTTING CONDITIONS [For External Grooving / Cutting Off]

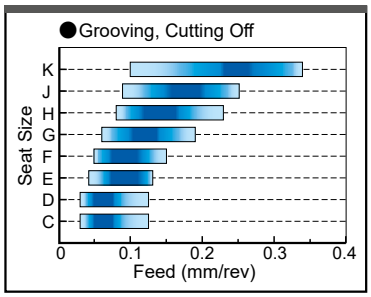
*Below are the recommended cutting conditions when using the modular holder GYHR/L2525M00/90-M25R/L with the modular blade GYM25R/LA-○○○.

■ Recommended feed rate and depth of cut

GU BREAKER



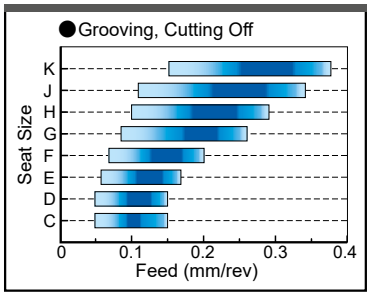
GS BREAKER



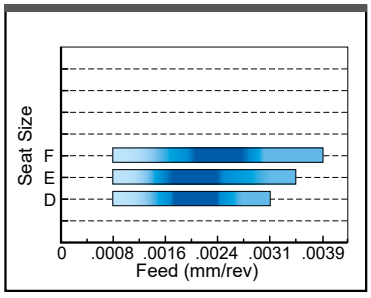
: 1st recommended area

Seat Size			
	Insert Width (mm)		Insert Width (mm)
C	1.50	G	4.00 4.24
D	2.00 2.24	H	4.75 5.00 5.24
E	2.39 2.50 2.74	J	6.00 6.31 6.35
F	3.00 3.18 3.24	K	8.00

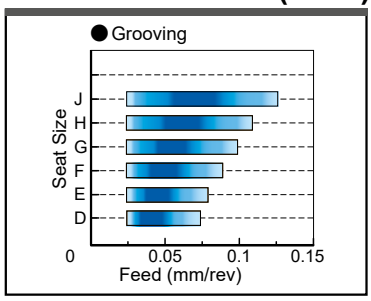
GM BREAKER



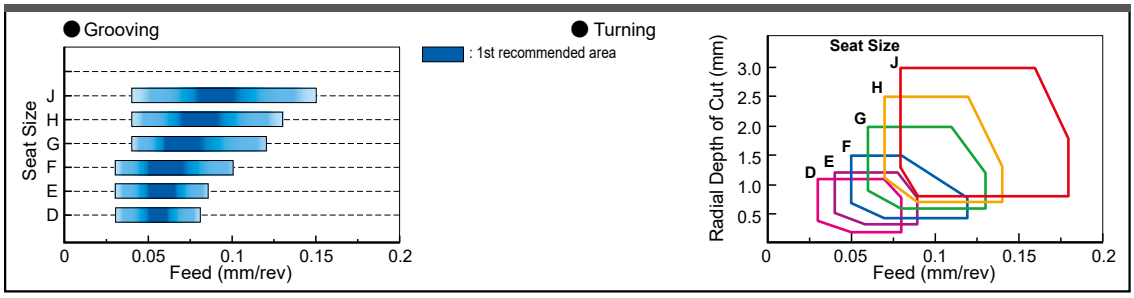
GL BREAKER



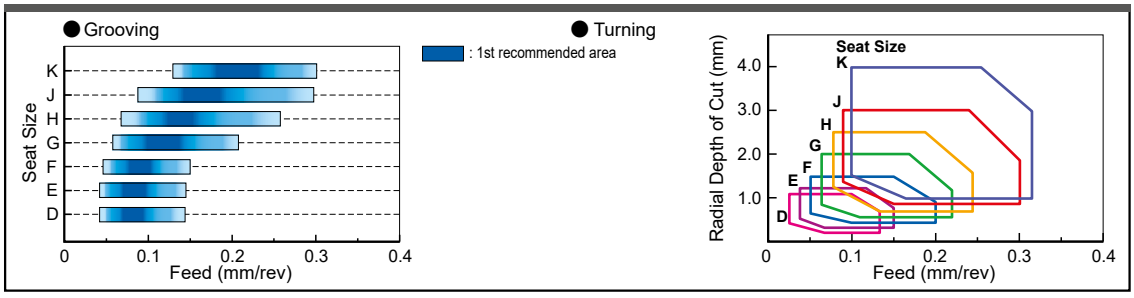
FLAT TOP GFGS (CBN)



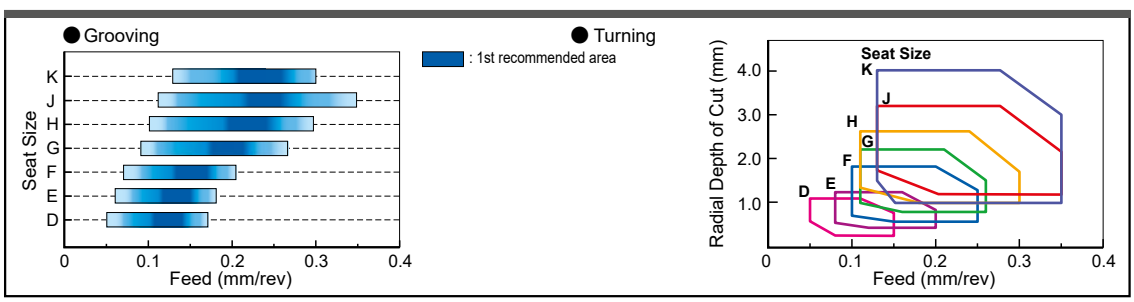
MF BREAKER



MS BREAKER

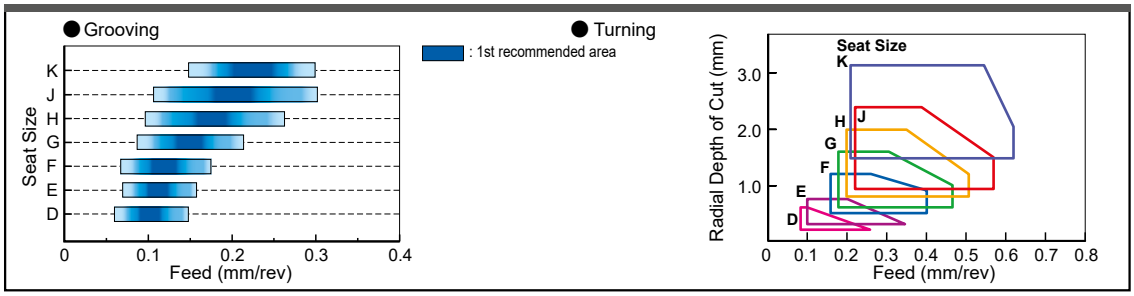


MM BREAKER



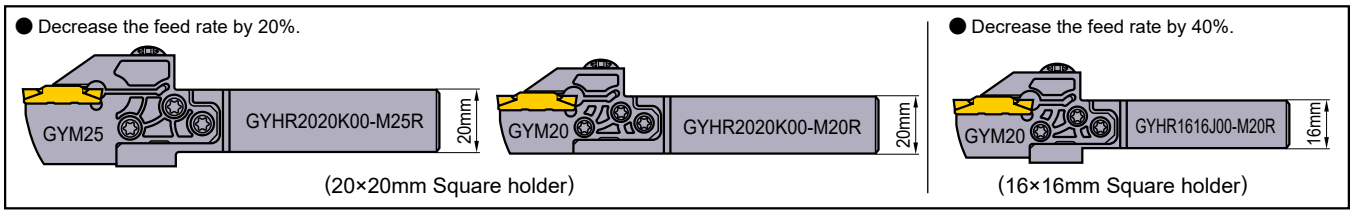
■ Recommended feed rate and depth of cut

BM BREAKER

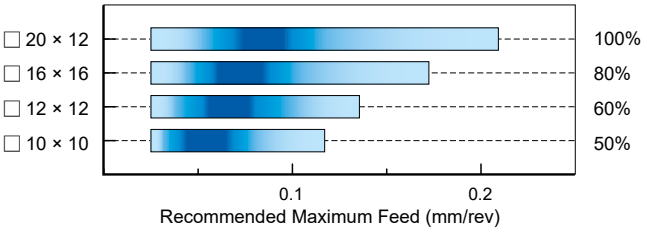


Seat Size	Insert Width (mm)
C	1.50
D	2.00 2.24
E	2.39 2.50 2.74
F	3.00 3.18 3.24
G	4.00 4.24
H	4.75 5.00 5.24
J	6.00 6.31 6.35
K	8.00

Note 1) When using a combination as shown below, decrease the recommended feed rate by 20% and 40% respectively.



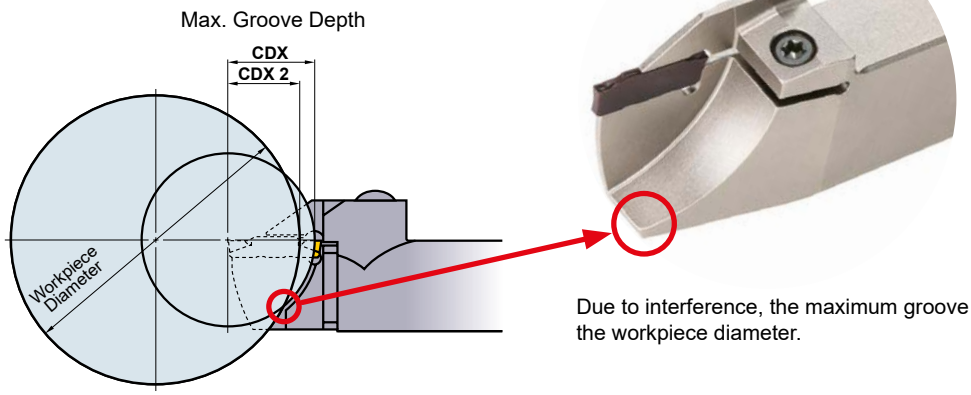
■ In the case of monoblock type holder for Swiss style lathes



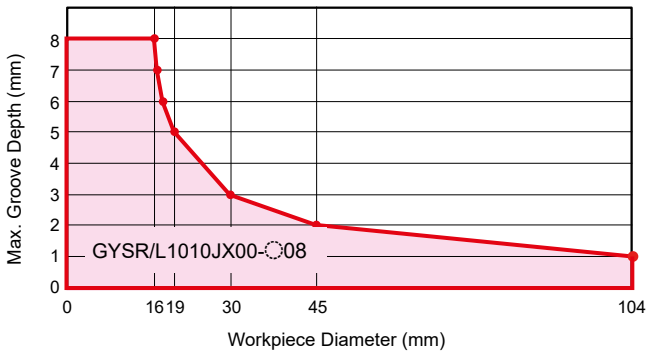
Please refer to the tables above on recommended cutting conditions for external grooving and cutting off.
Apply the percentage ratio shown on each shank size with the values in the table.

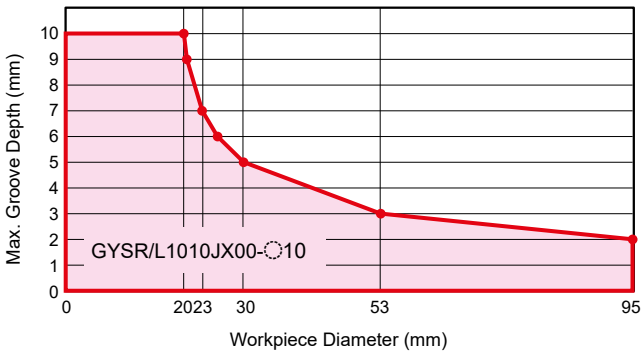
LIMITATION OF THE MAXIMUM GROOVE DEPTH [For External Grooving]

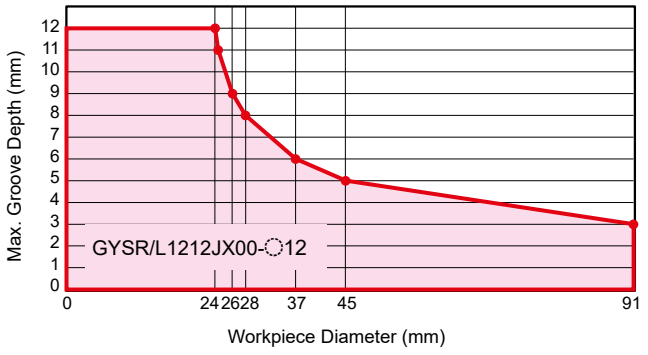
The maximum groove depth is limited by the workpiece diameter.

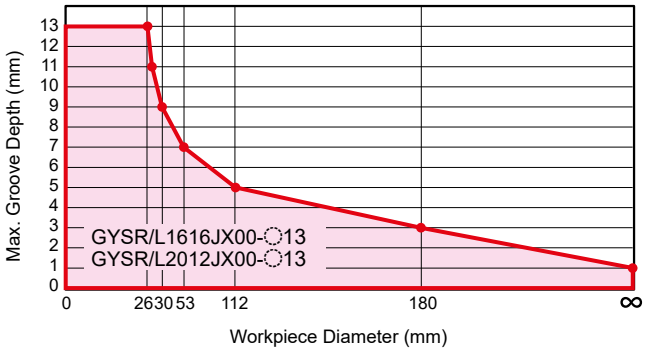


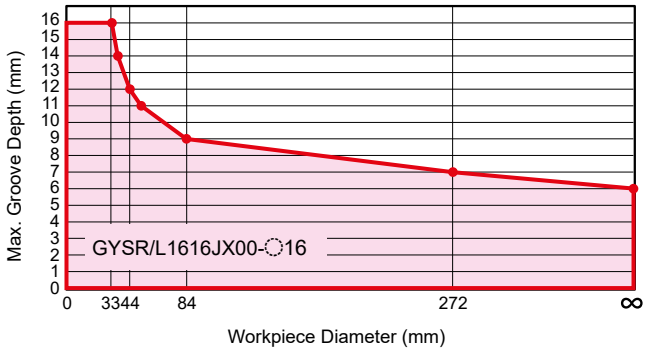
Due to interference, the maximum groove depth is limited by the workpiece diameter.

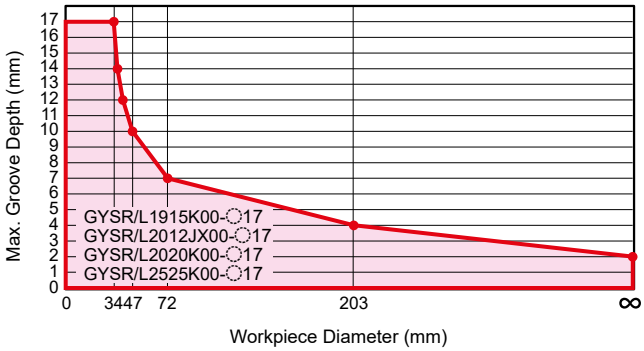








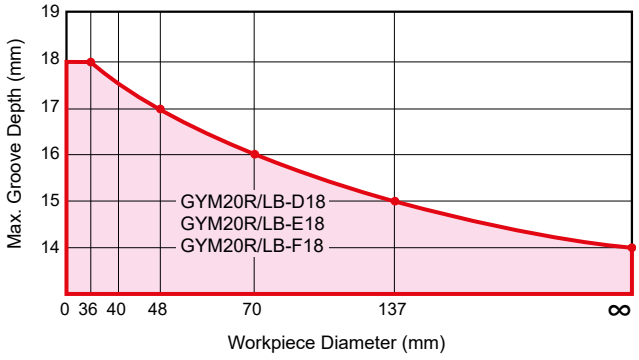


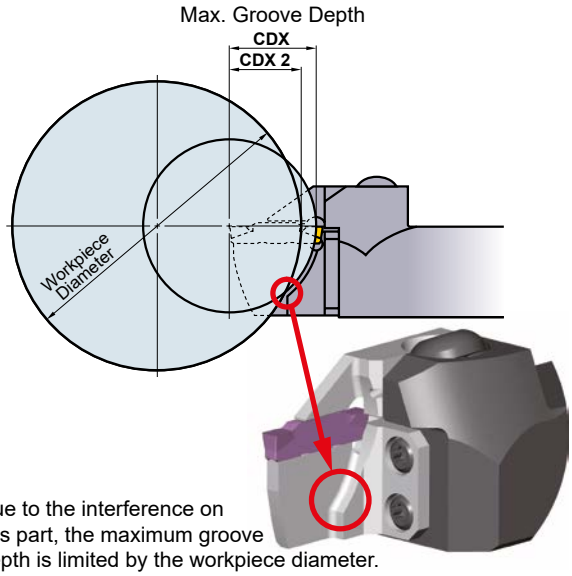


LIMITATION OF THE MAXIMUM GROOVE DEPTH [For External Grooving]

•When using the modular blade GYM○○R/LA-○○○
The maximum groove depth is not limited by the workpiece diameter.

•When using the modular blade GYM○○R/LB-○○○
The maximum groove depth is limited by the workpiece diameter.





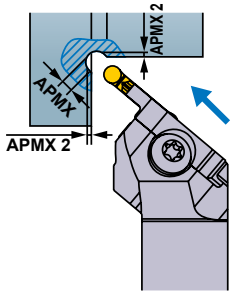
Due to the interference on this part, the maximum groove depth is limited by the workpiece diameter.

RECOMMENDED CUTTING SPEED (m/min) [For External Recessing]

	Material	Hardness	Grade	Cutting Speed (m/min) 50 100 150 200 250
P	Mild Steel	≤180HB	VP20RT	80 – 180
			VP10RT	90 – 190
	Carbon Steel Alloy Steel	180–280HB	VP20RT	60 – 140
			VP10RT	70 – 150
			MY5015	90 – 210
			NX2525	55 – 135
	Carbon Steel Alloy Steel	280–350HB	VP20RT	50 – 110
			VP10RT	60 – 120
			MY5015	80 – 160
			NX2525	45 – 105
M	Stainless Steel	≤350HB	VP20RT	50 – 110
			VP10RT	60 – 120
K	Gray Cast Iron	Tensile Strength ≤350MPa	VP20RT	60 – 140
			VP10RT	70 – 150
			MY5015	90 – 210
	Ductile Cast Iron	Tensile Strength ≤800MPa	VP20RT	50 – 110
			VP10RT	60 – 120
			MY5015	80 – 160
S	Titanium Alloy Heat Resistant Alloy	—	MP9015	40 – 100
			MP9025	30 – 90
			VP20RT	30 – 60
			VP10RT	40 – 70

Note 1) For VP10RT, VP20RT and MY5015, wet cutting is recommended.

DISTANCE FROM THE WORKPIECE TO THE RECESS DEPTH

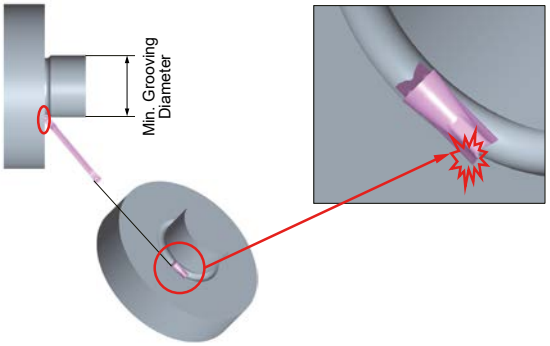


Cutting Width CW (mm)	Recessing Depth APMX (mm)	Distance workpiece to the recess depth APMX 2 (mm)
2.00	1.50	0.646
2.50	1.75	0.720
3.00	2.00	0.793
3.18	2.09	0.819
4.00	2.50	0.939
4.75	2.88	1.049
5.00	3.00	1.086
6.00	3.50	1.232
6.35	3.68	1.283

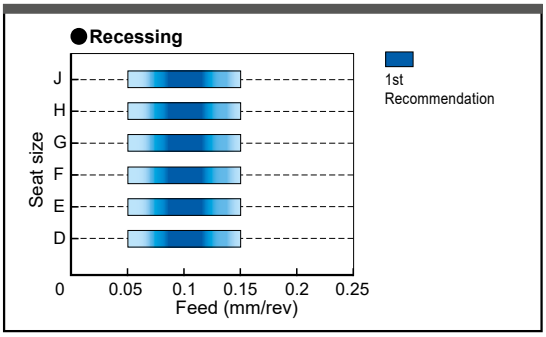
BM BREAKER

Minimum grooving diameter

Ensure the tool is suitable for the diameter being machined. Refer to the Min. Grooving Diameter DMIN as shown in the table on page F042, F099 to avoid a collision with the workpiece as shown below.



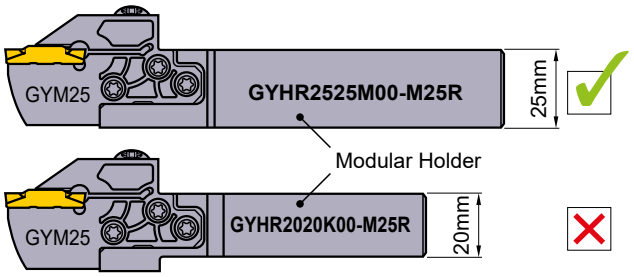
■ Recommended feed rate and depth of cut



TOOL SELECTION

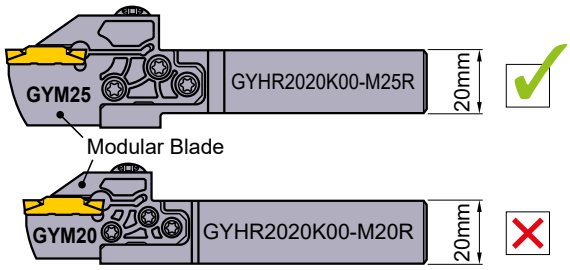
Notes when selecting the tool body

Modular holder



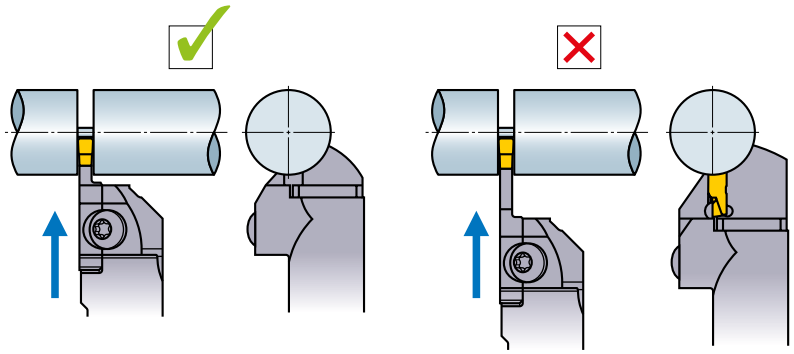
● To ensure sufficient clamping rigidity, select a modular holder with the largest possible shank size.

Modular blade (1)



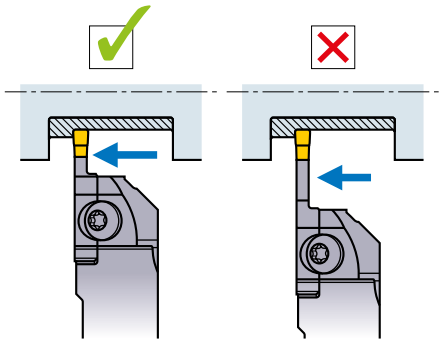
● If there is no restriction for use, select the largest modular blade for the same shank size.Ximilicae mum

Modular blade (2)



● Select the shortest possible blade suitable for the application.

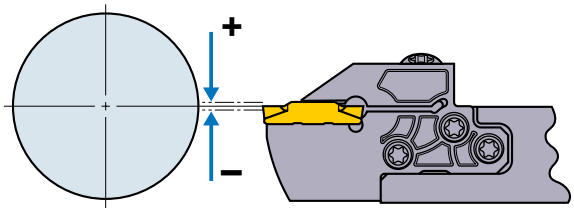
Modular blade (3)



● Select the shortest possible blade suitable for the application.

Notes when setting the tool

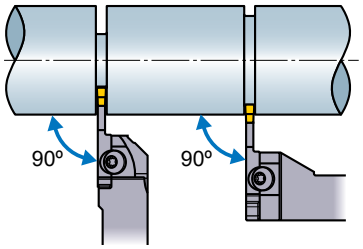
Setting of cutting edge height



<Grooving/Cross-feed machining>
Set the cutting edge height to ±0.1mm parallel to the central axis.

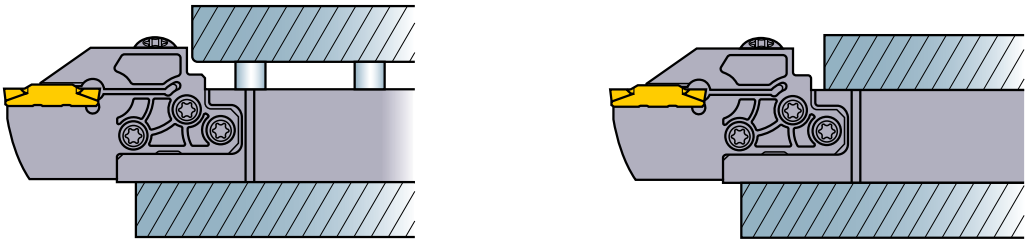
<Cutting off>
Set the cutting edge height to 0–+0.2mm parallel to the central axis.

Tool body setting angle



● Set the insert perpendicular to the central axis.

Overhang

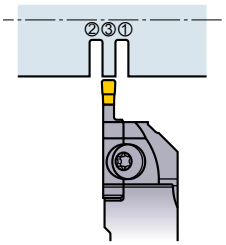


● When setting the tool, ensure that the overhang is as short as possible and avoid contact of the tool post with the top clamp as shown in the figures above.

MACHINING RECOMMENDATIONS

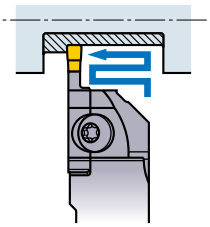
Notes on multi-functional machining (MF, MS and MM breakers)

Machining narrow grooves



- It is recommended to carry out plunging in several passes. Following the steps above makes it difficult for chips to elongate. This also improves the accuracy of workpiece wall surface.

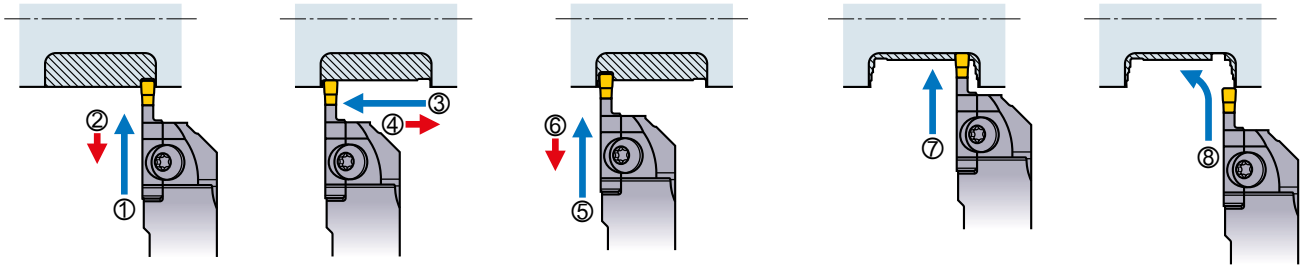
Machining wide grooves



- It is recommended that cross-feed machining is used.

Machining wide grooves

ROUGHING → **FINISHING**



①Carry out grooving.
②Retract the tool approx 0.1 mm.

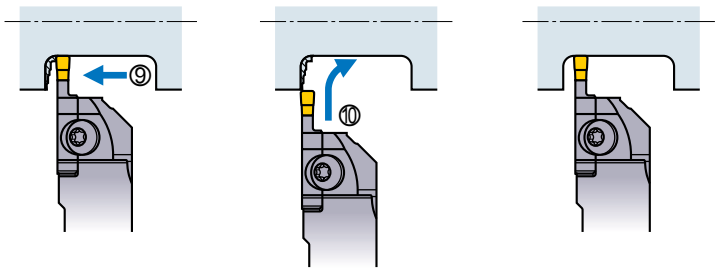
③Carry out cross feed machining.
④Retract the tool approx 0.1 mm.

⑤Carry out grooving.
⑥Retract the tool approx 0.1 mm.
* Repeat the steps ①–⑥.

⑦Carry out grooving to the end point of the corner radius.

⑧Machining of the wall surface, corner radius and bottom face should be carried out in one process.

FINISHING

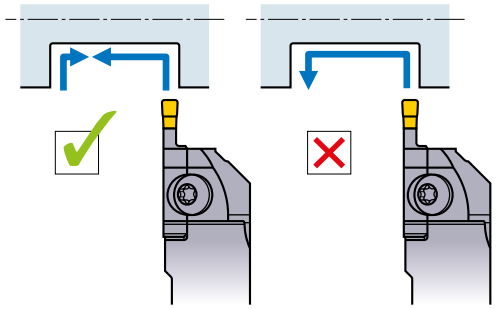


⑨Stop at the bottom of the corner radius.

⑩Machine the counter wall to the corner radius in one process.

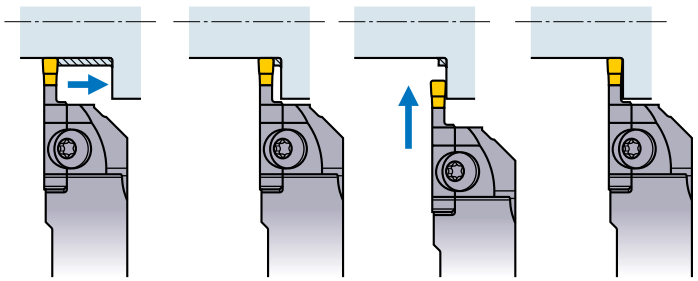
⑪Finish machining.

Precautions when finishing walls



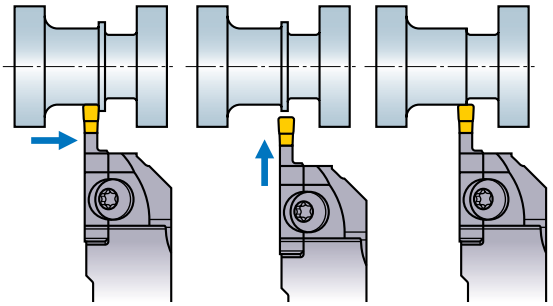
- To produce high accuracy walls using MS or MM chipbreaker insert, do not carry out back turning. Plunging is recommended.

Wall machining



- When machining a wall, chip jamming can occur. In this case, stop cross feed machining just before the wall (at a point less than the insert width) then remove the remaining material by plunging.

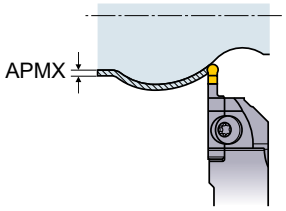
Machining of a ring section



- When a ring remains in a cross feed end process, finish cross feed machining 1–1.5 mm short of the end point, then remove the ring by plunging.

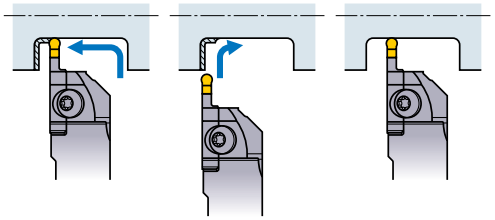
Notes on multi-functional machining (BM chipbreaker)

Copying



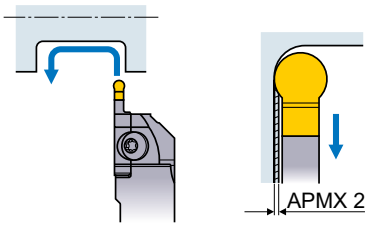
● With the BM chipbreaker insert, 3 dimensional copying is possible.
Set the depth of cut (APMX) to 40% less than the insert width.

Roughing



● Use plunging and cross-feed machining.
When machining the corner, vibration is likely to occur.
To avoid this, reduce the feed by 50%.

Finishing



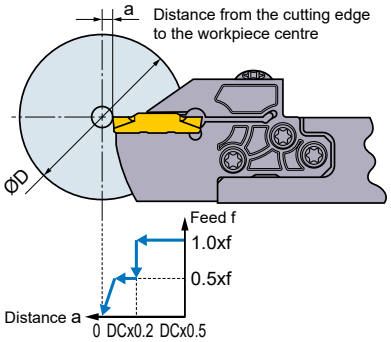
● Carry out finishing in one process.
For the depth of cut (APMX 2) when back turning, refer to the table on the right.

Insert	APMX 2 (mm)
GY2M0200D100N-BM	0.05
GY2M0250E125N-BM	0.10
GY2M0300F150N-BM	0.15
GY2M0318F159N-BM	
GY2M0400G200N-BM	0.20
GY2M0475H238N-BM	0.24
GY2M0500H250N-BM	
GY2M0600J300N-BM	0.30
GY2M0635J318N-BM	
GY2M0800K400N-BM	0.40

Notes for cutting off

Feed

<Feed>

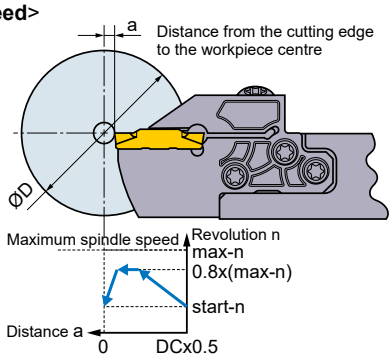


● When the cutting edge approaches the centre, reduce the feed by 50%.

● If necessary, stop the feed prior to reaching the centre of the workpiece to prevent it falling under its own weight.

Revolution

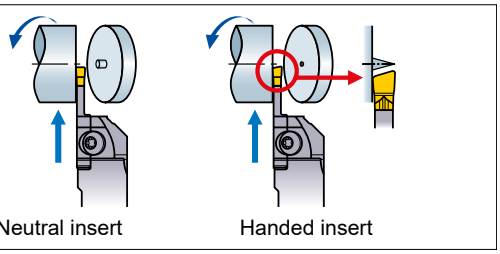
<Spindle speed>

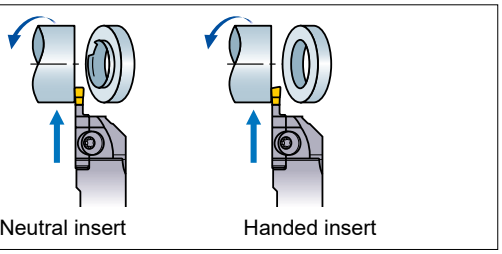


● When using constant cutting speed during a cutting off cycle, it is recommended to limit the spindle speed to 80% of maximum to ensure stability.

● To prevent the workpiece from being expelled, lower the spindle speed before finishing the grooving operation.

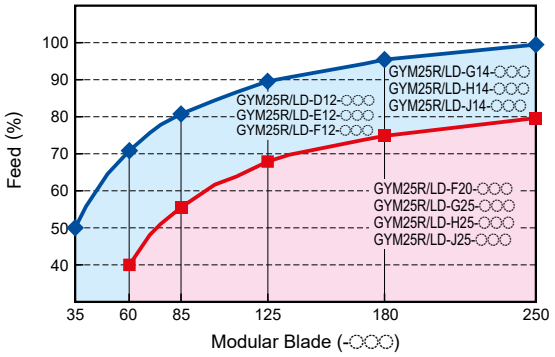
Insert





● When there is a centre stub on solid bar work or burrs are formed on pipe material, it is possible to decrease them by using a handed insert. With a handed insert, machining tends to be less stable when compared to using a neutral insert. Pay special attention to avoid fracturing of the cutting edge and decrease the feed when necessary.

RELATIONSHIP BETWEEN THE MODULAR BLADE AND FEED PER ROTATION [For Face Grooving]



Note 1) Adjust the feed per rotation in the cutting conditions to the percentage shown in the table above.

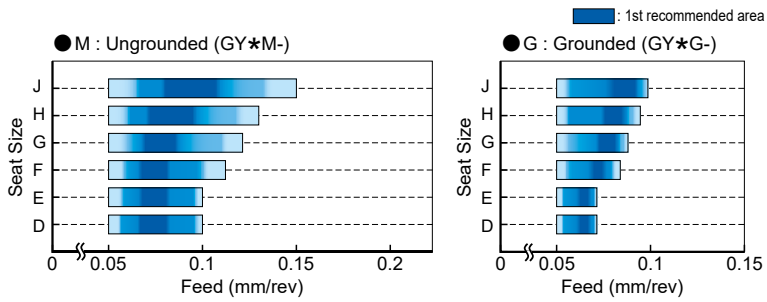
RECOMMENDED CUTTING SPEED [For Face Grooving]

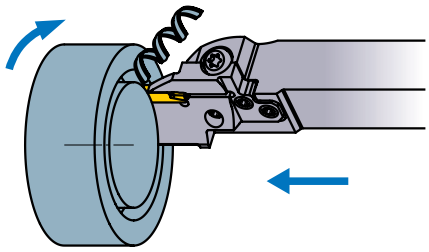
	Material	Hardness	Grade	Cutting Speed (m/min) 50 100 150 200 250 300
P	Mild Steel	≤160HB	VP20RT	80 – 180
			VP10RT	90 – 190
			NX2525	70 – 170
	Carbon Steel Alloy Steel	160–280HB	VP20RT	60 – 140
			VP10RT	70 – 150
			MY5015	90 – 210
			NX2525	55 – 135
		280HB≤	VP20RT	50 – 110
			VP10RT	60 – 120
			MY5015	80 – 160
			NX2525	45 – 105
M	Stainless Steel	≤270HB	VP20RT	50 – 110
			VP10RT	60 – 120
K	Gray Cast Iron	Tensile Strength ≤300MPa	VP20RT	60 – 140
			VP10RT	70 – 150
			MY5015	90 – 210
	Ductile Cast Iron	Tensile Strength ≤800MPa	VP20RT	50 – 110
			VP10RT	60 – 120
			MY5015	80 – 160
S	Heat Resistant Alloy Titanium Alloy	–	MP9015	40 – 100
			MP9025	30 – 90
			VP20RT	30 – 60
			VP10RT	40 – 70
			RT9010	40 – 70
H	Hardened Steel	50HRC≤	BC8110	60 – 120

Note 1) For VP10RT, VP20RT and MY5015, wet cutting is recommended.

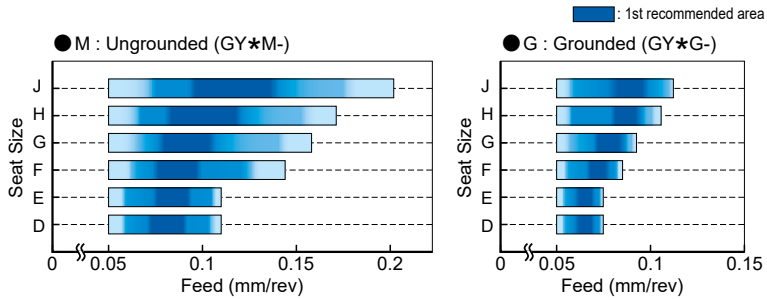
RECOMMENDED CUTTING CONDITIONS [For Face Grooving]

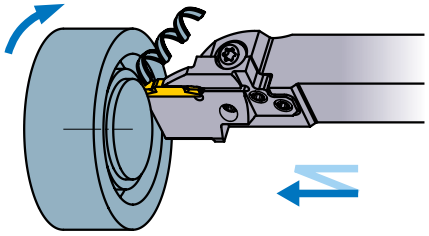
GROOVING





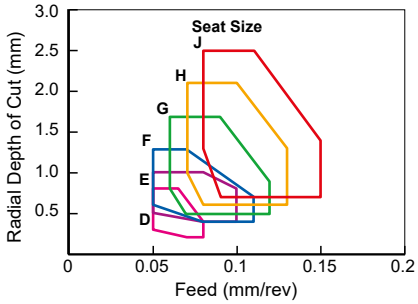
PLUNGING





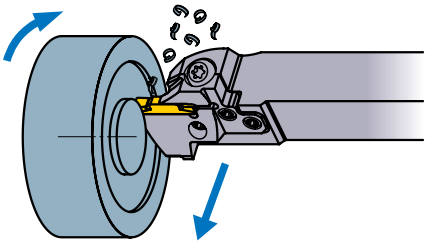
✱ After the 1st plunge, the width of cut should be set narrower than insert with CW.

TRAVERSE MACHINING (MF BREAKER)

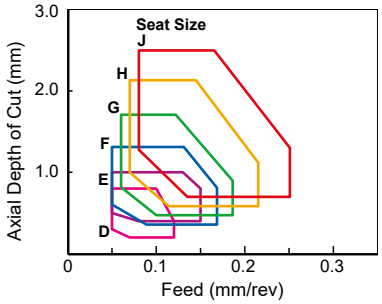


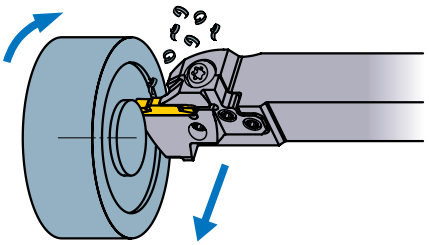
Seat Size	Insert Width (mm)
D	2.00 2.24
E	2.39 2.50 2.74
F	3.00 3.18 3.24

Seat Size	Insert Width (mm)
G	4.00 4.24
H	4.75 5.00 5.24
J	6.00 6.31 6.35

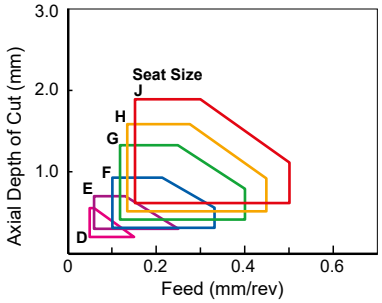


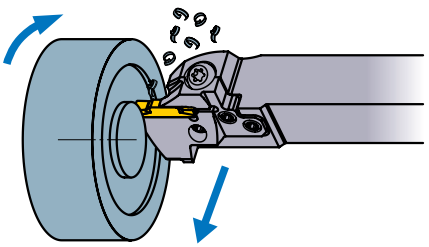
TRAVERSE MACHINING (MM/MS BREAKER)





TRAVERSE MACHINING (BM BREAKER)

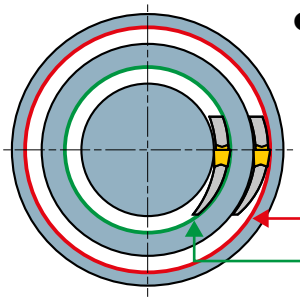




TOOL SELECTION

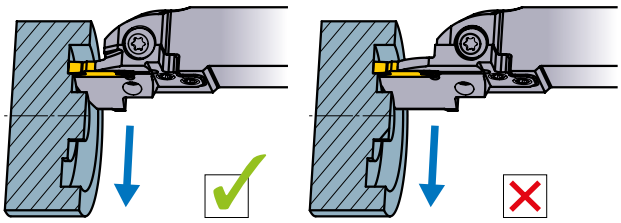
Notes when selecting the tool body

Modular blade (1)



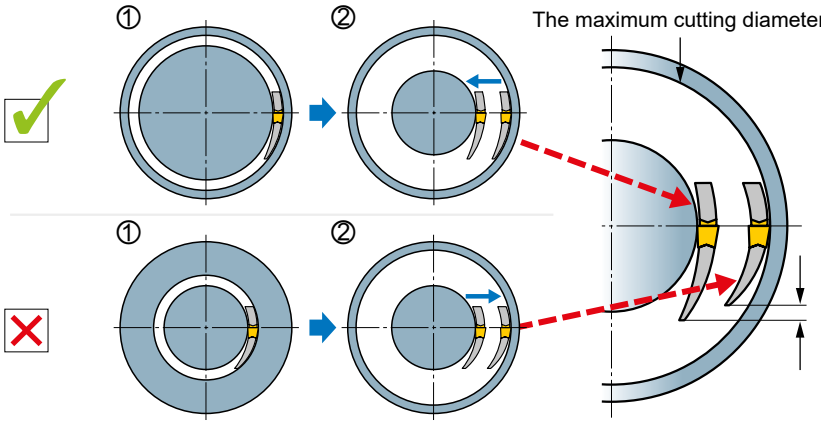
- Select a modular blade for face grooving, so that the cutting diameter at the first pass is within the range of DAXN minimum and DAXX maximum that are described in the table of dimensions.

Modular blade (2)



- Select the shortest possible blade suitable for the application.

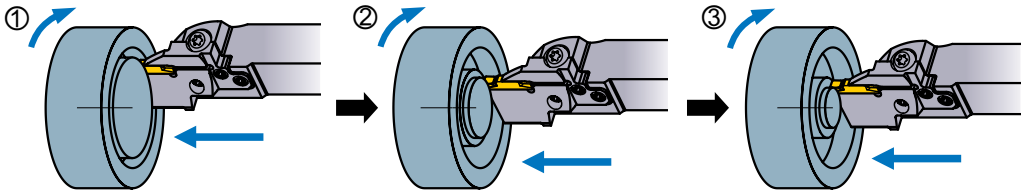
Modular blade (3)



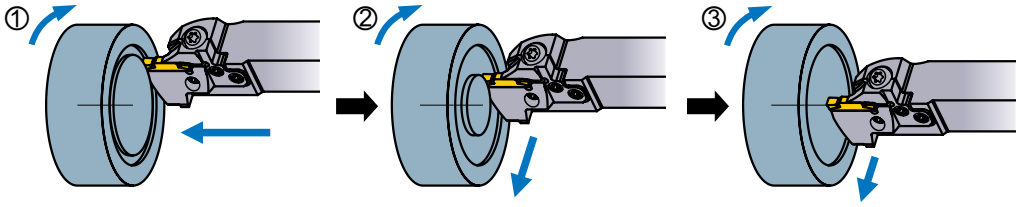
- Select the largest size blade within the maximum cutting diameter of the workpiece.
- Machine from the outer diameter towards the centre.
- Increased machining stability and rigidity is possible if a modular blade with the largest possible back metal is used.

At first machine the maximum cutting diameter, there is no restriction in the cutting diameter on the remaining process.

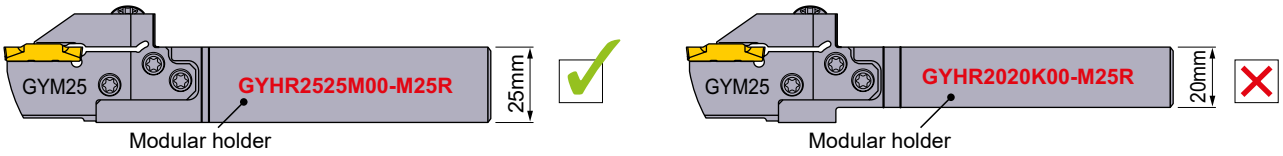
- When plunging in several passes.



- When combining plunging and infeed machining.



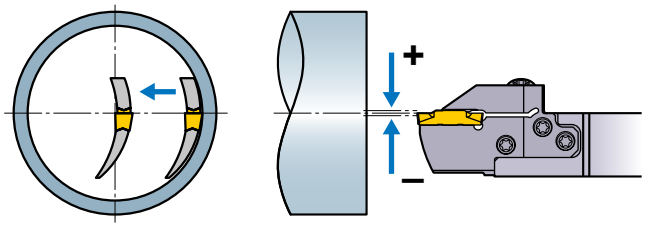
Modular holder



- Select a modular holder with the largest possible shank size to maintain mounting rigidity.

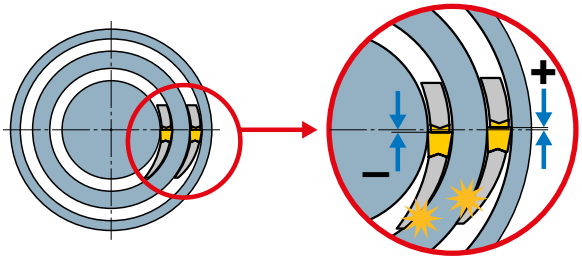
Notes when setting the tool

Setting the cutting edge height



- Set the cutting edge height to ±0.1mm parallel to the central axis.
- Cutting edge centre height check should be done by traverse machining towards the centre with a very small depth of cut and ensure that an even surface and no material remains at the centre point afterwards.

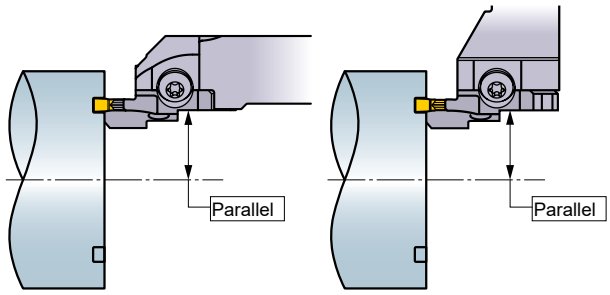
When interfering the wall of groove and the modular blade



- If interference occurs even when the correct blade is used, the cutting edge height could be incorrect.

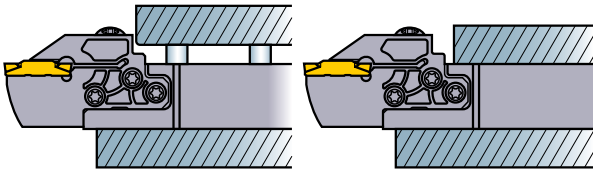
  When interference occurs on the inner side of the blade, the cutting edge height is set too high.
  When interference occurs on the outer side of the blade, the cutting edge height is set too low.

Setting the tool



- Set the insert parallel to the central axis.

Tool overhang



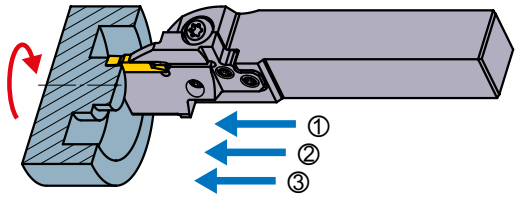
- When setting the tool, ensure that the overhang is as short as possible and avoid contact of the tool post with the top clamp as shown in the figures above.

MACHINING RECOMMENDATIONS

Notes when face grooving

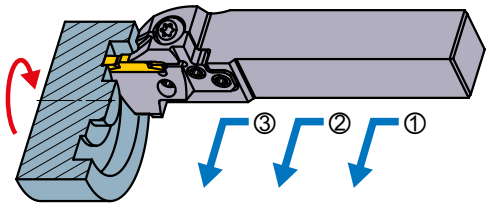
●Always machine from the outer diameter towards the centre.

Machining narrow grooves



- Plunging in several passes is recommended.

Machining wide grooves

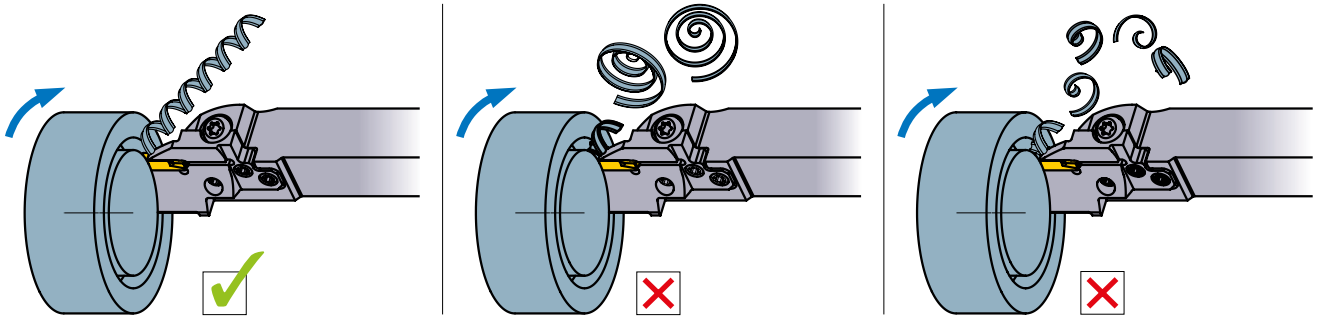


- Cross feed machining is recommended.

MACHINING RECOMMENDATIONS

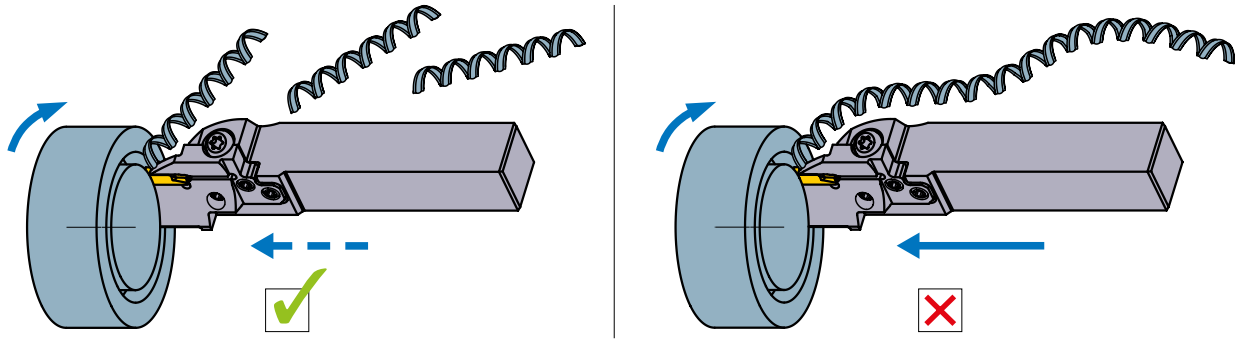
Notes when face grooving

Notes on the first pass (1)



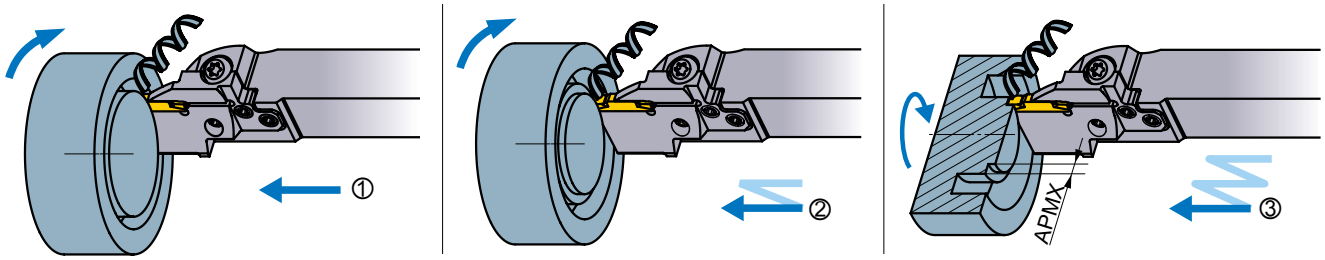
- During the first face grooving pass it is difficult to disperse broken chips and can lead to problems such as a chipped insert. Maintain longer chips that disperse easily by decreasing the feed per rotation.

Notes on the first pass (2)



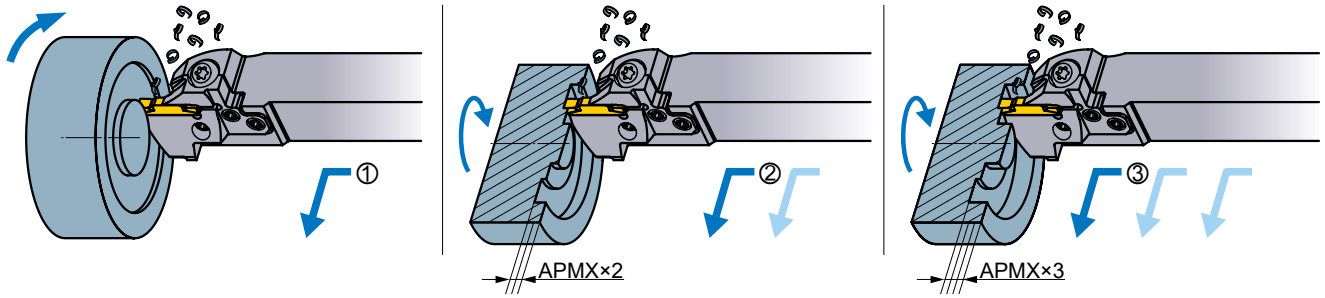
- When chips become too long, use peck feed to break them into a suitable length.

Notes when wide face grooving by plunging in several passes



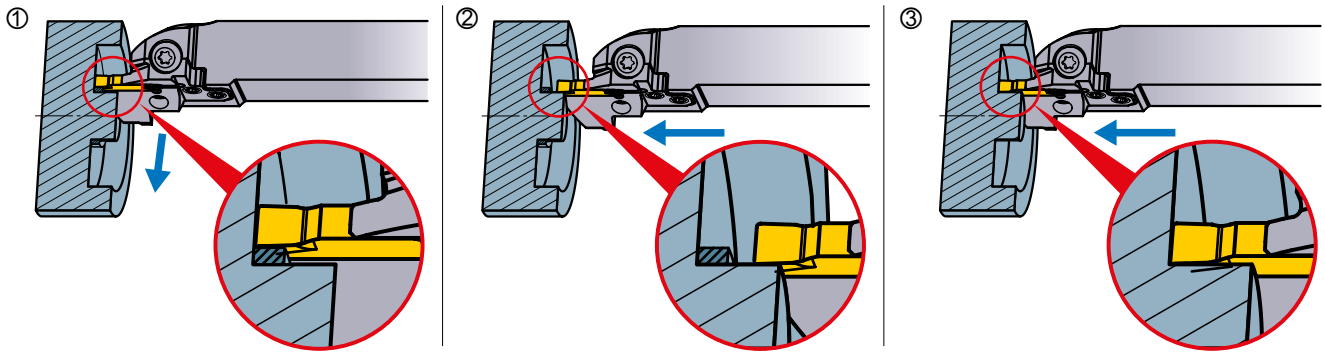
- When machining a face groove in several passes, machine from the outer diameter towards the centre so that space for discharging chips is created to prevent insert damage caused by chip jamming.
- Plunging width of cut is recommended to be set at 60 - 80% of the insert width. This enhances the effect of the chipbreaker by enlarging the width of the groove to improve chip dispersal.

Notes when wide face grooving by combination of plunging and traverse machining (1)



- When face groove machining by using plunge feed and traverse machining, always machine from the outer diameter towards the centre to disperse chips outward to avoid chip jamming problems.
- Set the depth of cut within 40% of the insert width.

Notes when wide face grooving by combination of plunging and traverse machining (2)

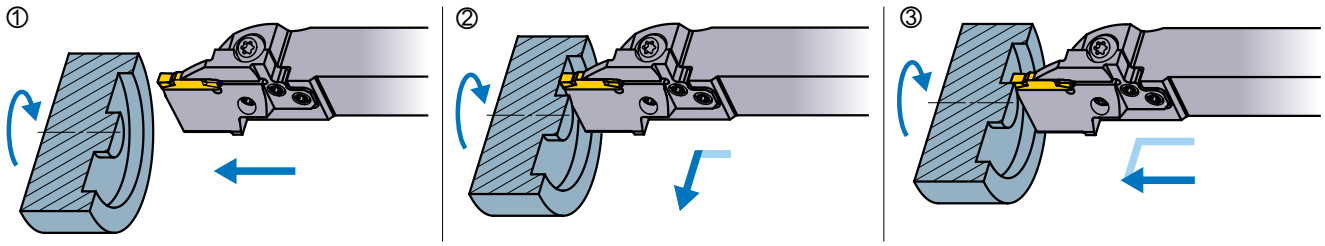


- When infeed machining at the bottom of a deep groove, chips may interfere on the cutting edge near the centre wall.
  In such cases, stop infeed machining just before the centre wall (at a point less than the insert width) then remove the remaining material by plunging.

Notes when copying (BM Chipbreaker)

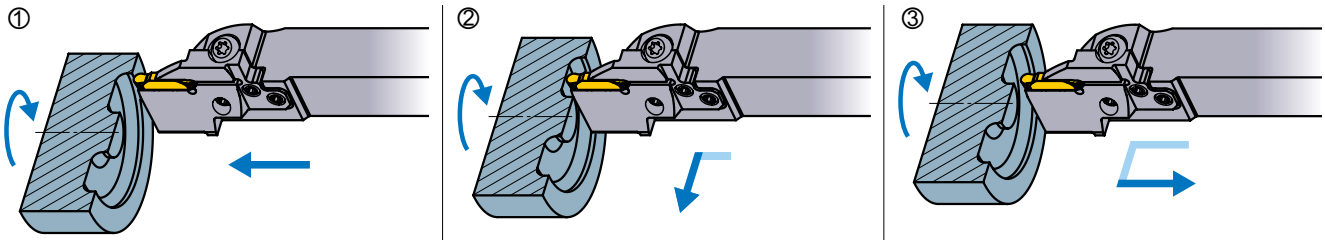
- With the BM chipbreaker insert, 3 dimensional copying is possible. Set the depth of cut (APMX 2) to 30% less than the insert width.

Finishing (1)

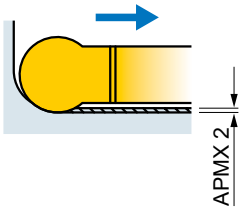


- When finish cutting, machine continuously from the outer wall to the bottom of the groove, then finally plunge cut the centre wall.

Finishing (2) (BM Chipbreaker)



- Carry out finishing in one process.
  For the depth of cut (APMX 2) when back turning, refer to the table on the right.



Insert	APMX 2 (mm)
GY2M0200D100N-BM	0.10
GY2M0250E125N-BM	
GY2M0300F150N-BM	
GY2M0318F159N-BM	
GY2M0400G200N-BM	0.15
GY2M0475H238N-BM	0.20
GY2M0500H250N-BM	
GY2M0600J300N-BM	0.25
GY2M0635J318N-BM	

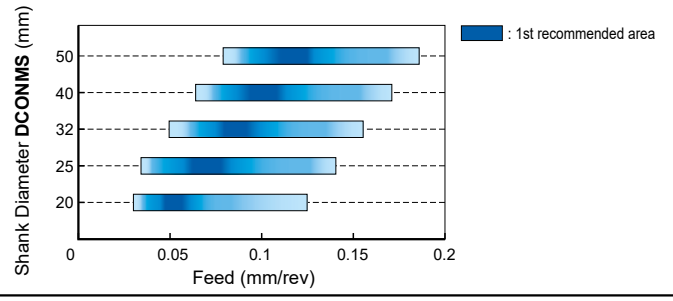
RECOMMENDED CUTTING SPEED [For Internal Grooving]

	Material	Hardness	Grade	Cutting Speed (m/min) 50 100 150 200 250 300 400
P	Mild Steel	≤160HB	VP20RT	80 – 180
			VP10RT	90 – 190
			NX2525	70 – 170
	Carbon Steel Alloy Steel	160–280HB	VP20RT	60 – 140
			VP10RT	70 – 150
			MY5015	90 – 210
			NX2525	55 – 135
		280HB≤	VP20RT	50 – 110
			VP10RT	60 – 120
			MY5015	80 – 160
			NX2525	45 – 105
M	Stainless Steel	≤270HB	VP20RT	50 – 110
			VP10RT	60 – 120
K	Gray Cast Iron	Tensile Strength ≤300MPa	VP20RT	60 – 140
			VP10RT	70 – 150
			MY5015	90 – 210
	Ductile Cast Iron	Tensile Strength ≤800MPa	VP20RT	50 – 110
			VP10RT	60 – 120
			MY5015	80 – 160
S	Heat Resistant Alloy Titanium Alloy	–	MP9015	40 – 100
			MP9025	30 – 90
			VP20RT	30 – 60
			VP10RT/RT9010	40 – 70
H	Hardened steel	50HRC≤	BC8110	60 – 100
N	Aluminium Alloy	Content Si<5%	RT9010	150 – 400
	Aluminium Alloy	Content 5%≤Si≤10%	RT9010	150 – 400
	Aluminium Alloy	Content Si>10%	RT9010	80 – 160

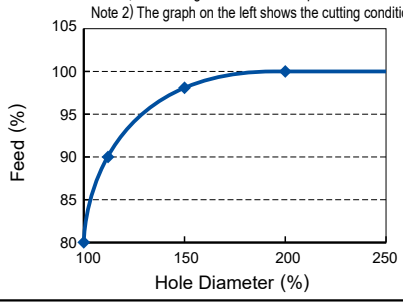
Note 1) VP20RT is the first recommended grade for materials other than hardened steels.
Note 2) For RT9010, VP10RT, VP20RT and MY5015, wet cutting is recommended.

RECOMMENDED CUTTING CONDITIONS [For Internal Grooving]

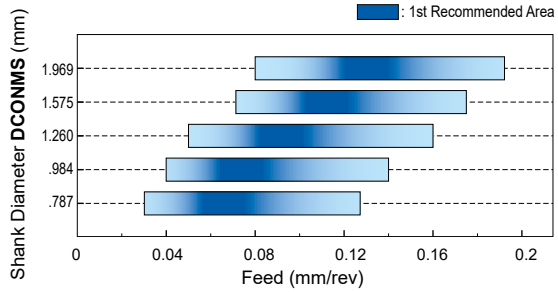
GROOVING



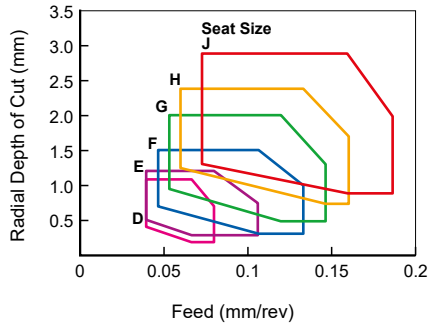
Note 1) The cutting diameter 100% represents the minimum cutting diameter (DMIN).
Note 2) The graph on the left shows the cutting conditions when setting the feed to 100%.



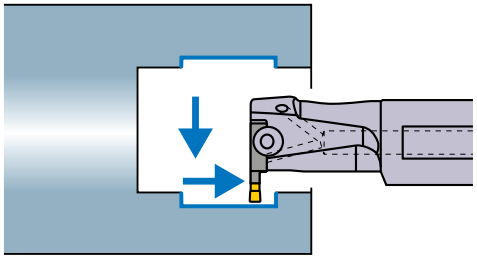
GROOVING (GL BREAKER)



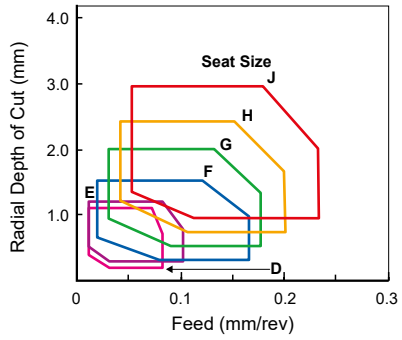
TRAVERSE MACHINING (MF BREAKER)



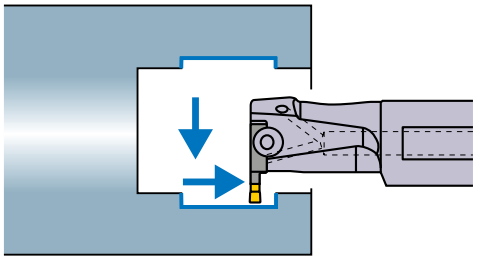
●When traverse machining a blind hole, it is recommended to carry out back turning considering chip disposal.



TRAVERSE MACHINING (MM/MS BREAKER)

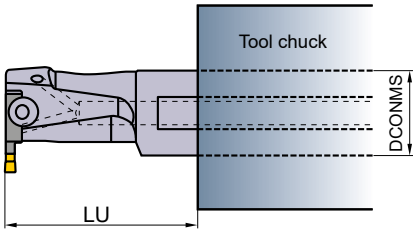


●When traverse machining a blind hole, it is recommended to carry out back turning considering chip disposal.



Note 1) The above cutting conditions are for when using the tool overhang (LU) 1.6-2.0 times larger than the shank diameter (DCONMS). (L/D=1.6-2.0) When using L/D larger than 2.0, reduce the cutting conditions.

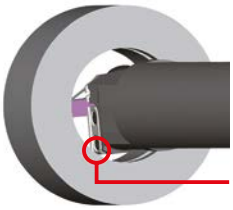
Seat Size			
	Insert Width (mm)		Insert Width (mm)
D	2.00 2.24	G	4.00 4.24
E	2.39 2.50 2.74	H	4.75 5.00 5.24
F	3.00 3.18 3.24	J	6.00 6.31 6.35



LIMITATION OF THE MAXIMUM GROOVE DEPTH [For Internal Grooving]

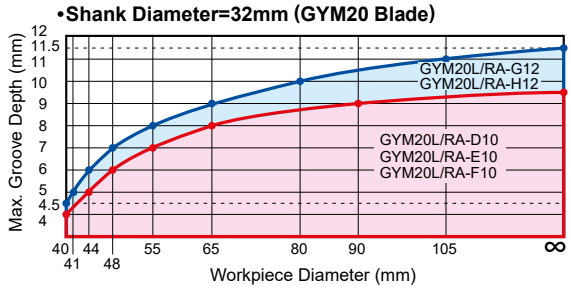
●When using the monoblock type
The maximum groove depth is not limited by the cutting diameter.

●When using the modular blade type
The maximum groove depth is limited by the cutting diameter.

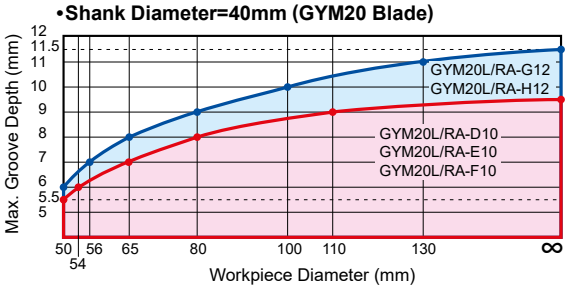


Due to interference of this part, the maximum groove depth is limited by the cutting diameter.

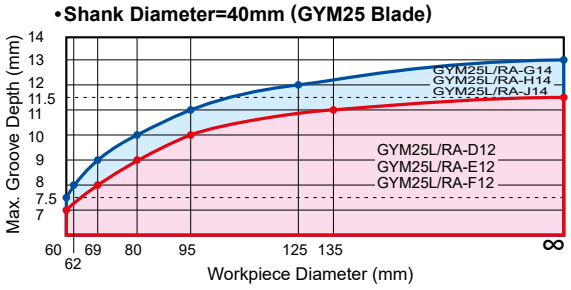
•Shank Diameter=32mm (GYM20 Blade)



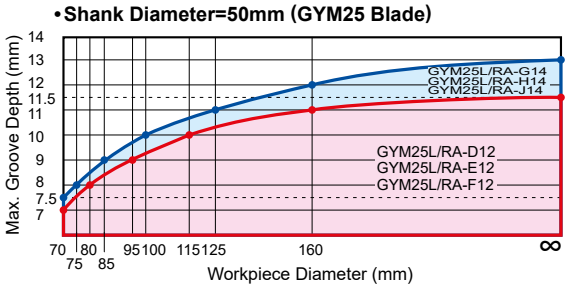
•Shank Diameter=40mm (GYM20 Blade)



•Shank Diameter=40mm (GYM25 Blade)



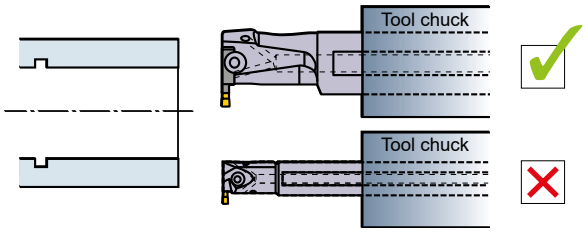
•Shank Diameter=50mm (GYM25 Blade)



TOOL SELECTION

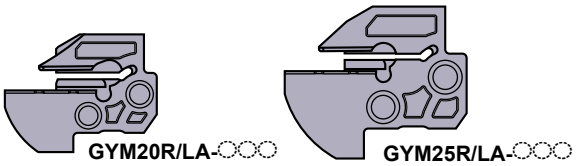
Notes when selecting the tool body

Holder



- When the overhang is the same, select a holder with the largest possible shank size to ensure sufficient clamping rigidity.

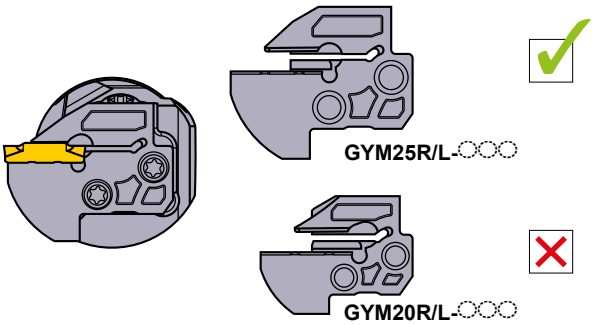
Modular blade (1)



GYM20R/LA-D10	GYM25R/LA-D12
GYM20R/LA-E10	GYM25R/LA-E12
GYM20R/LA-F10	GYM25R/LA-F12
GYM20R/LA-G12	GYM25R/LA-G14
GYM20R/LA-H12	GYM25R/LA-H14
	GYM25R/LA-J14

- For an internal holder, select a modular blade listed above.

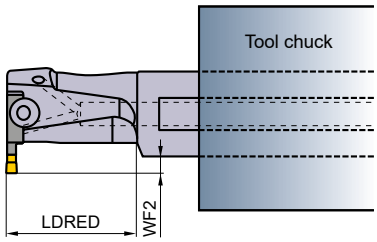
Modular blade (2)



- For a Ø40 shank holder, if there is no restriction for use, select a holder suitable for GYM25 blade.

Notes when setting the tool

Overhang



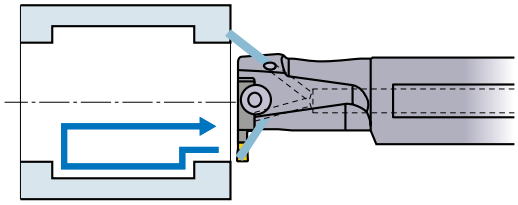
- The maximum groove depth is limited to the dimension LDRED. When machining with longer overhangs, refer to the dimension WF2 of the tool used.

MACHINING RECOMMENDATIONS

Notes on multi-function machining (MF, MS and MM breakers)

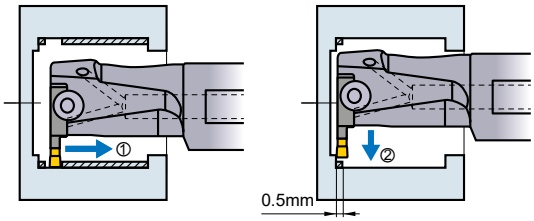
For internal grooving, the machining methods for external grooving can be used, but please note the following precautions.

Coolant



- Supply large amounts of coolant for effective chip disposal during cutting. Maintain supply until the tool has been retracted completely for improved chip disposal.

Machining blind holes

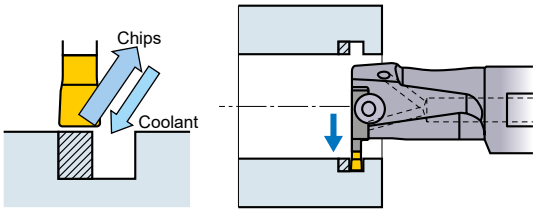


- As continuous chips tend to elongate at the back of the bore, the above operation is recommended.
  The recommended width of cut for ② is 0.5 mm.

Machining Wide Grooves

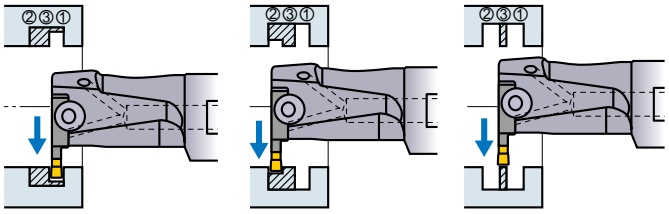
Grooving

- When the cutting edge width is x 2 ≥ groove width



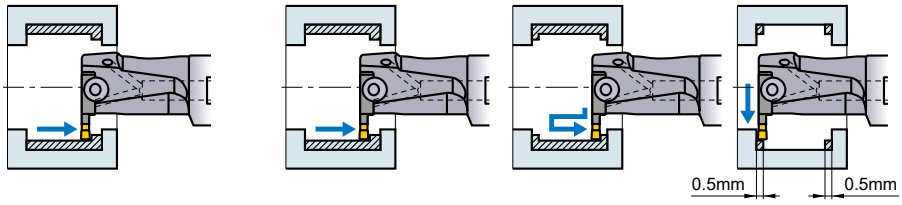
- When the depth of cut is shallower than the cutting edge width, continuous chips are usually produced. When plunging in several passes, it is recommended to carry out machining in the steps above. This ensures that coolant reaches the cutting edge and chips are easily discharged.

- When the cutting edge width is x 2 < groove width



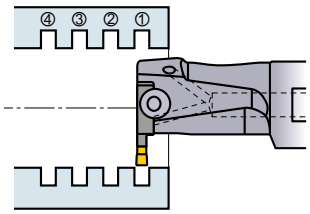
- When the groove depth is larger than the cutting edge width, carry out plunging in the steps above to break up chips efficiently.

Turning



- When chip breaking and disposal are especially important, cross-feed machining is recommended.
- Wide face grooving when the corner R of the work piece is equal to the corner R of the insert, machine as shown above.
  (When corner R of the material is larger than corner R of the insert, refer to the description of external wide grooving.)
- If the groove depth exceeds a given level, chips may elongate at the wall. In such a case, increase the feed and carry out machining as shown above.

Machining instruction



- It is recommended to carry out grooving from the front end of the workpiece. This reduces workpiece deflection.

GW SERIES
Easy to Utilise Configuration that Improves Tool Handling

Clamping method

Simple insert clamping method offering high rigidity

To prevent extraction during machining, the insert features a reverse taper angle. Additionally the design also includes 3 large locating faces with the blade offering increased cutting edge reliability. The blade itself is made from a suitable, special alloy steel. For changing the insert, a unique wrench is supplied to ensure ease of use.

Reverse Taper Angle

Voice of the Developer

Easy insert setting

By using the unique wrench, it is possible to remove the insert with one simple action making it easier for everyday use in the workshop.

Through Coolant Blade

Increased wear resistance due to 2 through coolant holes

2 through holes supply coolant to both the rake and flank face, leading to effective cutting edge cooling and increased wear resistance.
Additionally the blade can also be utilised with both low and high pressure coolant (7MPa).

Voice of the Developer

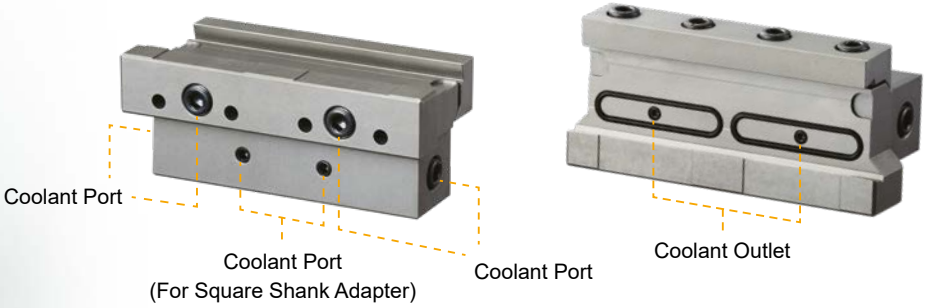
Reduced heat generation

The 2 coolant holes used in the blade are capable of coping with pressures up to 7MPa. This is achieved by using as large as possible hole diameter. The coolant holes are located close to the cutting edge to improve cutting edge cooling effect and increasing wear resistance.

Coolant Ports

Flexibility with the use of 6 coolant ports

There are 6 coolant ports designed into the tool block, making it easy to set up the block and blade to a suitable configuration. The through coolant holes improve cutting edge cooling and chip evacuation.
The use of external coolant hoses is also possible.



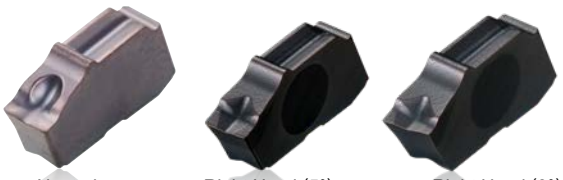
Voice of the Developer

Possible to set up to suit the requirements of the workshop environment.

One of the objectives of this product is to respond to the customers complaints that “the product did not fit and could not be used”. Starting with the coolant outlet that prevents leaks even when oil quantity or overhangs change, everything from the material and the shape of the O-ring, to the length of the hose has been tailored to the effective use in the workshop.

Chipbreaker System Offering Excellent Chip Disposal Properties

Low Feeds



Neutral　Right Hand (5°)　Right Hand (8°)

GS Chipbreaker

Medium Feeds

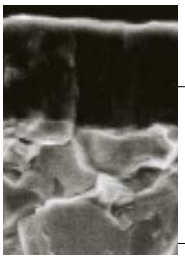
Neutral　Right Hand / Left Hand

GM Chipbreaker

INSERT GRADE

Material / Machining Condition	P Steel	M Stainless Steel	K Cast Iron	S Heat Resistant Alloy / Titanium Alloy
Stable ↑ Machining Condition ↓ Unstable	MY5015	VP10RT	MY5015	VP10RT
	VP10RT	VP20RT	VP10RT	VP20RT
	VP20RT	VP30RT	VP20RT	
	VP30RT			

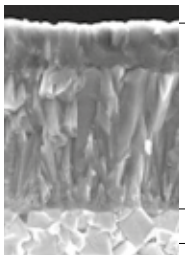
VP20RT (1st Recommendation)



● PVD coated grade suitable for a wide range of applications. The combination of a special tough cemented carbide substrate with MIRACLE coating provides an excellent balance of wear and fracture resistance.

MIRACLE Coating
Carbide Substrate (90.5HRA)

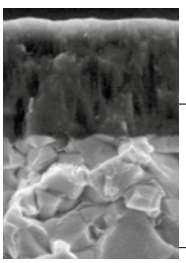
MY5015



● CVD coated grade with excellent wear resistance even at high temperatures. Providing longer tool life when machining cast and ductile cast irons. Also suitable for high speed continuous cutting of steels.

CVD Coated Carbide
Carbide Substrate

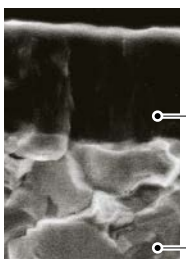
VP10RT



● PVD coated grade with a cemented carbide substrate harder than VP20RT. For use on difficult-to-cut materials and for extending tool life.

MIRACLE Coating
Carbide Substrate (92.0HRA)

VP30RT



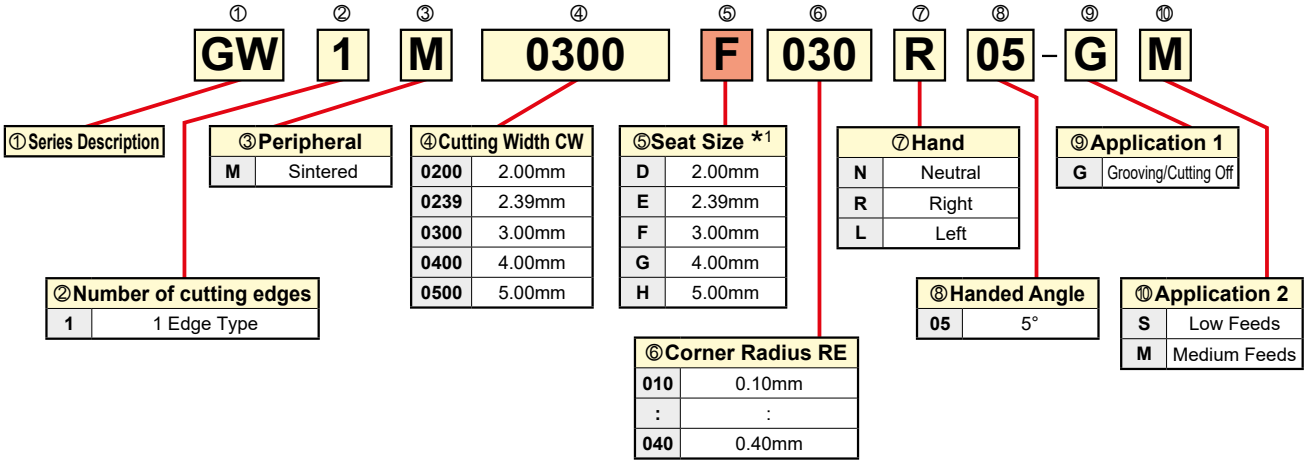
● A combination of a tough, special cemented carbide substrate and MIRACLE coating. Ideal for heavy interrupted cutting of stainless and general steels.

MIRACLE Coating (Al,Ti)N
Carbide Substrate (88.8HRA)

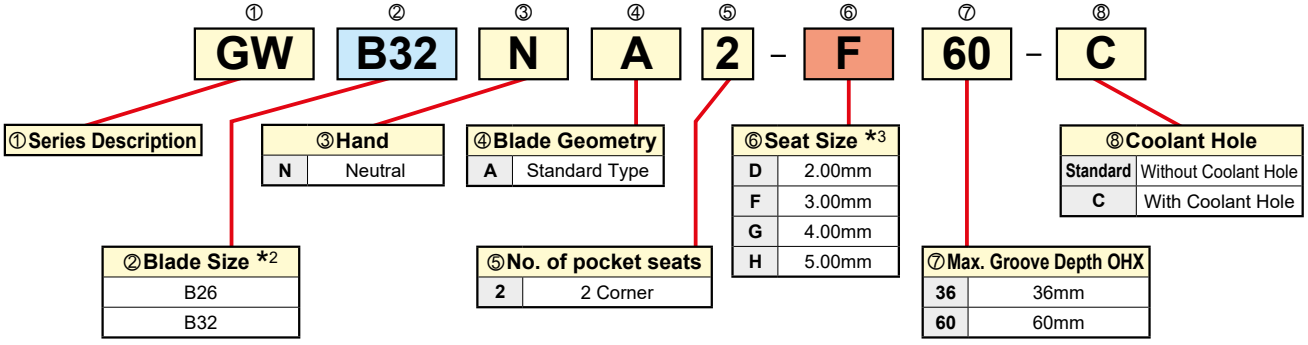
GW SERIES ORDER NUMBER

■ Insert / Blade / Tool Block

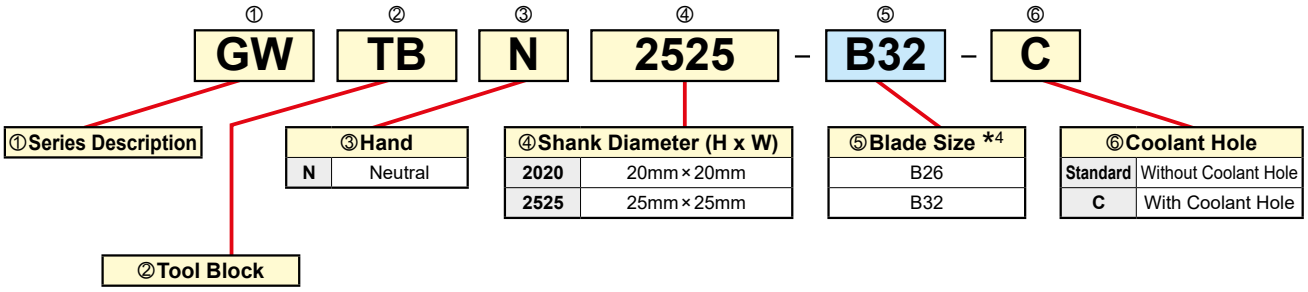
● Insert



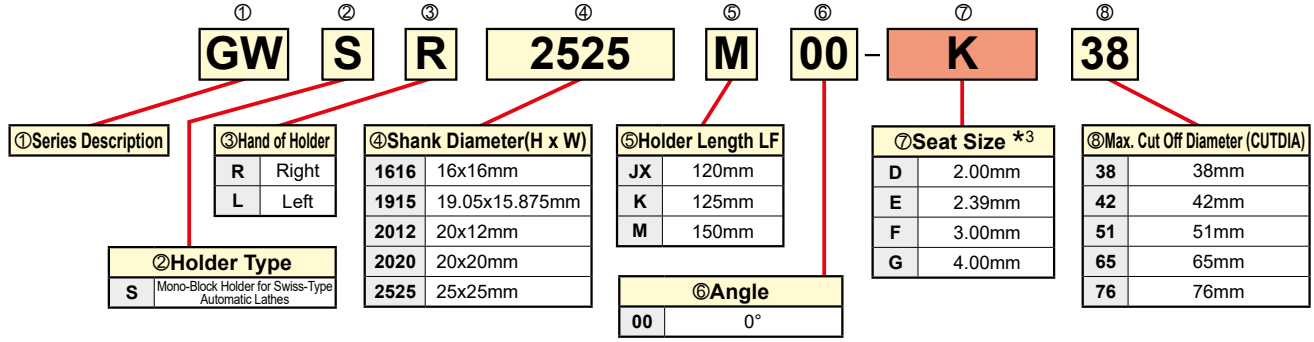
● Blade



● Tool Block



● MONOBLOCK HOLDER

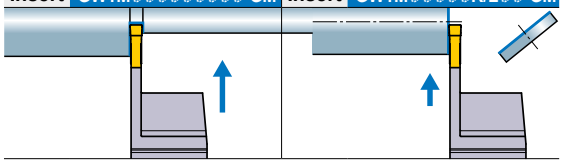


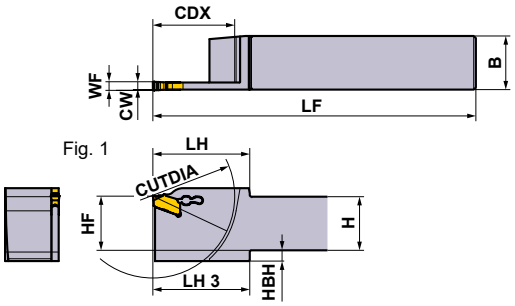
*1 Select the mono-block holder with the same seat size symbol as the modular blade.
*2 Select blade size with the same symbol as the tool block.
*3 Select seat size with the same symbol as the insert.
*4 Select blade size with the same symbol as the blade.

GW SERIES (External for Swiss style lathes)

1 00° type holder NEW

Insert GW1M○○○○○○○○○-GS Insert GW1M○○○○○R○○-GS
Insert GW1M○○○○○○○○○-GM Insert GW1M○○○○○R/L○○-GM





Right hand tool holder shown.

Seat Size	CW	CDX	CUTDIA	Type	Hand (R/L)	Order Number	Stock	Fig.
D	2.00	19	38	Mono Block	R	GWSR1616JX00-D38	●	1
					L	GWSL1616JX00-D38	●	1
			38	Mono Block	R	GWSR1915K00-D38	★	1
					L	GWSL1915K00-D38	★	1
		21	42	Mono Block	R	GWSR2020K00-D42	●	1
					L	GWSL2020K00-D42	●	1
				Mono Block	R	GWSR2012K00-D42	●	1
					L	GWSL2012K00-D42	★	1
				Mono Block	R	GWSR2525M00-D42	●	2
					L	GWSL2525M00-D42	●	2
E	2.39	19	38	Mono Block	R	GWSR1915K00-E38	★	1
					L	GWSL1915K00-E38	★	1
		21	42	Mono Block	R	GWSR2020K00-E42	●	1
					L	GWSL2020K00-E42	●	1
				Mono Block	L	GWSL2020K00-E42-M	★	3
				Mono Block	R	GWSR2012K00-E42	●	1
					L	GWSL2012K00-E42	★	1
				Mono Block	R	GWSR2525M00-E42	●	2
					L	GWSL2525M00-E42	●	2
F	3.00	19	38	Mono Block	R	GWSR1915K00-F38	★	1
					L	GWSL1915K00-F38	★	1
		21	42	Mono Block	R	GWSR2012K00-F42	●	1
					L	GWSL2012K00-F42	★	1
				Mono Block	R	GWSR2020K00-F42	●	1
					L	GWSL2020K00-F42	●	1
				Mono Block	L	GWSL2020K00-F42-M	★	3
		25.5	51	Mono Block	R	GWSR2020K00-F51	●	1
					L	GWSL2020K00-F51	●	1
				Mono Block	L	GWSL2020K00-F51-M	★	3
				Mono Block	R	GWSR2525M00-F51	●	1
					L	GWSL2525M00-F51	●	1
		32.5	65	Mono Block	R	GWSR2020M00-F65	●	1
					L	GWSL2020M00-F65	●	1
		38	76	Mono Block	R	GWSR2525M00-F76	★	1
					L	GWSL2525M00-F76	★	1
G	4.00	38	76	Mono Block	R	GWSR2525M00-G76	★	1
					L	GWSL2525M00-G76	★	1

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

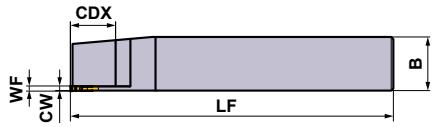
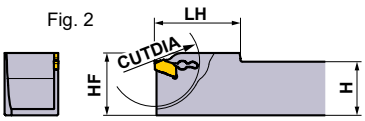


Fig. 2



Right hand tool holder shown.

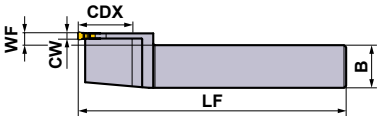
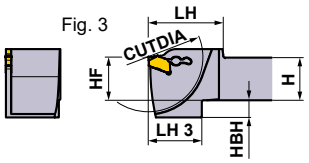


Fig. 3



Left hand tool holder shown.

SPARE PARTS

Holder	Wrench
GWSR/L1616JX00-D38	GWY39L
GWSR/L○○○○○00-○○○	
GWSR/L2020K00-○○○-M	

Dimensions (mm)								Cutting Mode	
H	B	LF	LH	LH 3	HF	WF	HBH	Clockwise	Anticlockwise
16	16	120	30	30	16	0.3	6	R	
16	16	120	30	30	16	0.3	6		
19.05	15.875	125	35	35	19.05	0.3	3		
19.05	15.875	125	35	35	19.05	0.3	3		
20	20	125	35	25	20	0.3	4		
20	20	125	35	25	20	0.3	4		
20	12	125	35	25	20	0.3	4		
20	12	125	35	25	20	0.3	4		
25	25	150	40	—	25	0.3	—		
25	25	150	40	—	25	0.3	—		
19.05	15.875	125	35	35	19.05	0.2	3		
19.05	15.875	125	35	35	19.05	0.2	3		
20	20	125	35	25	20	0.2	4		
20	20	125	35	25	20	0.2	4		
20	20	125	35	25	20	5.7	8		
20	12	125	35	25	20	0.2	4		
20	12	125	35	25	20	0.2	4		
25	25	150	40	—	25	0.2	—		
25	25	150	40	—	25	0.2	—		
19.05	15.875	125	35	35	19.05	0.3	3	L	
19.05	15.875	125	35	35	19.05	0.3	3		
20	12	125	35	25	20	0.3	4		
20	12	125	35	25	20	0.3	4		
20	20	125	35	25	20	0.3	4		
20	20	125	35	25	20	0.3	4		
20	20	125	35	25	20	5.8	8		
20	20	125	35	25	20	0.3	8		
20	20	125	35	25	20	0.3	8		
20	20	125	35	25	20	5.8	8		
25	25	150	40	40	25	0.3	3		
25	25	150	40	40	25	0.3	3		
20	20	150	40	33	20	0.3	10		
20	20	150	40	33	20	0.3	10		
25	25	150	45	45	25	0.3	5		
25	25	150	45	45	25	0.3	5		
25	25	150	45	45	25	0.4	5		
25	25	150	45	45	25	0.4	5		

Insert Selection

Seat Size	Insert Type
D	GW1M0200D
E	GW1M0239E
F	GW1M0300F
G	GW1M0400G

For grooving/cutting off chipbreaker ➤ F126

Seat Size	Chipbreaker / CW	GS (Low)	GM (Medium)	05-GS (Low)	08-GS (Low)	05-GM (Cutting off)
		Neutral	Neutral	R	R	R/L
D	2.00mm	●	●	●	●	●
E	2.39mm	●	●	●	●	●
F	3.00mm	●	●	●	●	●
G	4.00mm	●	●			●

● : Standard insert with dimensions

IDENTIFICATION ➤ F121
CUTTING CONDITIONS ➤ F128
CAUTION FOR USE ➤ F130

GW BLADE

- Simple insert clamping method offering high rigidity.
- Possible to use with both external or through coolant.
- Groove Depth CW 2.0 — 5.0 mm

GW

For External Cutting Off / Grooving

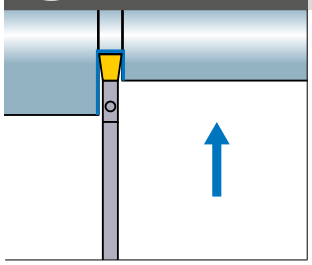


Fig.1

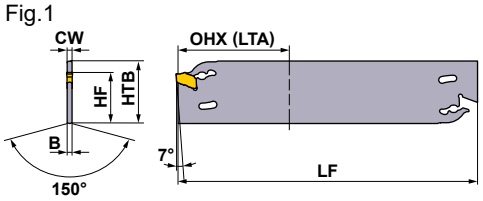
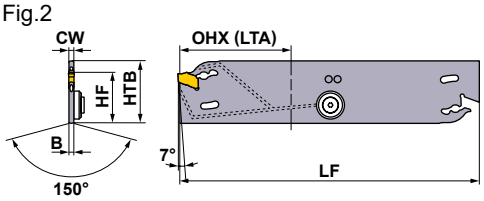


Fig.2



Without Coolant Hole

(mm)

Seat Size	CW	∗1 CUTDIA	Order Number	Stock	∗2 OHN	∗3 OHX (LTA)	B	LF	HTB	HF	Fig.	Insert Type	Wrench	Tool Block Type
D	2.00	72	**GWB26NA2-D36**	●	16	36	1.55	110	26	21.4	1	GW1M0200D	GWY39L	GWTBN-B26
		120	**GWB32NA2-D60**	●	16	60	1.55	150	32	25	1	GW1M0200D	GWY39L	GWTBN-B32
F	3.00	72	**GWB26NA2-F36**	●	16	36	2.45	110	26	21.4	1	GW1M0300F	GWY39L	GWTBN-B26
		120	**GWB32NA2-F60**	●	16	60	2.45	150	32	25	1	GW1M0300F	GWY39L	GWTBN-B32
G	4.00	72	**GWB26NA2-G36**	●	19	36	3.35	110	26	21.4	1	GW1M0400G	GWY39L	GWTBN-B26
		120	**GWB32NA2-G60**	●	19	60	3.35	150	32	25	1	GW1M0400G	GWY39L	GWTBN-B32
H	5.00	72	**GWB26NA2-H36**	●	19	36	4.25	110	26	21.4	1	GW1M0500H	GWY39L	GWTBN-B26
		120	**GWB32NA2-H60**	●	19	60	4.25	150	32	25	1	GW1M0500H	GWY39L	GWTBN-B32

With Coolant Hole

(mm)

Seat Size	CW	∗1 CUTDIA	Order Number	Stock	∗2 OHN	∗3 OHX (LTA)	B	LF	HTB	HF	Fig.	Insert Type	Wrench	Tool Block Type
D	2.00	72	**GWB26NA2-D36-C**	●	16	36	1.55	110	26	21.4	2	GW1M0200D	GWY39L	GWTBN-B26-C
		120	**GWB32NA2-D60-C**	●	26	60	1.55	150	32	25	2	GW1M0200D	GWY39L	GWTBN-B32-C
F	3.00	72	**GWB26NA2-F36-C**	●	16	36	2.45	110	26	21.4	2	GW1M0300F	GWY39L	GWTBN-B26-C
		120	**GWB32NA2-F60-C**	●	26	60	2.45	150	32	25	2	GW1M0300F	GWY39L	GWTBN-B32-C
G	4.00	72	**GWB26NA2-G36-C**	●	19	36	3.35	110	26	21.4	2	GW1M0400G	GWY39L	GWTBN-B26-C
		120	**GWB32NA2-G60-C**	●	26	60	3.35	150	32	25	2	GW1M0400G	GWY39L	GWTBN-B32-C
H	5.00	72	**GWB26NA2-H36-C**	●	19	36	4.25	110	26	21.4	2	GW1M0500H	GWY39L	GWTBN-B26-C
		120	**GWB32NA2-H60-C**	●	26	60	4.25	150	32	25	2	GW1M0500H	GWY39L	GWTBN-B32-C

∗1 CUTDIA : Maximum Cut Off Diameter ∗2 OHN : Minimum Overhang Length ∗3 OHX(LTA) : Maximum Overhang Length
Note 1) Recommended Maximum Coolant Pressure : 7MPa

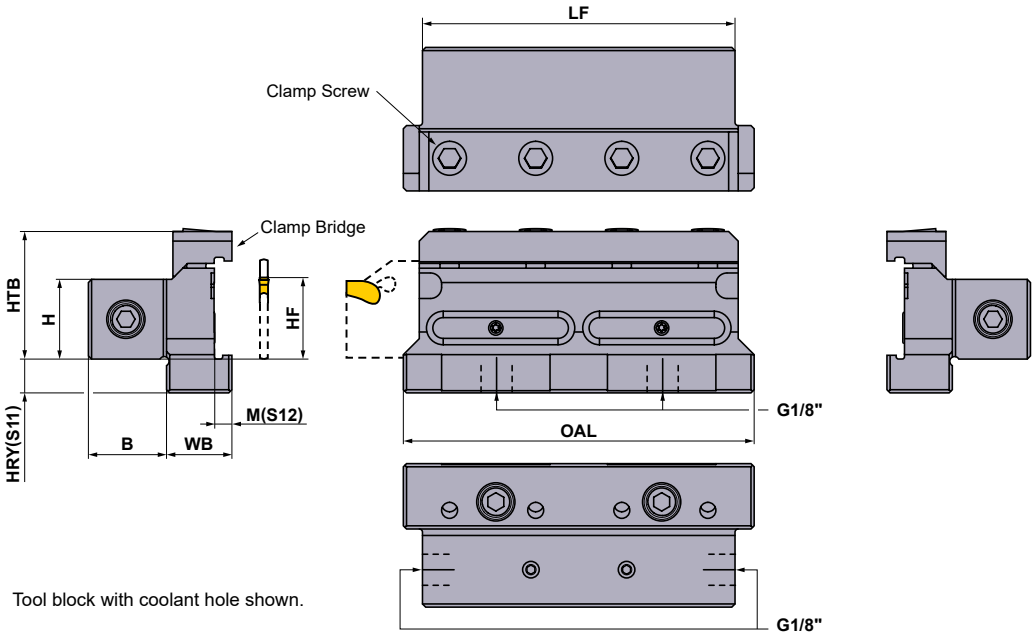
Spare Parts for Blades with Coolant Hole

(mm)

Order Number	CW	① ② Washer	Clamp Screw	Wrench
GWB26NA2-D36-C	2.0	①GWW04038	GW04005F	HKY20R
GWB32NA2-D60-C	2.0	①GWW04038	GW04005F	HKY20R
GWB26NA2-F36-C	3.0	①GWW04038	GW04005F	HKY20R
GWB32NA2-F60-C	3.0	①GWW04038	GW04005F	HKY20R
GWB26NA2-G36-C	4.0	②GWW04026	GW04005F	HKY20R
GWB32NA2-G60-C	4.0	②GWW04026	GW04005F	HKY20R
GWB26NA2-H36-C	5.0	②GWW04026	GW04005F	HKY20R
GWB32NA2-H60-C	5.0	②GWW04026	GW04005F	HKY20R

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

■ Tool Block



Tool block with coolant hole shown.

Without Coolant Hole (mm)

Order Number	Stock	H	HF	HTB	HRY (S11)	B	WB	M (S12)	LF	OAL	①② Clamp Bridge	* Clamp Screw	Wrench
GWTBN2020-B26	★	20	20	33.5	11	19.5	20.0	5.0	75	85	①GWCW1	HSC06020	HKY50R
GWTBN2020-B32	★	20	20	35.0	15.6	19.5	20.5	5.5	100	110	②GWCW2	HSC06020	HKY50R
GWTBN2525-B26	★	25	25	38.5	6	24.5	20.0	5.0	75	85	①GWCW1	HSC06020	HKY50R
GWTBN2525-B32	★	25	25	40.0	10.6	24.5	20.5	5.5	100	110	②GWCW2	HSC06020	HKY50R

With Coolant Hole (mm)

Order Number	Stock	H	HF	HTB	HRY (S11)	B	WB	M (S12)	LF	OAL	①② Clamp Bridge	* Clamp Screw	Wrench
GWTBN2020-B26-C	●	20	20	33.5	11	19.5	20.0	5.0	75	85	①GWCW1	HSC06020	HKY50R
GWTBN2020-B32-C	●	20	20	35.0	15.6	19.5	20.5	5.5	100	110	②GWCW2	HSC06020	HKY50R
GWTBN2525-B26-C	●	25	25	38.5	6	24.5	20.0	5.0	75	85	①GWCW1	HSC06020	HKY50R
GWTBN2525-B32-C	●	25	25	40.0	10.6	24.5	20.5	5.5	100	110	②GWCW2	HSC06020	HKY50R

* Clamp Torque (N • m) : HSC06020=7.0
Note 1) Recommended Maximum Coolant Pressure : 7MPa

Spare Parts for Tool Block with Coolant Hole

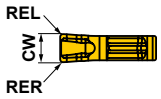
Order Number	①② O-ring	Plug	Plug	Wrench	Plug	Wrench
GWTBN2020-B26-C	ORGW332N9	HGJ-PT1/8	HSD05004S	HKY25R	CS300590T	TKY08R
GWTBN2020-B32-C	ORGW457N9	HGJ-PT1/8	HSD05004S	HKY25R	CS300590T	TKY08R
GWTBN2525-B26-C	ORGW332N9	HGJ-PT1/8	HSD05004S	HKY25R	CS300590T	TKY08R
GWTBN2525-B32-C	ORGW457N9	HGJ-PT1/8	HSD05004S	HKY25R	CS300590T	TKY08R

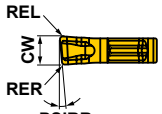
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

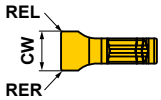
Inserts

(mm)

Application	Order Number	Stock						CW		REL	RER	PSIRR PSIRL	Geometry
		Coating				Carbide							
		MY5015	VP10RT	VP20RT	VP30RT	RT9010	RT9020	Cutting Width	Tolerance				
Grooving, Cutting Off	GW1M0200D020N-GS		●	●	●			2.00	±0.03	0.2	0.2	–	
Grooving, Cutting Off	NEW GW1M0239E020N-GS		●	●	●			2.39	±0.03	0.2	0.2	–	
Grooving, Cutting Off	GW1M0300F020N-GS		●	●	●			3.00	±0.03	0.2	0.2	–	
Grooving, Cutting Off	GW1M0400G020N-GS		●	●	●			4.00	±0.04	0.2	0.2	–	
Grooving, Cutting Off	GW1M0500H030N-GS		●	●	●			5.00	±0.04	0.3	0.3	–	
Grooving, Cutting Off	GW1M0200D020N-GM	●	●	●	●			2.00	±0.03	0.2	0.2	–	
Grooving, Cutting Off	NEW GW1M0239E020N-GM	●	●	●	●			2.39	±0.03	0.2	0.2	–	
Grooving, Cutting Off	GW1M0300F030N-GM	●	●	●	●			3.00	±0.03	0.3	0.3	–	
Grooving, Cutting Off	GW1M0400G030N-GM	●	●	●	●			4.00	±0.04	0.3	0.3	–	
Grooving, Cutting Off	GW1M0500H040N-GM	●	●	●	●			5.00	±0.04	0.4	0.4	–	
Cutting off, Low Feed	GW1M0200D020R05-GS		●	●	●			2.00	±0.03	0.2	0.2	5	
Cutting off, Low Feed	NEW GW1M0239E020R05-GS		●	●	★			2.39	±0.03	0.2	0.2	5	
Cutting off, Low Feed	GW1M0300F020R05-GS		●	●	●			3.00	±0.03	0.2	0.2	5	
Cutting off Low Feed, Lead Angle 8°	GW1M0200D003R08-GS		●	●	●			2.00	±0.03	0.03	0.03	8	
Cutting off Low Feed, Lead Angle 8°	NEW GW1M0239E003R08-GS		★	★	★			2.39	±0.03	0.03	0.03	8	
Cutting off Low Feed, Lead Angle 8°	GW1M0300F003R08-GS		★	★	★			3.00	±0.03	0.03	0.03	8	
Cutting Off	GW1M0200D020R05-GM		●	●	●			2.00	±0.03	0.2	0.2	5	
Cutting Off	GW1M0200D020L05-GM		●	●	●			2.00	±0.03	0.2	0.2	5	
Cutting Off	NEW GW1M0239E020R05-GM		●	●	★			2.39	±0.03	0.2	0.2	5	
Cutting Off	NEW GW1M0239E020L05-GM		●	●	★			2.39	±0.03	0.2	0.2	5	
Cutting Off	GW1M0300F030R05-GM		●	●	●			3.00	±0.03	0.3	0.3	5	
Cutting Off	GW1M0300F030L05-GM		●	●	●			3.00	±0.03	0.3	0.3	5	
Cutting Off	GW1M0400G030R05-GM		●	●	●			4.00	±0.04	0.3	0.3	5	
Cutting Off	GW1M0400G030L05-GM		●	●	●			4.00	±0.04	0.3	0.3	5	
Cutting Off	GW1M0500H040R05-GM		●	●	●			5.00	±0.04	0.4	0.4	5	
Cutting Off	GW1M0500H040L05-GM		●	●	●			5.00	±0.04	0.4	0.4	5	Right hand insert shown.
Blank	GW1B0320D020N					★	★	3.24	±0.10	0.2	0.2	–	
Blank	GW1B0440F020N					★	★	4.44	±0.10	0.2	0.2	–	
Blank	GW1B0540G020N					★	★	5.44	±0.10	0.2	0.2	–	
Blank	GW1B0640H020N					★	★	6.44	±0.10	0.2	0.2	–	







Note 1) Blank inserts to be ground by customers.

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

Proper Use of GW Series Right Hand Inserts

First Recommendation

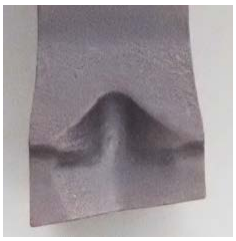
Improved Fracture Resistance — Reduction of Burrs and Core Residue

GM Chipbreaker
PSIRR=5°
RE=0.20

GS Chipbreaker
PSIRR=5°
RE=0.20

GS Chipbreaker
PSIRR=8°
RE=0.03

Reduction of Cutting Resistance — Improved Fracture Resistance



Coolant Hose Kit

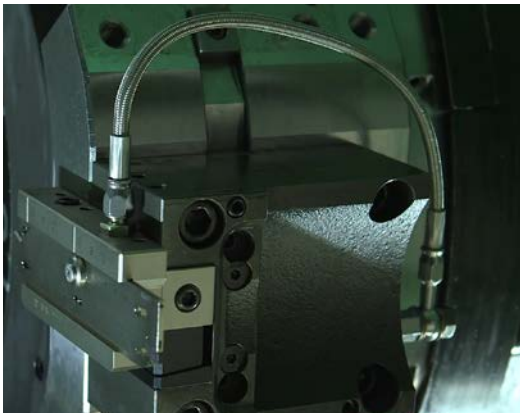
(mm)

Connector Type	Order Number	Stock	Hose Length	Kit Details								
				Hose	Banjo Adapter		Banjo Bolt		Adapter		Washer	
				Code No.	Code No.	QTY.	Code No.	QTY.	Code No.	QTY.	Code No.	QTY.
Straight	**CS-1/8-150SS**	●	150	HOSE-1/8-150	—	—	—	—	AD-G1/8	2	WA-M10	2
Straight	**CS-1/8-200SS**	●	200	HOSE-1/8-200	—	—	—	—	AD-G1/8	2	WA-M10	2
Straight	**CS-1/8-250SS**	●	250	HOSE-1/8-250	—	—	—	—	AD-G1/8	2	WA-M10	2
Straight	**CS-1/8-300SS**	●	300	HOSE-1/8-300	—	—	—	—	AD-G1/8	2	WA-M10	2
Elbow Straight	**CS-1/8-150BS**	●	150	HOSE-1/8-150	AD-BM10	1	BB-G1/8	1	AD-G1/8	1	WA-M10	3
Elbow Straight	**CS-1/8-200BS**	●	200	HOSE-1/8-200	AD-BM10	1	BB-G1/8	1	AD-G1/8	1	WA-M10	3
Elbow Straight	**CS-1/8-250BS**	●	250	HOSE-1/8-250	AD-BM10	1	BB-G1/8	1	AD-G1/8	1	WA-M10	3
Elbow Straight	**CS-1/8-300BS**	●	300	HOSE-1/8-300	AD-BM10	1	BB-G1/8	1	AD-G1/8	1	WA-M10	3
Elbow	**CS-1/8-150BB**	●	150	HOSE-1/8-150	AD-BM10	2	BB-G1/8	2	—	—	WA-M10	4
Elbow	**CS-1/8-200BB**	●	200	HOSE-1/8-200	AD-BM10	2	BB-G1/8	2	—	—	WA-M10	4
Elbow	**CS-1/8-250BB**	●	250	HOSE-1/8-250	AD-BM10	2	BB-G1/8	2	—	—	WA-M10	4
Elbow	**CS-1/8-300BB**	●	300	HOSE-1/8-300	AD-BM10	2	BB-G1/8	2	—	—	WA-M10	4

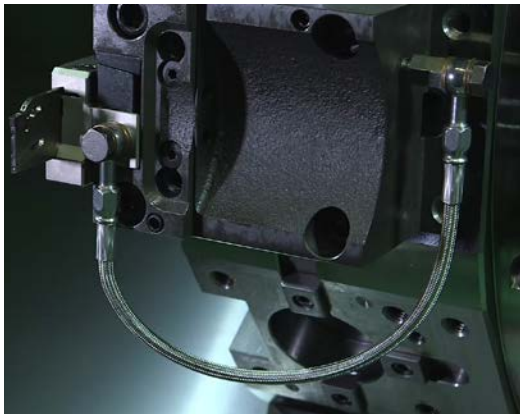
Connection Screw Size = G1/8"

Mounting Example

Elbow Straight Type



Elbow Type



SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

RECOMMENDED CUTTING CONDITIONS

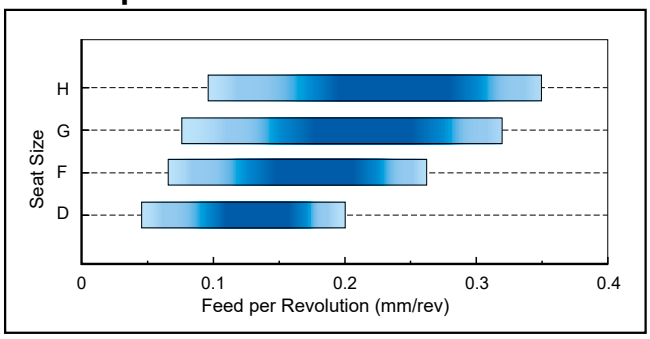
■ Cutting Speed

	Material	Hardness	Grade	Cutting Speed (m/min) 50 100 150 200 250 300
P	Mild Steel	≤160HB	VP20RT	100 – 240
			VP10RT	110 – 250
	Carbon Steel Alloy Steel	160–280HB	VP20RT	80 – 200
			VP10RT	90 – 210
			VP30RT	60 – 180
			MY5015	110 – 250
		≥280HB	VP20RT	60 – 160
			VP10RT	70 – 170
			VP30RT	40 – 140
			MY5015	90 – 210
M	Stainless Steel	≤270HB	VP20RT	60 – 180
			VP10RT	70 – 190
			VP30RT	40 – 160
K	Gray Cast Iron	Tensile Strength ≤300MPa	VP20RT	80 – 200
			VP10RT	90 – 210
			MY5015	140 – 300
	Ductile Cast Iron	Tensile Strength ≤800MPa	VP20RT	60 – 160
			VP10RT	70 – 170
			MY5015	90 – 210
S	Heat Resistant Alloy Titanium Alloy	–	VP20RT	30 – 60
			VP10RT	40 – 70

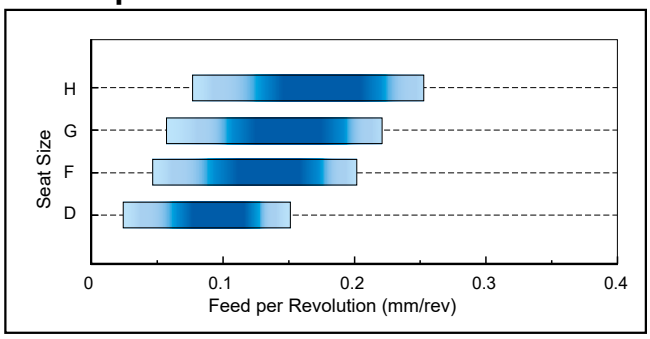
Note 1) VP20RT is the first recommended grade for general materials.
Note 2) For VP10RT, VP20RT, VP30RT and MY5015, wet cutting is recommended.

■ Feed per Revolution

GM Chipbreaker



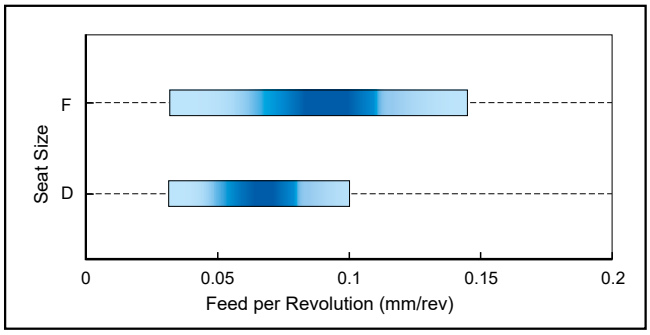
GS Chipbreaker



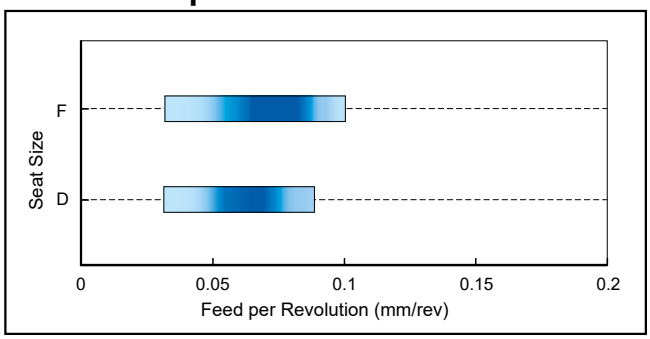
Chipbreaker	Feed per Revolution (mm/rev)			
	Seat Size D	Seat Size F	Seat Size G	Seat Size H
GM Chipbreaker	0.05−0.20	0.07−0.26	0.08−0.32	0.10−0.35
GS Chipbreaker	0.03−0.15	0.05−0.20	0.06−0.22	0.08−0.25

■ Cutting Off Feed per Revolution

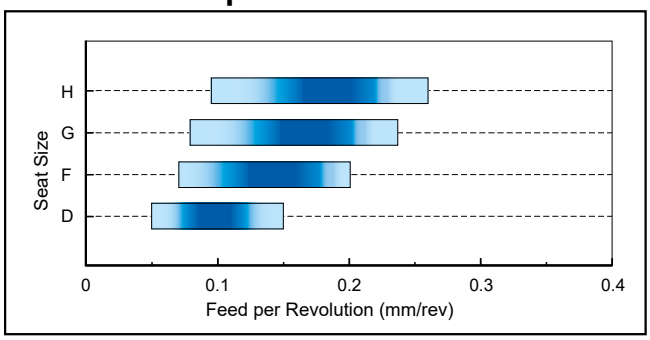
R05-GS Chipbreaker



R08-GS Chipbreaker



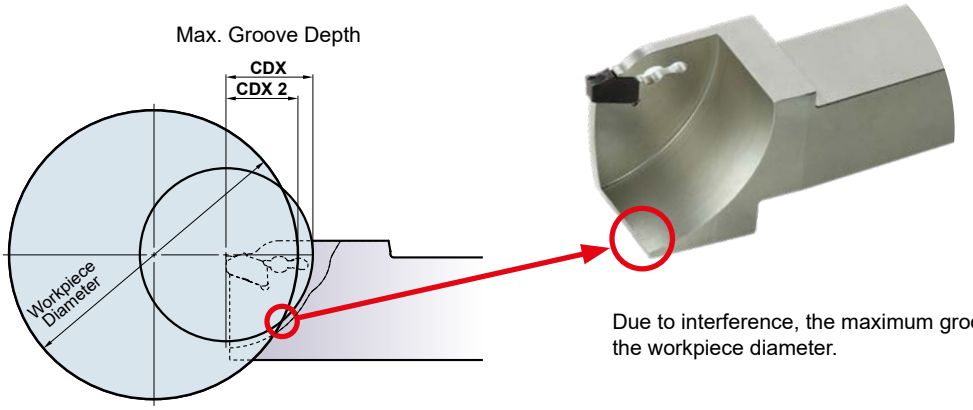
R/L05-GM Chipbreaker



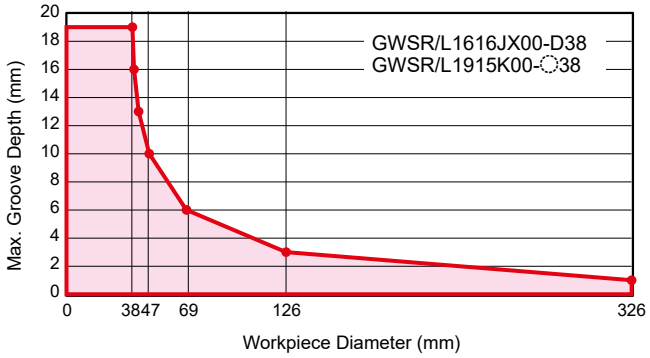
Chipbreaker	PSIPR	Hand	Feed per Revolution (mm/rev)			
			Seat Size D	Seat Size F	Seat Size G	Seat Size H
R05-GS	5°	R	0.03−0.10	0.03−0.14	–	–
R08-GS	8°	R	0.03−0.08	0.03−0.14	–	–
R05-GM	5°	R/L	0.05−0.15	0.07−0.20	0.08−0.23	0.10−0.26

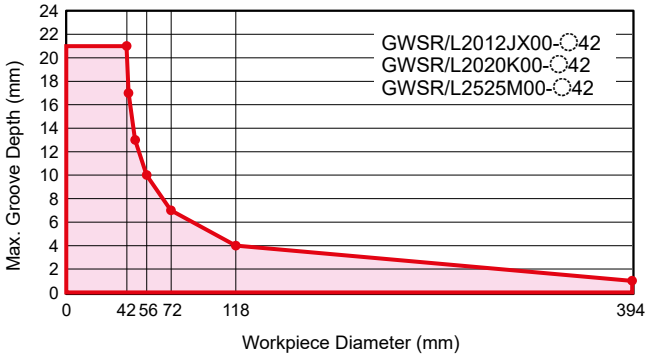
LIMITATION OF THE MAXIMUM GROOVE DEPTH [For External Grooving]

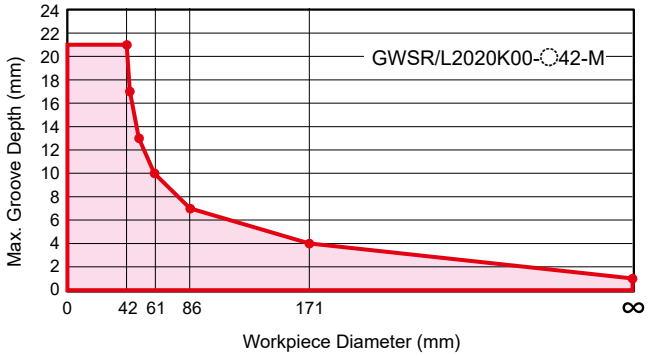
The maximum groove depth is limited by the workpiece diameter.

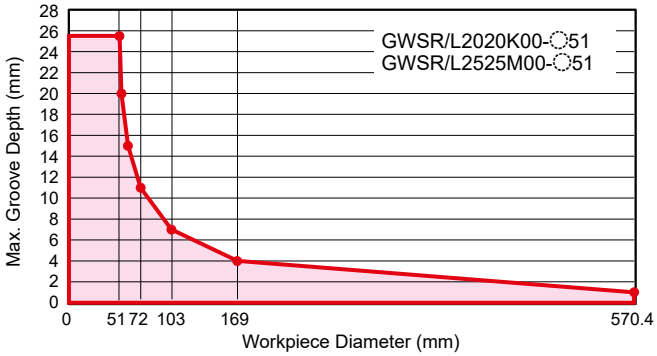


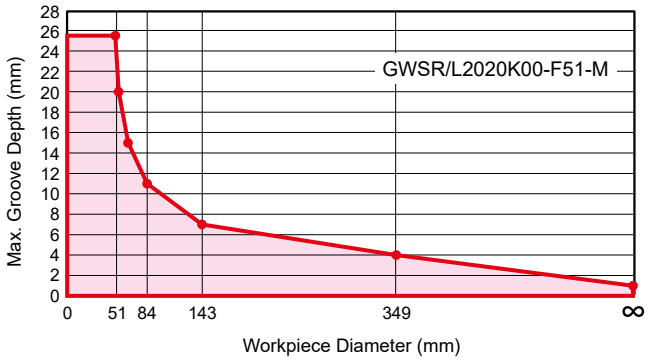
Due to interference, the maximum groove depth is limited by the workpiece diameter.

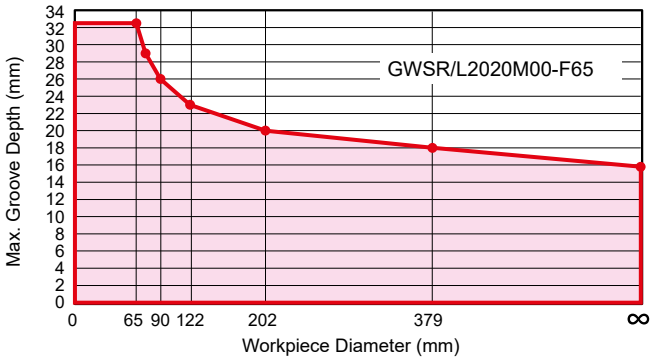


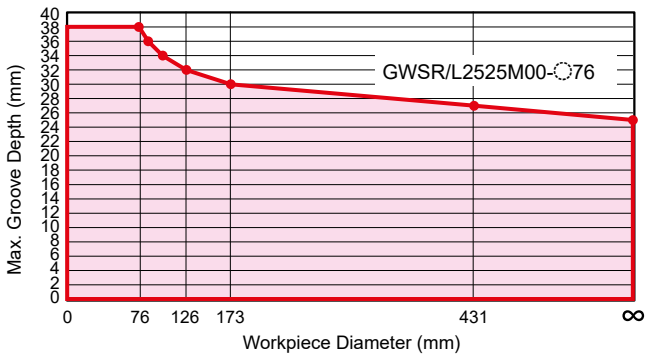










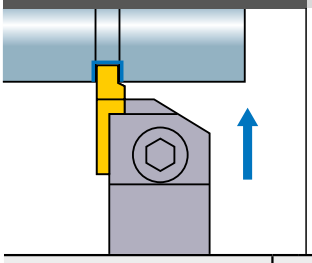


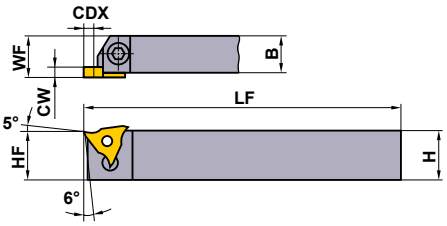
Memo

MG HOLDER

- Clamp-on type
- Positive insert suffers from negligible chattering and thus produces a good finished surface.
- Cutting width CW 1.25–6.0mm

MGH — External grooving





Right hand tool holder shown.

Order Number	Stock R	Stock L	Insert Number		Dimensions(mm) CW	CDX	H	B	LF	HF	WF
MGHR/L2020K3315	●	●	MGTR/L	33125 I 33400	1.25	1.2	20	20	125	20	20.2
					1.45	1.5					
					1.5≤CW≤2.3	3.0					
MGHR/L2020K3323	●	●			2.3＜CW≤3.3	3.0	20	20	125	20	20.2
MGHR/L2525M3315	●	●			1.25	1.2	25	25	150	25	25.2
					1.45	1.5					
					1.5≤CW≤2.3	3.0					
MGHR/L2525M3323	●	●			2.3＜CW≤3.3	3.0	25	25	150	25	25.2
MGHR/L2525M3333	★	●			3.3＜CW≤4.7	3.0	25	25	150	25	25.2
MGHR/L2020K4315	●	●	MGTR/L	43125 I 43470	1.25	1.2 (2.0)*	20	20	125	20	20.2
					1.45	1.5					
					1.5≤CW≤2.3	3.0 (3.5)*					
MGHR/L2020K4323	●	●			2.3＜CW≤3.3	4.5 (4.0)*	20	20	125	20	20.2
MGHR/L2020K4333	●	●			3.3＜CW≤4.7(4.0)*	4.5 (5.0)*	20	20	125	20	20.2
MGHR/L2525M4315	●	●			1.25	1.2 (2.0)*	25	25	150	25	25.2
					1.45	1.5					
					1.5≤CW≤2.3	3.0 (3.5)*					
MGHR/L2525M4323	●	●			2.3＜CW≤3.3	4.5 (4.0)*	25	25	150	25	25.2
MGHR/L2525M4333	★	●			3.3＜CW≤4.7(4.0)*	4.5 (5.0)*	25	25	150	25	25.2
MGHR/L2525M4447	●	●	MGTR/L	44500 I 44600	4.7＜CW≤6.3	4.5	25	25	150	25	25.2

* Dimensions when installing the CBN insert.

SPARE PARTS

Order Number		*		
	Clamp Bridge	Clamp Screw	Spring	Wrench
MGHR/L2020K3315 I MGHR/L2525M4447	MTK1R/L	HBH06020	MES3	HKY40R

* Clamp Torque (N • m) : HBH06020=7.0

RECOMMENDED CUTTING CONDITIONS

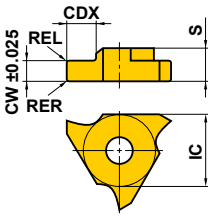
	Material	Hardness	Grade	Cutting Speed (m/min)	Feed (mm/rev)
P	Carbon Steel Alloy Steel	180–280HB	**VP20MF**	120 (100–140)	0.14 (0.03–0.25)
			NX2525	130 (100–160)	0.12 (0.03–0.2)
M	Stainless Steel	≤200HB	**VP20MF**	120 (100–140)	0.12 (0.03–0.18)
K	Gray Cast Iron	Tensile Strength ≤350MPa	**VP20MF**	120 (100–140)	0.12 (0.03–0.18)

Note 1) For machining a narrow groove, apply a lower feed within the recommended range.

● : Inventory maintained. ★ : Inventory maintained in Japan.
(10 inserts in one case) (CBN inserts are available in 1 piece in one case.)

INSERTS

Order Number	Stock						Dimensions (mm)					Geometry
	Coated		Cermet		Carbide							
	VP20MF		NX2525		UTi20T		CW	CDX	IC	S	RER/L	
	R	L	R	L	R	L						
MGTR/L33125	★	★	★		●	●	1.25	1.2	9.525	4.76	0.2	**MGTR/L...**
MGTR/L33145	★	★	★		●	★	1.45	1.5	9.525	4.76	0.2	
MGTR/L33150	★	★	★	★	●	●	1.5	3	9.525	4.76	0.2	
MGTR/L33175	★	★	★	★	●	●	1.75	3	9.525	4.76	0.2	
MGTR/L33200	★	★	★	★	●	●	2	3	9.525	4.76	0.2	
MGTR/L33230	★	★			●	●	2.3	3	9.525	4.76	0.2	
MGTR/L33250	★	★	★	★	●	●	2.5	3	9.525	4.76	0.3	
MGTR/L33270	★	★			●	★	2.7	3	9.525	4.76	0.3	
MGTR/L33280	★	★			●	★	2.8	3	9.525	4.76	0.3	
MGTR/L33300	★	★	★	★	●	●	3	3	9.525	4.76	0.3	
MGTR/L33320	★	★			●		3.2	3	9.525	4.76	0.3	
MGTR/L33330		★			●	★	3.3	3	9.525	4.76	0.3	
MGTR/L33350	★	★	★		●	★	3.5	3	9.525	4.76	0.3	
MGTR/L33400	★	★	★	★	●	●	4	3	9.525	4.76	0.3	
MGTR/L43125	★	★	★	★	●	●	1.25	1.2	12.7	4.76	0.2	
MGTR/L43145	★	★		★	●	★	1.45	1.5	12.7	4.76	0.2	
MGTR/L43150	★	★	★	●	●	●	1.5	3	12.7	4.76	0.2	
MGTR/L43175	★	★	★	★	●	●	1.75	3	12.7	4.76	0.2	
MGTR/L43200	★	★	★	●	●	●	2	3	12.7	4.76	0.2	
MGTR/L43230	★	★	●	★	●	●	2.3	3	12.7	4.76	0.2	
MGTR/L43250	★	★	★	★	●	●	2.5	4.5	12.7	4.76	0.3	
MGTR/L43260	★	★	★		●	●	2.6	4.5	12.7	4.76	0.3	
MGTR/L43270	★	★			●	★	2.7	4.5	12.7	4.76	0.3	
MGTR/L43280		★		★	●	●	2.8	4.5	12.7	4.76	0.3	
MGTR/L43300	★	★	★	★	●	●	3	4.5	12.7	4.76	0.3	
MGTR/L43320	★				●	●	3.2	4.5	12.7	4.76	0.3	
MGTR/L43330		★		★	●	●	3.3	4.5	12.7	4.76	0.3	
MGTR/L43350	★	★	★	★	●	●	3.5	4.5	12.7	4.76	0.3	
MGTR/L43400	★	★	★		●	●	4	4.5	12.7	4.76	0.3	
MGTR/L43420	★	★	★		●	●	4.2	4.5	12.7	4.76	0.4	
MGTR/L43430	★	★	★		●	●	4.3	4.5	12.7	4.76	0.4	
MGTR/L43450	★	★	●	★	●	●	4.5	4.5	12.7	4.76	0.4	
MGTR/L43470	★	★	★	★	●	★	4.7	4.5	12.7	4.76	0.4	
MGTR/L44500	★	★			●	★	5	4.5	12.7	6.35	0.4	
MGTR/L44550	★				●		5.5	4.5	12.7	6.35	0.4	
MGTR/L44600	★				●	●	6	4.5	12.7	6.35	0.4	

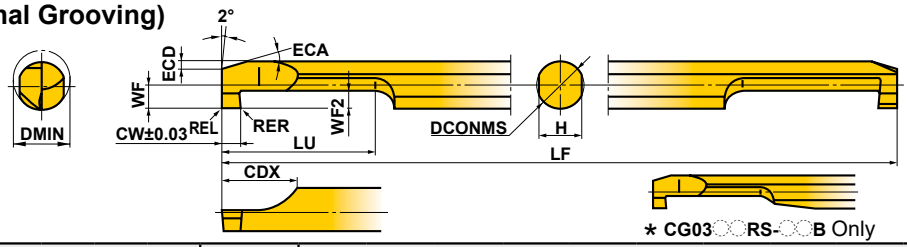


Right hand insert shown.

SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

MICRO-MINI TWIN

■CG TYPE (Internal Grooving)

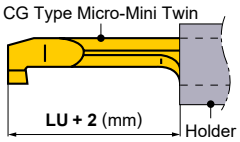


Order Number	Stock				Chipbreaker	Dimensions (mm)											
	Micro Grain Carbide			Coated													
	NEW MS7025	NEW MS9025	TF15	VP15TF		DMIN	CW	WF2	RER/L	DCONMS	LF	LU	CDX	WF	H	ECA	ECD
CG0305RS-10			★	●	Without	3	1	1	0.05	3	50	5	6	1.3	2.7	15°	0.3
CG0305RS-10B	●	●	★	★	With	3	1	1	0.05	3	50	5	6	1.3	2.7	15°	0.3
CG0306RS-20			★	★	Without	3	2	1	0.1	3	50	6	6	1.3	2.7	15°	0.3
CG0306RS-20B	●	●	★	★	With	3	2	1	0.1	3	50	6	6	1.3	2.7	15°	0.3
CG03RS-10			★	●	Without	3	1	1	0.05	3	50	10	6	1.3	2.7	15°	0.3
CG03RS-10B	●	●	★	★	With	3	1	1	0.05	3	50	10	6	1.3	2.7	15°	0.3
CG03RS-20			★	★	Without	3	2	1	0.1	3	50	11	6	1.3	2.7	15°	0.3
CG03RS-20B	●	●	★	★	With	3	2	1	0.1	3	50	11	6	1.3	2.7	15°	0.3
CG0407RS-10			★	★	Without	4	1	1.5	0.05	4	60	7	7	1.8	3.6	15°	0.5
CG0407RS-10B	●	●	★	★	With	4	1	1.5	0.05	4	60	7	7	1.8	3.6	15°	0.5
CG0408RS-20			★	★	Without	4	2	1.5	0.1	4	60	8	7	1.8	3.6	15°	0.5
CG0408RS-20B	●	●	★	★	With	4	2	1.5	0.1	4	60	8	7	1.8	3.6	15°	0.5
CG04RS-10			★	●	Without	4	1	1.5	0.05	4	60	15	7	1.8	3.6	15°	0.5
CG04RS-10B	●	●	★	★	With	4	1	1.5	0.05	4	60	15	7	1.8	3.6	15°	0.5
CG04RS-20			★	★	Without	4	2	1.5	0.1	4	60	16	7	1.8	3.6	15°	0.5
CG04RS-20B	●	●	★	●	With	4	2	1.5	0.1	4	60	16	7	1.8	3.6	15°	0.5
CG0510RS-10			★	●	Without	5	1	2	0.05	5	70	10	8	2.3	4.5	15°	0.7
CG0510RS-10B	●	●	★	●	With	5	1	2	0.05	5	70	10	8	2.3	4.5	15°	0.7
CG0511RS-20			★	●	Without	5	2	2	0.1	5	70	11	8	2.3	4.5	15°	0.7
CG0511RS-20B	●	●	★	★	With	5	2	2	0.1	5	70	11	8	2.3	4.5	15°	0.7
CG05RS-10			★	●	Without	5	1	2	0.05	5	70	20	8	2.3	4.5	15°	0.7
CG05RS-10B	●	●	★	★	With	5	1	2	0.05	5	70	20	8	2.3	4.5	15°	0.7
CG05RS-20			●	★	Without	5	2	2	0.1	5	70	21	8	2.3	4.5	15°	0.7
CG05RS-20B	●	●	★	●	With	5	2	2	0.1	5	70	21	8	2.3	4.5	15°	0.7
CG0610RS-10			★	●	Without	6	1	2	0.05	6	75	10	8	2.8	5.4	15°	0.7
CG0610RS-10B	●	●	★	●	With	6	1	2	0.05	6	75	10	8	2.8	5.4	15°	0.7
CG0611RS-20			★	●	Without	6	2	2	0.1	6	75	11	8	2.8	5.4	15°	0.7
CG0611RS-20B	●	●	★	●	With	6	2	2	0.1	6	75	11	8	2.8	5.4	15°	0.7
CG06RS-10			★	●	Without	6	1	2	0.05	6	75	20	8	2.8	5.4	15°	0.7
CG06RS-10B	●	●	●	●	With	6	1	2	0.05	6	75	20	8	2.8	5.4	15°	0.7
CG06RS-20			★	●	Without	6	2	2	0.1	6	75	21	8	2.8	5.4	15°	0.7
CG06RS-20B	●	●	●	●	With	6	2	2	0.1	6	75	21	8	2.8	5.4	15°	0.7
CG0712RS-10			★	●	Without	7	1	2	0.05	7	85	12	8	3.3	6.4	15°	0.7
CG0712RS-10B	●	●	★	●	With	7	1	2	0.05	7	85	12	8	3.3	6.4	15°	0.7
CG0713RS-20			★	★	Without	7	2	2	0.1	7	85	13	8	3.3	6.4	15°	0.7
CG0713RS-20B	●	●	★	★	With	7	2	2	0.1	7	85	13	8	3.3	6.4	15°	0.7
CG07RS-10			★	★	Without	7	1	2	0.05	7	85	25	8	3.3	6.4	15°	0.7
CG07RS-10B	●	●	★	●	With	7	1	2	0.05	7	85	25	8	3.3	6.4	15°	0.7
CG07RS-20			★	●	Without	7	2	2	0.1	7	85	26	8	3.3	6.4	15°	0.7
CG07RS-20B	●	●	●	●	With	7	2	2	0.1	7	85	26	8	3.3	6.4	15°	0.7

● : Inventory maintained. ★ : Inventory maintained in Japan.
(MICRO-MINI TWIN is available in 1 piece in one pack.)

RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Cutting Speed (m/min)	Feed (mm/rev)		Recommended Tool Overhang (mm)
				CG03RS/CG04RS	CG05RS/CG06RS/CG07RS	
P	Carbon Steel · Alloy Steel	180−280HB	80 (40−120)	0.02 (0.01−0.03)	0.03 (0.01−0.05)	CG Type Micro-Mini Twin
M	Stainless Steel	≤200HB	80 (40−120)	0.02 (0.01−0.03)	0.03 (0.01−0.05)	
K	Gray Cast Iron	Tensile Strength ≤350MPa	80 (40−120)	0.03 (0.01−0.05)	0.03 (0.01−0.05)	
N	Non-ferrous Metal	−	120 (80−160)	0.03 (0.01−0.05)	0.05 (0.01−0.08)	



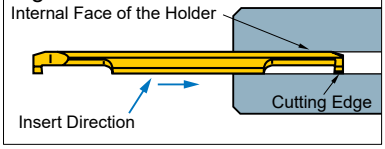
Note 1) Wet cutting is recommended.

■ PRECAUTIONS WHEN USING THE MICRO-MINI TWIN

●When using a holder for general purpose / small automatic lathe:

1 To avoid chipping of the 2nd cutting edge take care when inserting the boring bar into the holder. Refer to fig.1. If the 2nd edge contacts the internal face of the holder there is a possibility that it may chip.

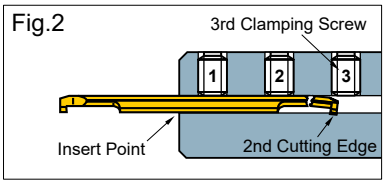
Fig.1



2 When using this type of holder, there is a possibility that damage to the shank and the 2nd cutting edge can occur. Make sure that the clamping screws are tightened to the set torque value. Additionally make sure that there is no clamping screw near the 2nd cutting edge as this can break the boring bar.

◎When using Mitsubishi Materials holders
When using holders with a tool overhang of recommended quantity, ensure that the 3rd clamping screw is removed prior to machining. The set torque value for the clamping screw is 2.0 N•m.

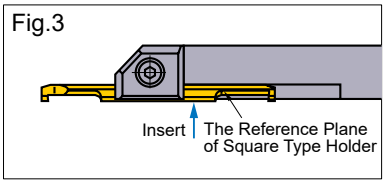
Fig.2



●When using a square type holder:

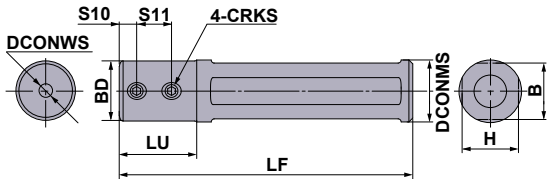
1 When installing the boring bar into the holder, tighten the clamp screws after ensuring the flats on the tool holder are parallel to the reference flats on the micro-mini bar. Refer to fig.3.
2 Make sure that the clamping screws are tightened to the recommended values.
3 Do not tighten the clamp screw without a bar in place, otherwise the bridge will be deformed.

Fig.3



ROUND TYPE HOLDER

NEW



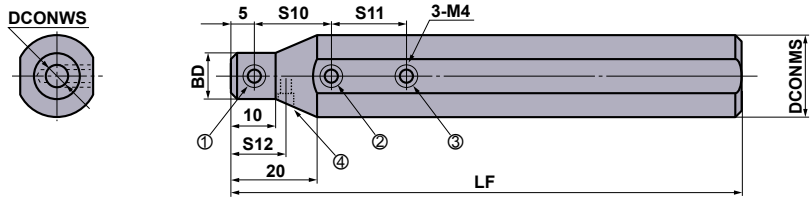
Order Number	Stock	Dimensions (mm)								
		DCONMS	DCONWS	BD	LF	LU	H	B	S10	S11
SLV190085025N	●	19.05	2.5	18.5	85	20	17.8	17.8	4.5	9
SLV190085035N	●	19.05	3.5	18.5	85	20	17.8	17.8	4.5	9
SLV190085045N	●	19.05	4.5	18.5	85	20	17.8	17.8	4.5	9
SLV190110025N	●	19.05	2.5	18.5	110	20	17.8	17.8	4.5	9
SLV190110035N	●	19.05	3.5	18.5	110	20	17.8	17.8	4.5	9
SLV190110045N	●	19.05	4.5	18.5	110	20	17.8	17.8	4.5	9
SLV200085025N	●	20.0	2.5	19.0	85	20	18.8	18.8	4.5	9
SLV200085035N	●	20.0	3.5	19.0	85	20	18.8	18.8	4.5	9
SLV200085045N	●	20.0	4.5	19.0	85	20	18.8	18.8	4.5	9
SLV220135025N	●	22.0	2.5	20.0	135	20	20.8	20.8	4.5	9
SLV220135035N	●	22.0	3.5	20.0	135	20	20.8	20.8	4.5	9
SLV220135045N	●	22.0	4.5	20.0	135	20	20.8	20.8	4.5	9
SLV250067025N	●	25.0	2.5	20.0	67	20	23.9	23.9	4.5	9
SLV250067035N	●	25.0	3.5	20.0	67	20	23.9	23.9	4.5	9
SLV250067045N	●	25.0	4.5	20.0	67	20	23.9	23.9	4.5	9
SLV250110025N	●	25.0	2.5	20.0	110	20	23.9	23.9	4.5	9
SLV250110035N	●	25.0	3.5	20.0	110	20	23.9	23.9	4.5	9
SLV250110045N	●	25.0	4.5	20.0	110	20	23.9	23.9	4.5	9
SLV254085025N	●	25.4	2.5	20.0	85	20	24.4	24.4	4.5	9
SLV254085035N	●	25.4	3.5	20.0	85	20	24.4	24.4	4.5	9
SLV254085045N	●	25.4	4.5	20.0	85	20	24.4	24.4	4.5	9
SLV254110025N	●	25.4	2.5	20.0	110	20	24.4	24.4	4.5	9
SLV254110035N	●	25.4	3.5	20.0	110	20	24.4	24.4	4.5	9
SLV254110045N	●	25.4	4.5	20.0	110	20	24.4	24.4	4.5	9

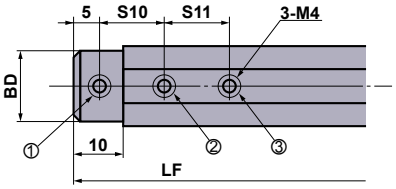
SPARE PARTS

Holder Type	Clamp Screw	Wrench	Clamp Torque (N • m)
SLV○○○○○○025N	HSS04005	HKY20R	2.0
SLV○○○○○○035N	HSS04005	HKY20R	2.0
SLV○○○○○○045N	HSS04005	HKY20R	2.0

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

ROUND TYPE HOLDER





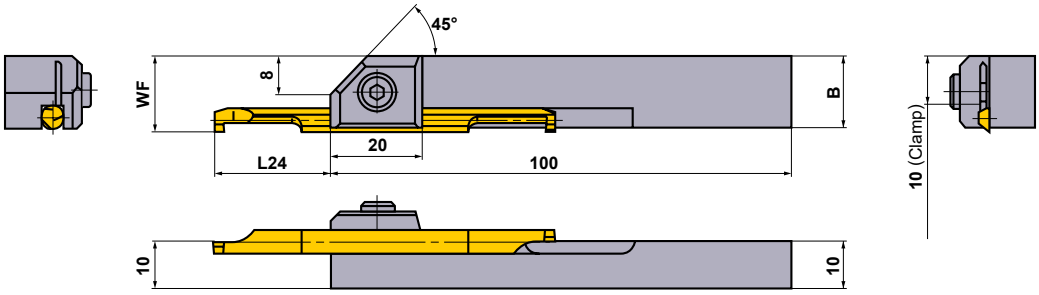
RBH158□□N, RBH16□□N, RBH190□□N

RBH22□□N has a temporary set screw for different machine specifications. (Represented by number 4)

Order Number	Stock	Dimensions (mm)							MICRO-MINI C	MICRO-MINI TWIN CG	∗1 Clamp Screw				Wrench	Torque (N • m)
		DCONMS	DCONWS	BD	LF	S10	S11	S12			①	②	③	④		
RBH15820N	★	15.875	2	15	100	10	—	—	—		B	B	—	—	HKY20F	2.0
RBH15830N	★	15.875	3	15	100	10	10	—	03FR-BLS	03RS-□□(B)	A	A	A	—	HKY20F	2.0
RBH15840N	★	15.875	4	15	100	15	15	—	04FR-BLS	04RS-□□(B)	A	A	A	—	HKY20F	2.0
RBH15850N	★	15.875	5	15	100	15	15	—	05HR-BLS	05RS-□□(B)	A	A	A	—	HKY20F	2.0
RBH15860N	★	15.875	6	15	100	15	15	—	—	06RS-□□(B)	A	A	A	—	HKY20F	2.0
RBH15870N	★	15.875	7	15	100	20	20	—	—	07RS-□□(B)	A	A	A	—	HKY20F	2.0
RBH15880N	★	15.875	8	15	100	20	20	—	—		D	D	D	—	HKY20F	2.0
RBH1620N	●	16	2	15	100	10	—	—	—		B	B	—	—	HKY20F	2.0
RBH1630N	●	16	3	15	100	10	10	—	03FR-BLS	03RS-□□(B)	A	A	A	—	HKY20F	2.0
RBH1640N	●	16	4	15	100	15	15	—	04FR-BLS	04RS-□□(B)	A	A	A	—	HKY20F	2.0
RBH1650N	●	16	5	15	100	15	15	—	05HR-BLS	05RS-□□(B)	A	A	A	—	HKY20F	2.0
RBH1660N	●	16	6	15	100	15	15	—	—	06RS-□□(B)	A	A	A	—	HKY20F	2.0
RBH1670N	●	16	7	15	100	20	20	—	—	07RS-□□(B)	A	A	A	—	HKY20F	2.0
RBH1680N	★	16	8	15	100	20	20	—	—		D	D	D	—	HKY20F	2.0
RBH19020N	★	19.05	2	18	125	10	—	—	—		C	C	—	—	HKY20F	2.0
RBH19030N	★	19.05	3	18	125	10	10	—	03FR-BLS	03RS-□□(B)	B	B	B	—	HKY20F	2.0
RBH19040N	★	19.05	4	18	125	15	15	—	04FR-BLS	04RS-□□(B)	B	B	B	—	HKY20F	2.0
RBH19050N	★	19.05	5	18	125	15	15	—	05HR-BLS	05RS-□□(B)	B	B	B	—	HKY20F	2.0
RBH19060N	★	19.05	6	18	125	15	15	—	—	06RS-□□(B)	B	B	B	—	HKY20F	2.0
RBH19070N	★	19.05	7	18	125	20	20	—	—	07RS-□□(B)	B	B	B	—	HKY20F	2.0
RBH19080N	★	19.05	8	18	125	20	20	—	—		A	A	A	—	HKY20F	2.0
RBH2020N	★	20	2	11	125	10	—	—	—		A	A	—	—	HKY20F	2.0
RBH2030N	★	20	3	12	125	10	10	—	03FR-BLS	03RS-□□(B)	A	A	B	—	HKY20F	2.0
RBH2040N	★	20	4	13	125	15	15	—	04FR-BLS	04RS-□□(B)	A	B	B	—	HKY20F	2.0
RBH2050N	★	20	5	14	125	15	15	—	05HR-BLS	05RS-□□(B)	A	B	B	—	HKY20F	2.0
RBH2060N	★	20	6	15	125	15	15	—	—	06RS-□□(B)	A	B	B	—	HKY20F	2.0
RBH2070N	★	20	7	16	125	20	20	—	—	07RS-□□(B)	A	B	B	—	HKY20F	2.0
RBH2080N	★	20	8	17	125	20	20	—	—		A	A	A	—	HKY20F	2.0
RBH2220N	★	22	2	11	125	10	—	10	—		A	B	—	A	HKY20F	2.0
RBH2230N	★	22	3	12	125	10	10	10	03FR-BLS	03RS-□□(B)	A	B	C	A	HKY20F	2.0
RBH2240N	★	22	4	13	125	15	15	12.5	04FR-BLS	04RS-□□(B)	A	B	B	A	HKY20F	2.0
RBH2250N	★	22	5	14	125	15	15	12.5	05HR-BLS	05RS-□□(B)	A	B	B	A	HKY20F	2.0
RBH2260N	★	22	6	15	125	15	15	15	—	06RS-□□(B)	A	B	B	A	HKY20F	2.0
RBH2270N	★	22	7	16	125	20	20	15	—	07RS-□□(B)	A	B	B	A	HKY20F	2.0
RBH2280N	★	22	8	17	125	20	20	15	—		A	B	B	A	HKY20F	2.0
RBH2520N	★	25	2	11	150	10	—	—	—		A	B	—	—	HKY20F	2.0
RBH2530N	★	25	3	12	150	10	10	—	03FR-BLS	03RS-□□(B)	A	B	C	—	HKY20F	2.0
RBH2540N	★	25	4	13	150	15	15	—	04FR-BLS	04RS-□□(B)	A	C	C	—	HKY20F	2.0
RBH2550N	★	25	5	14	150	15	15	—	05HR-BLS	05RS-□□(B)	A	C	C	—	HKY20F	2.0
RBH2560N	★	25	6	15	150	15	15	—	—	06RS-□□(B)	A	C	C	—	HKY20F	2.0
RBH2570N	★	25	7	16	150	20	20	—	—	07RS-□□(B)	A	C	C	—	HKY20F	2.0
RBH2580N	★	25	8	17	150	20	20	—	—		A	B	B	—	HKY20F	2.0
RBH25420N	★	25.4	2	11	150	10	—	—	—		A	B	—	—	HKY20F	2.0
RBH25430N	★	25.4	3	12	150	10	10	—	03FR-BLS	03RS-□□(B)	A	B	C	—	HKY20F	2.0
RBH25440N	★	25.4	4	13	150	15	15	—	04FR-BLS	04RS-□□(B)	A	C	C	—	HKY20F	2.0
RBH25450N	★	25.4	5	14	150	15	15	—	05HR-BLS	05RS-□□(B)	A	C	C	—	HKY20F	2.0
RBH25460N	★	25.4	6	15	150	15	15	—	—	06RS-□□(B)	A	C	C	—	HKY20F	2.0
RBH25470N	★	25.4	7	16	150	20	20	—	—	07RS-□□(B)	A	C	C	—	HKY20F	2.0
RBH25480N	★	25.4	8	17	150	20	20	—	—		A	B	B	—	HKY20F	2.0

∗1 Order number of clamp screw A=HSS04004, B=HSS04006, C=HSS04008

SQUARE TYPE HOLDER



Order Number	Stock	Dimensions (mm)				MICRO-MINI TWIN **CG**	Clamp Screw	Wrench	Torque (N • m)
		MICRO-MINI TWIN **CG**							
		B	**WF**	**L24** *					
				Width of Cutting Edge 1mm	Width of Cutting Edge 2mm				
SBH1030R	★	13.8	13.8	13－17.5 (14)	14－16.5 (15)	03RS-10(B),03RS-20(B)	HSC05012	HKY40R	9.5
SBH1040R	★	14.7	14.8	18－22.5 (19)	19－21.5 (20)	04RS-10(B),04RS-20(B)	HSC05012	HKY40R	9.5
SBH1050R	★	15.6	15.8	23－27.5 (24)	24－26.5 (25)	05RS-10(B),05RS-20(B)	HSC05012	HKY40R	9.5
SBH1060R	★	16.5	16.8	23－32.5 (24)	24－31.5 (25)	06RS-10(B),06RS-20(B)	HSC05012	HKY40R	9.5
SBH1070R	★	17.4	17.8	28－38 (29)	29－37 (30)	07RS-10(B),07RS-20(B)	HSC05012	HKY40R	9.5

* L24 is the length of overhang for sufficient clamping, and ( ) is the recommended length for steel machining and for general purpose.
Note 1) The MICRO-DEX and the MICRO-MINI cannot be fitted to square holders.

★ : Inventory maintained in Japan.

SPARE PARTS ➢ N001

Memo

HOW TO READ THE STANDARD OF THREADING TOOLS

● How this section page is organised

① Classified according to external or internal applications.
② Sub-classified according to product series.
(Refer to the index on the next page.)

FIGURE SHOWING THE TOOLING APPLICATION
Uses illustrations and arrows to depict the available machining applications, such as external and internal threading.

TYPE OF TOOL HOLDER
Indicates the initial letters for the order number and cutting applications.

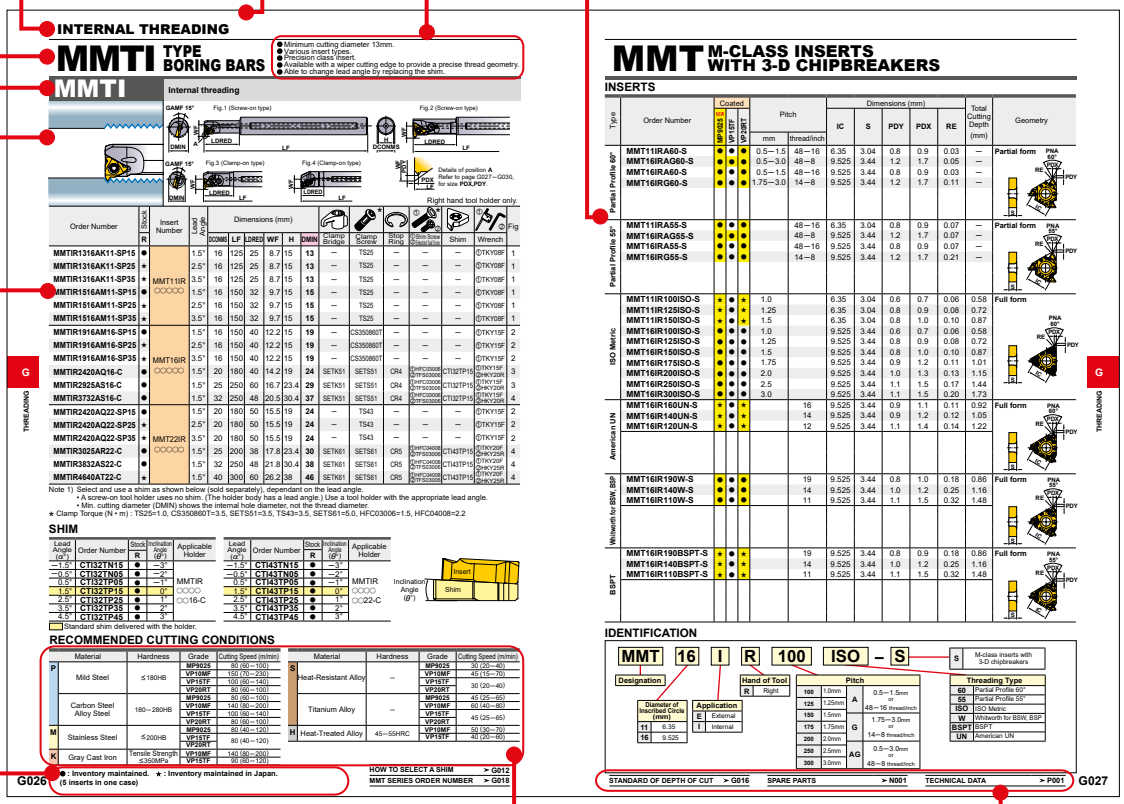
TITLE OF PRODUCT

INDICATION OF EXTERNAL/ INTERNAL APPLICATION

PRODUCT SECTION

PRODUCT FEATURES

STANDARDS FOR APPLICABLE INSERTS
Indicates stock status, dimensions, etc. for applicable inserts.



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

PAGE REFERENCE ·SPARE PARTS
Indicates reference pages, including the above, on the right hand page of each double-page spread.

PRODUCT STANDARDS
Indicates order numbers, stock status (per right/left hand), applicable inserts, holder dimensions, and spare parts.

RECOMMENDED CUTTING CONDITIONS
For each material classification, indicates recommended cutting conditions according to the ISO categories for cutting grades, P, M, K, S and H.

TURNING TOOLS

THREADING

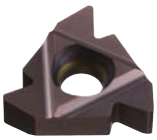
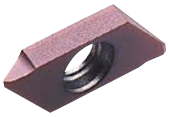
CLASSIFICATION (EXTERNAL) ····· **G002**
CLASSIFICATION (INTERNAL) ····· **G003**
CROSS REFERENCE THREAD PITCH
EXTERNAL ····· **G004**
INTERNAL ····· **G006**
STANDARD THREAD AND CORRESPONDING INSERT / HOLDER ····· **G008**

STANDARD OF THREADING TOOLS
MMT SERIES
FEATURES ····· **G010**
CUTTING CONDITIONS ····· **G012**
STANDARD OF DEPTH OF CUT ····· **G014**
EXTERNAL THREADING
MMTE HOLDER ····· **G019**
MT HOLDER ····· **G024**
INTERNAL THREADING
MMTI TYPE BORING BARS ····· **G026**
MICRO-MINI TWIN ····· **G031**

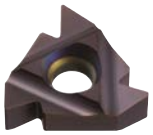
*Alphabetical order index

G031 **CT**
G020 **MMT (EXTERNAL INSERTS)**
G027 **MMT (INTERNAL INSERTS)**
G019 **MMTE**
G026 **MMTI**
G024 **MT1**
G024 **MTH**
G025 **MTT (EXTERNAL INSERTS)**
G034 **RBH**
G032 **SBH**
G033 **SLV**

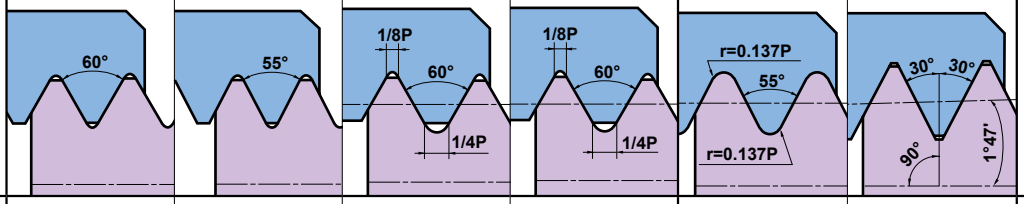
CLASSIFICATION (EXTERNAL)

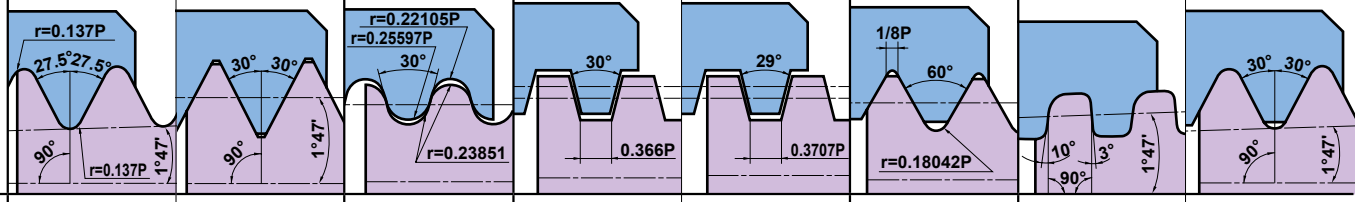
Name of Tool Holder	Insert Shape	Features	Shank Size (H x W x L) (mm)
MMTE Holder G019		●Various insert types. ●Precision class insert. ●Available with a wiper cutting edge to provide a precise thread geometry. ●Able to change lead angle by replacing the shim.	12 x 12 x 100 16 x 16 x 100 20 x 20 x 125 25 x 25 x 150 32 x 32 x 170
MT Holder G024		●Clamp-on type. ●Precision class insert. ●Positive insert suffers from negligible chattering and thus produces a good finished surface.	16 x 16 x 100 20 x 20 x 125 25 x 25 x 150 32 x 32 x 170
SMALL TOOLS **TTAH** D024		●Tools to be used on gang type tool posts. ●Small Shank : 8mm－16mm ●High rigidity vertical insert design. ●Screw is designed for use on both front and back to enable back clamping. ●Most suitable for threading diameters of 2mm or smaller. ●Screw-on type.	8 x 10 x 120 10 x 10 x 120 12 x 12 x 120 16 x 16 x 120

CLASSIFICATION (INTERNAL)

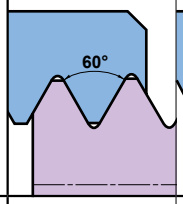
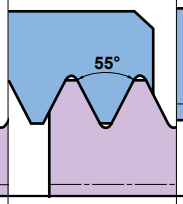
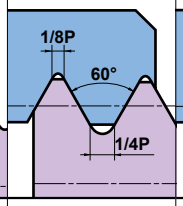
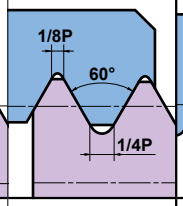
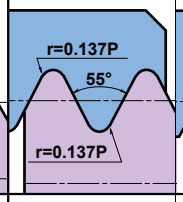
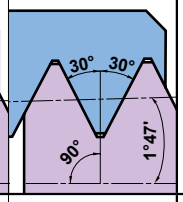
Name of Tool Holder	Insert Shape	Features	Shank Size (Dia. x L x Min. Cutting Dia.) (mm)
MMTI ➔ G026		●Minimum cutting diameter 13mm. ●Various insert types. ●Precision class insert. ●Available with a wiper cutting edge to provide a precise thread geometry. ●Able to change lead angle by replacing shim.	16 x 125 x 13 16 x 150 x 15 20 x 170 x 24 25 x 200 x 29 32 x 250 x 37 40 x 300 x 46
MICRO-MINI TWIN CT TYPE ➔ G031	–	●Minimum cutting diameter 3mm. ●Solid carbide type. ●Economical two cutting edges type.	3 x 50 x 3 3.5 x 60 x 4 4 x 60 x 4.5 4.5 x 70 x 5 5 x 70 x 6 6 x 75 x 7

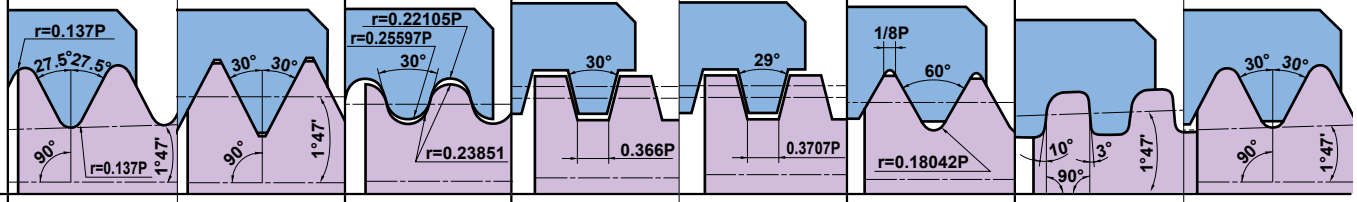
CROSS REFERENCE THREAD PITCH (EXTERNAL)

Application		General machining				Pipe fittings and couplings for gas and water		
Type		Partial Profile 60°	Partial Profile 55°	ISO Metric	American UN	Parallel Pipe Thread Whitworth for BSW, BSP	American NPT	
								
Symbol		M UNC UNF	W	M	UNC UNF	G(PF) Rp(PS) W	NPT	
Holder	Pitch	mm (thread/inch)	thread/inch	mm	thread/inch	thread/inch	thread/inch	
MMT Holder G019	Full form	–	–	0.5 – 5.0	32 – 5	28 – 5	27, 18, 14 11.5, 8	
	Partial form	0.5 – 5.0 (48 – 5)	48 – 5	0.5 – 5.0	48 – 5	–	–	
MT Holder G024	Partial form	0.25 – 4.5 (64 – 6)	20 – 9	0.25 – 4.5	64 – 6	–	–	

	Steam, gas and water pipes		Pipe couplings for food and fire fighting industries	Motion transmissions		Aircraft and aerospace	Oil and gas	
	Taper Pipe Thread BSPT	American NPTF	Round DIN 405	ISO Trapezoidal 30°	American ACME	UNJ	API Buttress Casing	API Round Casing&Tubing
							
	R(PT) Rc(PT) Rp	NPTF	Rd	Tr (TM)	ACME (Tw)	UNJ	BCSG	CSG LCSG
	thread/inch	thread/inch	thread/inch	mm	thread/inch	thread/inch	thread/inch	thread/inch
	28, 19 14, 11	27, 18, 14 11.5, 8	10, 8, 6, 4	1.5, 2 3, 4, 5	12, 10 8, 6, 5	32–8	5	10, 8
	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–

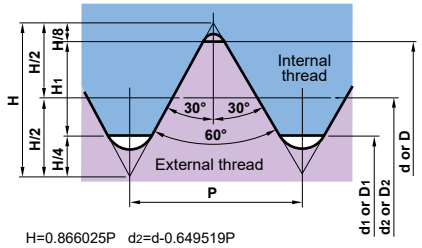
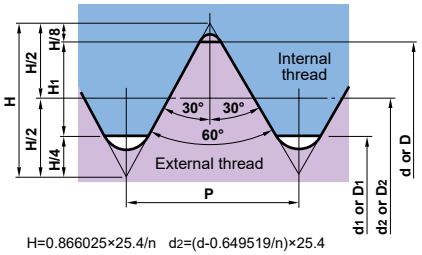
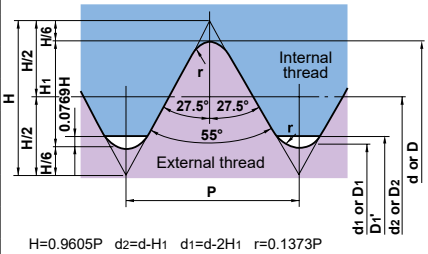
CROSS REFERENCE THREAD PITCH (INTERNAL)

Application		General machining				Pipe fittings and couplings for gas and water		
Type		Partial Profile 60° 	Partial Profile 55° 	ISO Metric 	American UN 	Parallel Pipe Thread Whitworth for BSW, BSP 	American NPT 	
Symbol		M UNC UNF	W	M	UNC UNF	G(PF) Rp(PS) W	NPT	
Holder	Pitch	mm (thread/inch)	thread/inch	mm	thread/inch	thread/inch	thread/inch	
MMT Boring Bar G026	Full form	–	–	0.5 – 5.0	32 – 5	28 – 5	27, 18, 14 11.5, 8	
	Partial form	0.5 – 5.0 (48 – 5)	48 – 5	0.5 – 5.0	48 – 5	–	–	
MICRO-MINI TWIN G031	Partial form	0.5 – 1.75 (36 – 16)	–	0.5 – 1.75	36 – 16	–	–	

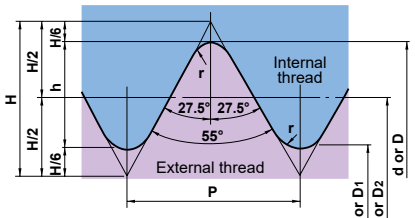
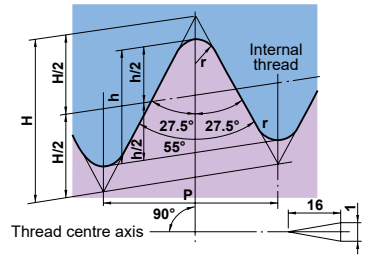
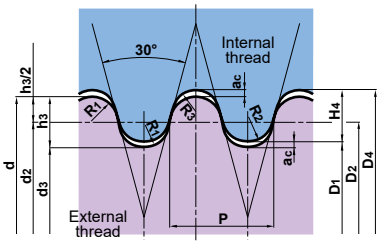
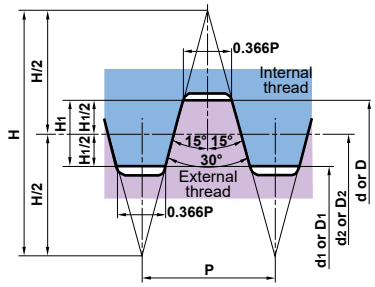
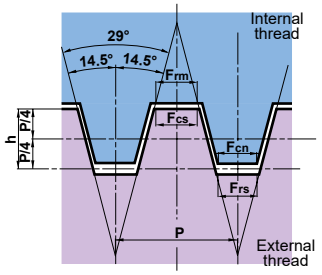
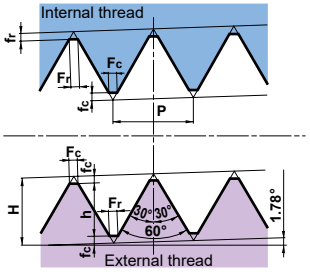
	Steam, gas and water pipes		Pipe couplings for food and fire fighting industries	Motion transmissions		Aircraft and aerospace	Oil and gas	
	Taper Pipe Thread BSPT	American NPTF	Round DIN 405	ISO Trapezoidal 30°	American ACME	UNJ	API Buttress Casing	API Round Casing&Tubing
							
	R(PT) Rc(PT) Rp	NPTF	Rd	Tr (TM)	ACME (Tw)	UNJ	BCSG	CSG LCSG
	thread/inch	thread/inch	thread/inch	mm	thread/inch	thread/inch	thread/inch	thread/inch
	19, 14, 11	14, 11.5, 8	10, 8 6, 4	1.5, 2 3, 4, 5	12, 10 8, 6, 5	–	5	10, 8
	–	–	–	–	–	* –	–	–
	–	–	–	–	–	–	–	–

* When machining an internal UNJ thread, cut an internal hole with the appropriate diameter. Then machine with American UN 60°. In this case, a full form type insert cannot be used.

STANDARD THREAD AND CORRESPONDING INSERT / HOLDER

Thread Name	Standard Thread Type	Type	Ext./Int.	Insert Number	Wiper/ General	Tool Holder	Page
ISO Metric	 H=0.866025P d2=d-0.649519P H1=0.541266P d1=d-1.082532P D=d D2=d2 D1=d1	M	Ext.	MMT○○ER○○○ISO	Wiper	MMTER○○○○○-C	G019
				MMT○○ER○○○ISO-S	Wiper		
				MMT○○ER○○○60	General		
				MMT○○ER○○○60-S	General		
				MTTR/L4360○○	General	MTHR/L○○○○○○4 MT1R/L○○○○○○4	G024
			Int.	MMT○○IR○○○ISO	Wiper	MMTIR○○A○○○-SP○ MMTIR○○A○○○-C	G026
				MMT○○IR○○○ISO-S	Wiper		
				MMT○○IR○○○60	General		
				MMT○○IR○○○60-S	General		
American UN	 H=0.866025×25.4/n d2=(d-0.649519/n)×25.4 H1=0.541266×25.4/n d1=(d-1.082532/n)×25.4 d=(d)×25.4 D=d D2=d2 D1=d1 P=25.4/thread	UNC UNF	Ext.	MMT○○ER○○○UN	Wiper	MMTER○○○○○-C	G019
				MMT○○ER○○○UN-S	Wiper		
				MMT○○ER○○○60	General		
				MMT○○ER○○○60-S	General		
				MTTR/L4360○○	General	MTHR/L○○○○○○4 MT1R/L○○○○○○4	G024
			Int.	MMT○○IR○○○UN	Wiper	MMTIR○○A○○○-SP○ MMTIR○○A○○○-C	G026
				MMT○○IR○○○UN-S	Wiper		
				MMT○○IR○○○60	General		
				MMT○○IR○○○60-S	General		
Whitworth for BSW, BSP	 H=0.9605P d2=d-H1 d1=d-2H1 r=0.1373P H1=0.6403P D1'=d1+2×0.0769H D=d D2=d2 D1=d1 P=25.4/thread	W	Ext.	MMT○○ER○○○W	Wiper	MMTER○○○○○-C	G019
				MMT○○ER○○○W-S	Wiper		
				MMT○○ER○○○55	General		
				MMT○○ER○○○55-S	General		
				MTTR/L4355○○	General	MTHR/L○○○○○○4 MT1R/L○○○○○○4	G024
			Int.	MMT○○IR○○○W	Wiper	MMTIR○○A○○○-SP○ MMTIR○○A○○○-C	G026
				MMT○○IR○○○W-S	Wiper		
				MMT○○IR○○○55	General		
				MMT○○IR○○○55-S	General		

Wiper : Insert order number is determined by the selected pitch.
General : An insert is applicable to several pitch types.

Thread Name	Standard Thread Type	Type	Ext./Int.	Insert Number	Wiper/ General	Tool Holder	Page
Parallel Pipe Thread	 H=0.960491P d2=d-h d1=d-2h r=0.137329P h=0.640327 D=d D2=d2 D1=d1 25.4/ thread	PF G Rp	Ext.	MMT○○ER○○○W	Wiper	MMTER○○○○○-C	G019
				MMT○○ER○○○W-S	Wiper		
			Int.	MMT○○IR○○○W	Wiper	MMTIR○○A○○○-SP○ MMTIR○○A○○○-C	G026
				MMT○○IR○○○W-S	Wiper		
BSPT	 H=0.960237P h=0.640327 r=0.137278P P=25.4/ thread	BSPT	Ext.	MMT○○ER○○○BSPT	Wiper	MMTER○○○○○-C	G019
				MMT○○ER○○○BSPT-S	Wiper		
			Int.	MMT○○IR○○○BSPT	Wiper	MMTIR○○A○○○-SP○ MMTIR○○A○○○-C	G026
				MMT○○IR○○○BSPT-S	Wiper		
Round DIN 405	 ac=0.05×P h3=H4=0.5×P R1=0.238507×P R2=0.255967×P R3=0.221047×P	Rd	Ext.	MMT○○ER○○○RD	Wiper	MMTER○○○○○-C	G019
			Int.	MMT○○IR○○○RD	Wiper	MMTIR○○A○○○-SP○ MMTIR○○A○○○-C	G026
ISO Trapezoidal 30°		Tr	Ext.	MMT○○ER○○○TR	Wiper	MMTER○○○○○-C	G019
			Int.	MMT○○IR○○○TR	Wiper	MMTIR○○A○○○-SP○ MMTIR○○A○○○-C	G026
American ACME		ACME	Ext.	MMT○○ER○○○ACME	Wiper	MMTER○○○○○-C	G019
			Int.	MMT○○IR○○○TACME	Wiper	MMTIR○○A○○○-SP○ MMTIR○○A○○○-C	G026
American NPT	 H=0.866025P h=0.800000p	NPT	Ext.	MMT○○ER○○○NPT	Wiper	MMTER○○○○○-C	G019
			Int.	MMT○○IR○○○NPT	Wiper	MMTIR○○A○○○-SP○ MMTIR○○A○○○-C	G026

Wiper : Insert order number is determined by the selected pitch.
General : An insert is applicable to several pitch types.

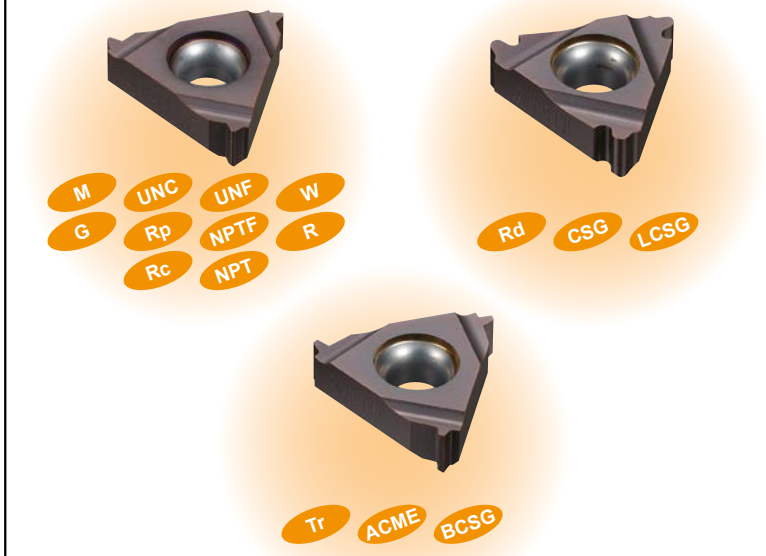
FEATURES OF MMT SERIES

■A WIDE VARIETY OF PRODUCTS

Mitsubishi Materials Threading (MMT) series.

M-CLASS INSERTS WITH 3-D CHIPBREAKERS

G-CLASS GROUND INSERTS

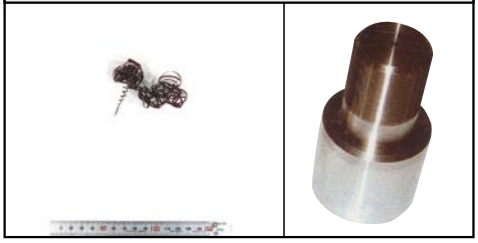


■IDEAL CHIP CONTROL EVEN DURING THE LATTER HALF OF PASSES WHEN CONTINUOUS CHIPS ARE USUALLY PRODUCED. (M-CLASS INSERTS WITH 3-D CHIPBREAKERS)

ISO metric external thread pitch 1.5mm　Final pass (6th pass)

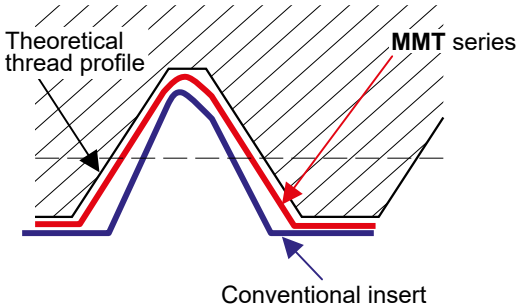
Competitor

MMT



<Cutting Conditions>
Material : DIN 41CrMo4
Insert : MMT16ER150ISO-S
Grade : VP15TF
Cutting speed : 120m/min
Cutting method : Radial Infeed
Depth of cut : Fixed cut area
Pass : 6 times
Coolant : Wet

■A HIGHER LEVEL OF PRECISION THAN CONVENTIONAL INSERTS (G-CLASS GROUND INSERTS)

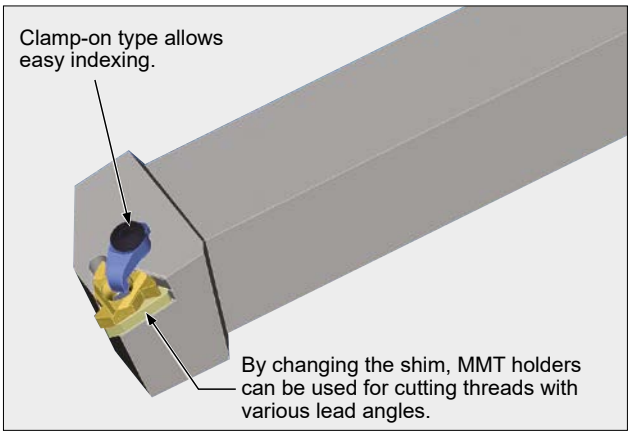


High precision threading can be achieved by using MMT inserts that feature a ground rake faces and peripheral cutting edges.

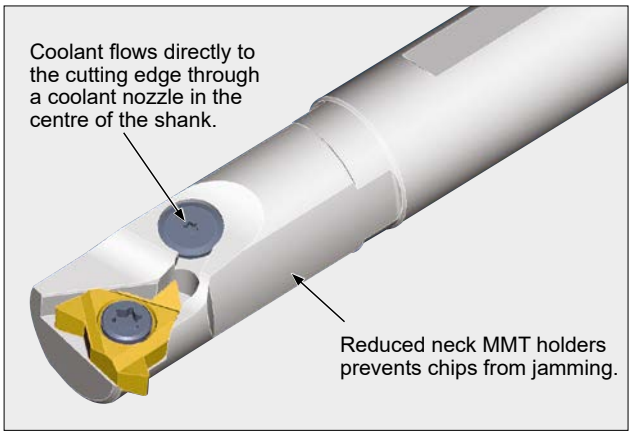
Thread Type	Threading Tolerance
ISO Metric	6g / 6H
American UN	2A / 2B
Whitworth for BSW, BSP	Medium Class A
BSPT	Standard BSPT
Round DIN 405	7h / 7H
ISO Trapezoidal 30°	7e / 7H
American ACME	3G
UNJ	3A
API Buttress Casing	Standard API
API Rounded Casing & Tubing	Standard API RD
American NPT	Standard NPT
American NPTF	Class2

■HOLDER (Use of special surface treatment)

External

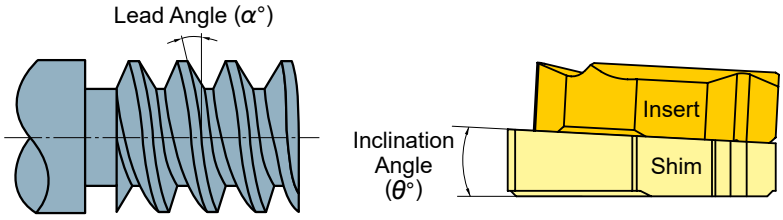


Internal



* Order number of coolant guide screw: TFS03006
(Except MMTIR1316/MMTIR1516)

■SUITABLE FOR THREADING WITH A LARGE LEAD ANGLE



By changing only the shim, MMT holders can be used for turning of threads with various lead angles as well as the turning of left hand threads.

Lead Angle (α°)	Inclination Angle (θ°)
−1.5°	−3°
−0.5°	−2°
0.5°	−1°
1.5°	0°
2.5°	1°
3.5°	2°
4.5°	3°

Standard shim delivered with the holder.

■GRADE

VP10MF (G-class ground inserts only)

● Superior wear and plastic deformation resistance

- High wear and plastic deformation resistance for threading when maintaining the thread form is important. Suitable for continuous high precision machining with extensive tool life.
- Effective in combination with G-class inserts for high precision threading.

VP15TF (G-class ground inserts, M-class inserts with 3-D chipbreakers)

● Wide versatility

- High fracture resistance during low rigidity applications such as bar feed machining. Able to withstand harsh conditions for long periods where conventional inserts would be liable to breakage.
- Effective combination of high cost performance M-class inserts with 3-D chipbreakers.

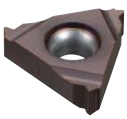
VP20RT (M-class inserts with 3-D chipbreakers)

● Excellent fracture resistance

- Suitable for stainless steel boring and unstable machining where inserts are vulnerable to fracturing.
- Effective combination of high cost performance M-class inserts with 3-D chipbreakers.

■CHOOSING M-CLASS INSERTS WITH 3-D CHIPBREAKERS OR G-CLASS INSERTS

Insert	Chip control	Precision of thread
M-class inserts with 3-D chipbreakers	◎	○

Insert	Chip control	Precision of thread
G-class inserts 	○	◎

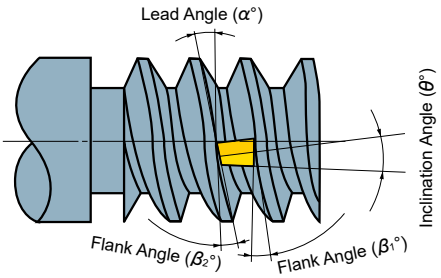
- For ideal chip control and a high cost performance ratio, M-class inserts with 3-D chipbreakers are recommended.
- G-class inserts are recommended where higher precision is required.

CUTTING CONDITIONS OF MMT SERIES

SELECTING A SHIM FOR THE MMT SERIES

■ FLANK ANGLE AND LEAD ANGLE

Lead angle (α) depends on a combination of thread diameter and pitch. Select a shim so that the lead angle of the thread can coincide with the flank angles of the thread and insert (β_1,β_2). No need to change a shim for general threading with an MMT holder. When threading with a small diameter or large pitch, change the shim depending on the lead angle, referring to the table and graph below. When threading left hand threads, change to a shim with a negative inclination angle.



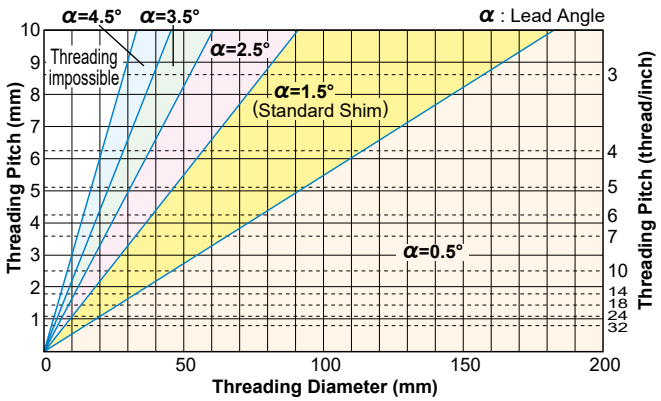
■ SHIM REFERENCE TABLE (THREADING DIAMETER) (Thread angle 60˚ and 55˚)

Pitch (mm) \ Lead Angle	Right Hand Thread (mm)						Left Hand Thread (mm) *		
	Threading impossible	4.5°	3.5°	2.5°	1.5°	0.5°	Threading impossible	−1.5°	−0.5°
0.5	≤Ø1.7	Ø1.7 – Ø2.3	Ø2.3 – Ø3.0	Ø3.0 – Ø4.6	Ø4.6 – Ø9.1	≥Ø9.1	≤Ø3.6	Ø3.6 – Ø9.1	≥Ø9.1
0.75	≤Ø2.5	Ø2.5 – Ø3.4	Ø3.4 – Ø4.6	Ø4.6 – Ø6.8	Ø6.8 – Ø13.7	≥Ø13.7	≤Ø5.5	Ø5.5 – Ø13.7	≥Ø13.7
1	≤Ø3.3	Ø3.3 – Ø4.6	Ø4.6 – Ø6.1	Ø6.1 – Ø9.1	Ø9.1 – Ø18.2	≥Ø18.2	≤Ø7.3	Ø7.3 – Ø18.2	≥Ø18.2
1.25	≤Ø4.1	Ø4.1 – Ø5.7	Ø5.7 – Ø7.6	Ø7.6 – Ø11.4	Ø11.4 – Ø22.8	≥Ø22.8	≤Ø9.1	Ø9.1 – Ø22.8	≥Ø22.8
1.5	≤Ø5.0	Ø5.0 – Ø6.8	Ø6.8 – Ø9.1	Ø9.1 – Ø13.7	Ø13.7 – Ø27.4	≥Ø27.4	≤Ø10.9	Ø10.9 – Ø27.4	≥Ø27.4
1.75	≤Ø5.8	Ø5.8 – Ø8.0	Ø8.0 – Ø10.6	Ø10.6 – Ø16.0	Ø16.0 – Ø31.9	≥Ø31.9	≤Ø12.8	Ø12.8 – Ø31.9	≥Ø31.9
2	≤Ø6.6	Ø6.6 – Ø9.1	Ø9.1 – Ø12.1	Ø12.1 – Ø18.2	Ø18.2 – Ø36.5	≥Ø36.5	≤Ø14.6	Ø14.6 – Ø36.5	≥Ø36.5
2.5	≤Ø8.3	Ø8.3 – Ø11.4	Ø11.4 – Ø15.2	Ø15.2 – Ø22.8	Ø22.8 – Ø45.6	≥Ø45.6	≤Ø18.2	Ø18.2 – Ø45.6	≥Ø45.6
3	≤Ø9.9	Ø9.9 – Ø13.7	Ø13.7 – Ø18.2	Ø18.2 – Ø27.3	Ø27.3 – Ø54.7	≥Ø54.7	≤Ø21.9	Ø21.9 – Ø54.7	≥Ø54.7
3.5	≤Ø11.6	Ø11.6 – Ø15.9	Ø15.9 – Ø21.3	Ø21.3 – Ø31.9	Ø31.9 – Ø63.8	≥Ø63.8	≤Ø25.5	Ø25.5 – Ø63.8	≥Ø63.8
4	≤Ø13.2	Ø13.2 – Ø18.2	Ø18.2 – Ø24.3	Ø24.3 – Ø36.5	Ø36.5 – Ø72.9	≥Ø72.9	≤Ø29.2	Ø29.2 – Ø72.9	≥Ø72.9
4.5	≤Ø14.9	Ø14.9 – Ø20.5	Ø20.5 – Ø27.3	Ø27.3 – Ø41.0	Ø41.0 – Ø82.1	≥Ø82.1	≤Ø32.8	Ø32.8 – Ø82.1	≥Ø82.1
5	≤Ø16.5	Ø16.5 – Ø22.8	Ø22.8 – Ø30.4	Ø30.4 – Ø45.6	Ø45.6 – Ø91.2	≥Ø91.2	≤Ø36.5	Ø36.5 – Ø91.2	≥Ø91.2

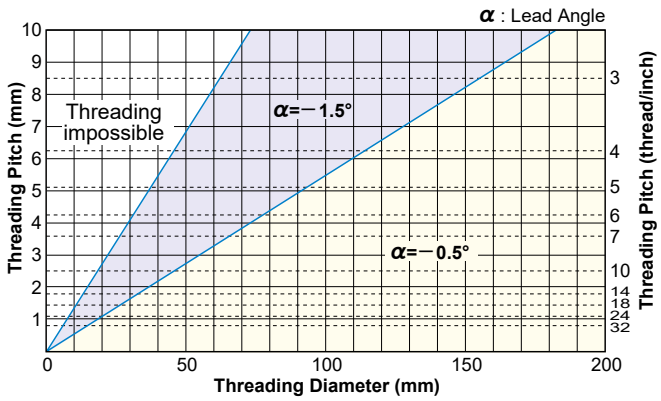
* Back turning in the case of left hand threads.

■ SHIM REFERENCE GRAPH (Thread angle 60˚ and 55˚)

Right Hand Thread



Left Hand Thread



Note 1) When a thread lead angle ≤ the tool flank angle, change the shim to prevent side interference with the insert.
(Refer to the table on page G013 for the calculation of thread lead angle and tool flank angle.)

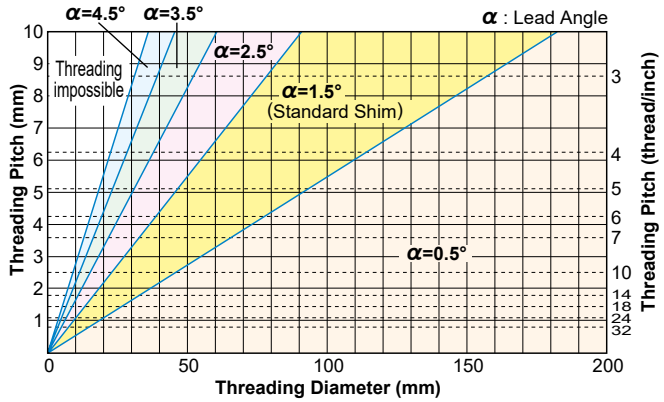
■ SHIM REFERENCE TABLE (THREADING DIAMETER) (Thread angle 30˚ and 29˚)

Pitch (mm) \ Lead Angle	Right Hand Thread (mm)						Left Hand Thread (mm) *		
	Threading impossible	4.5°	3.5°	2.5°	1.5°	0.5°	Threading impossible	−1.5°	−0.5°
0.5	≤Ø1.8	Ø1.8 – Ø2.3	Ø2.3 – Ø3.0	Ø3.0 – Ø4.6	Ø4.6 – Ø9.1	≥Ø9.1	≤Ø4.6	Ø4.6 – Ø9.1	≥Ø9.1
0.75	≤Ø2.7	Ø2.7 – Ø3.4	Ø3.4 – Ø4.6	Ø4.6 – Ø6.8	Ø6.8 – Ø13.7	≥Ø13.7	≤Ø6.8	Ø6.8 – Ø13.7	≥Ø13.7
1	≤Ø3.6	Ø3.6 – Ø4.6	Ø4.6 – Ø6.1	Ø6.1 – Ø9.1	Ø9.1 – Ø18.2	≥Ø18.2	≤Ø9.1	Ø9.1 – Ø18.2	≥Ø18.2
1.25	≤Ø4.5	Ø4.5 – Ø5.7	Ø5.7 – Ø7.6	Ø7.6 – Ø11.4	Ø11.4 – Ø22.8	≥Ø22.8	≤Ø11.4	Ø11.4 – Ø22.8	≥Ø22.8
1.5	≤Ø5.5	Ø5.5 – Ø6.8	Ø6.8 – Ø9.1	Ø9.1 – Ø13.7	Ø13.7 – Ø27.4	≥Ø27.4	≤Ø13.7	Ø13.7 – Ø27.4	≥Ø27.4
1.75	≤Ø6.4	Ø6.4 – Ø8.0	Ø8.0 – Ø10.6	Ø10.6 – Ø16.0	Ø16.0 – Ø31.9	≥Ø31.9	≤Ø16.0	Ø16.0 – Ø31.9	≥Ø31.9
2	≤Ø7.3	Ø7.3 – Ø9.1	Ø9.1 – Ø12.1	Ø12.1 – Ø18.2	Ø18.2 – Ø36.5	≥Ø36.5	≤Ø18.2	Ø18.2 – Ø36.5	≥Ø36.5
2.5	≤Ø9.1	Ø9.1 – Ø11.4	Ø11.4 – Ø15.2	Ø15.2 – Ø22.8	Ø22.8 – Ø45.6	≥Ø45.6	≤Ø22.8	Ø22.8 – Ø45.6	≥Ø45.6
3	≤Ø10.9	Ø10.9 – Ø13.7	Ø13.7 – Ø18.2	Ø18.2 – Ø27.3	Ø27.3 – Ø54.7	≥Ø54.7	≤Ø27.3	Ø27.3 – Ø54.7	≥Ø54.7
3.5	≤Ø12.7	Ø12.7 – Ø15.9	Ø15.9 – Ø21.3	Ø21.3 – Ø31.9	Ø31.9 – Ø63.8	≥Ø63.8	≤Ø31.9	Ø31.9 – Ø63.8	≥Ø63.8
4	≤Ø14.6	Ø14.6 – Ø18.2	Ø18.2 – Ø24.3	Ø24.3 – Ø36.5	Ø36.5 – Ø72.9	≥Ø72.9	≤Ø36.5	Ø36.5 – Ø72.9	≥Ø72.9
4.5	≤Ø16.4	Ø16.4 – Ø20.5	Ø20.5 – Ø27.3	Ø27.3 – Ø41.0	Ø41.0 – Ø82.1	≥Ø82.1	≤Ø41.0	Ø41.0 – Ø82.1	≥Ø82.1
5	≤Ø18.2	Ø18.2 – Ø22.8	Ø22.8 – Ø30.4	Ø30.4 – Ø45.6	Ø45.6 – Ø91.2	≥Ø91.2	≤Ø45.6	Ø45.6 – Ø91.2	≥Ø91.2

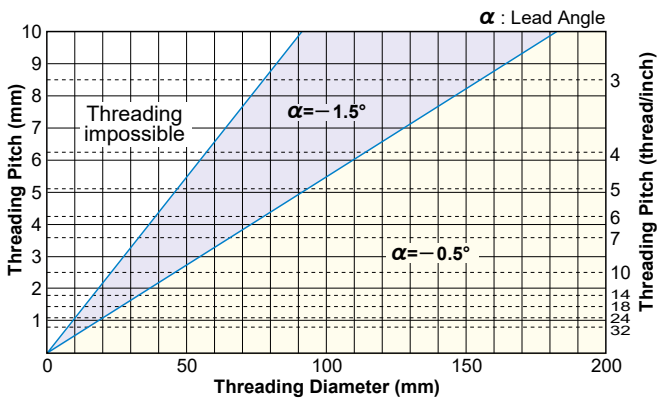
* Back turning in the case of left hand threads.

■ SHIM REFERENCE GRAPH (Thread angle 30˚ and 29˚)

Right Hand Thread



Left Hand Thread



Note 1) When a thread lead angle ≤ the tool flank angle, change the shim to prevent side interference with the insert.
(Refer to the table below for the calculation of thread lead angle and tool flank angle.)

■ SELECTION TABLE

Lead Angle	Opening angle 60°/55° Right Hand Thread		Opening angle 60°/55° Left Hand Thread *		Opening angle 30°/29° Right Hand Thread		Opening angle 30°/29° Left Hand Thread *	
0	P05	P05	N05	N05	P05	P05	N05	N05
0.5	P05	P05	N05	N05	P05	P05	N05	N05
1	P15	P15	N15	N15	P15	P15	N15	N15
1.5	P15	P15	N15	N15	P15	P15	N15	N15
2	P25	P25	N15	N15	P25	P25	Compatible	Compatible
2.5	P25	P25	Compatible	Compatible	P25	P25	Compatible	Compatible
3	P35	P35	Compatible	Compatible	P35	P35	Compatible	Compatible
3.5	P35	P35	Compatible	Compatible	P35	P35	Compatible	Compatible
4	P45	P45	Compatible	Compatible	P45	P45	Compatible	Compatible
4.5	P45	P45	Compatible	Compatible	P45	P45	Compatible	Compatible
5	P45	P45	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible
5.5	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible

* Back turning in the case of left hand threads.

When replacing a shim, check if the difference between the thread lead angle and shim inclination angle is within:
2.5° −0.5° where thread helix angle is 60° (55°)
2° −1° where thread helix angle is 30° (29°)
*** Inclination angle of a standard shim is 0°.**
*** The holder has a 1.5° lead angle.**

■ CALCULATION OF THREAD LEAD ANGLE

$$\tan\alpha = \frac{l}{\pi d} = \frac{nP}{\pi d}$$

α : Lead angle
l : Lead
n : Number of threads
P : Pitch
d : Effective diameter of thread

■ EXAMPLE OF SELECTING A SHIM

- When the thread lead angle is 2.2°
  ①In the case when the thread helix angle is 60°
  (2.2° lead angle) − (2.5° − 0.5°) = -0.3° − 1.7° shim inclination angle is appropriate. Threading with a standard shim (0° inclination angle) is possible. But, replacing with a shim with a 1° inclination angle is recommended, refer to the Standard Shim List on pages G019 and G026.
  ②In the case when the thread helix angle is 30°
  (2.2° lead angle) − (2° − 1°) = -0.2° − 1.2° shim inclination angle is appropriate. Replacing with a shim with a 1° inclination angle is recommended, referring to the Standard Shim List on pages G019 and G026.

■ RELIEF ANGLE OF AN INSERT SET ON A HOLDER

Thread Helix Angle	Internal Relief Angle	External Relief Angle
60°	8.8°	5.8°
55°	7.9°	5.2°
30°	4.1°	2.7°
29°	4°	2.6°

- Relief angles (β_2, β_1) of an insert become small when the thread helix angle of a trapezoidal, round, or other thread is small. Take care when selecting a shim.

STANDARD OF DEPTH OF CUT EXTERNAL (RADIAL INFEED)

■ ISO Metric

Pitch (mm)	Total Cutting Depth	Number of Passes														Insert Type	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	G-class ground inserts	M-class inserts with 3-D chipbreakers
0.5	0.31	0.10	0.08	0.07	0.06											MMT16ER050ISO	—
0.75	0.46	0.16	0.14	0.10	0.06											MMT16ER075ISO	—
1.0	0.61	0.18	0.15	0.12	0.10	0.06										MMT16ER100ISO	MMT16ER100ISO-S
1.25	0.77	0.19	0.17	0.14	0.11	0.10	0.06									MMT16ER125ISO	MMT16ER125ISO-S
1.5	0.92	0.22	0.21	0.17	0.14	0.12	0.06									MMT16ER150ISO	MMT16ER150ISO-S
1.75	1.07	0.22	0.21	0.16	0.13	0.11	0.09	0.09	0.06							MMT16ER175ISO	MMT16ER175ISO-S
2.0	1.23	0.24	0.23	0.17	0.16	0.14	0.12	0.11	0.06							MMT16ER200ISO	MMT16ER200ISO-S
2.5	1.53	0.26	0.23	0.19	0.17	0.15	0.13	0.12	0.11	0.11	0.06					MMT16ER250ISO	MMT16ER250ISO-S
3.0	1.84	0.27	0.25	0.20	0.18	0.16	0.14	0.13	0.12	0.12	0.11	0.10	0.06			MMT16ER300ISO	MMT16ER300ISO-S
3.5	2.15	0.33	0.30	0.24	0.21	0.18	0.17	0.15	0.14	0.14	0.12	0.11	0.06			MMT22ER350ISO	—
4.0	2.45	0.34	0.31	0.24	0.22	0.19	0.17	0.16	0.14	0.14	0.13	0.12	0.12	0.11	0.06	MMT22ER400ISO	—
4.5	2.76	0.38	0.34	0.28	0.24	0.22	0.20	0.18	0.16	0.16	0.15	0.14	0.13	0.12	0.06	MMT22ER450ISO	—
5.0	3.07	0.42	0.38	0.32	0.27	0.24	0.22	0.20	0.18	0.18	0.17	0.16	0.15	0.12	0.06	MMT22ER500ISO	—

■ American UN

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes														Insert Type	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	G-class ground inserts	M-class inserts with 3-D chipbreakers
32	0.49	0.17	0.15	0.11	0.06											MMT16ER320UN	—
28	0.56	0.17	0.14	0.10	0.09	0.06										MMT16ER280UN	—
24	0.65	0.18	0.16	0.14	0.11	0.06										MMT16ER240UN	—
20	0.78	0.20	0.18	0.13	0.11	0.10	0.06									MMT16ER200UN	—
18	0.87	0.22	0.20	0.15	0.13	0.11	0.06									MMT16ER180UN	—
16	0.97	0.22	0.20	0.15	0.12	0.11	0.11	0.06								MMT16ER160UN	MMT16ER160UN-S
14	1.11	0.23	0.21	0.16	0.13	0.11	0.11	0.10	0.06							MMT16ER140UN	MMT16ER140UN-S
13	1.20	0.25	0.22	0.17	0.14	0.13	0.12	0.11	0.06							MMT16ER130UN	—
12	1.30	0.28	0.23	0.18	0.16	0.14	0.13	0.12	0.06							MMT16ER120UN	MMT16ER120UN-S
11	1.42	0.28	0.23	0.19	0.16	0.14	0.13	0.12	0.11	0.06						MMT16ER110UN	—
10	1.56	0.28	0.24	0.19	0.16	0.14	0.13	0.13	0.12	0.11	0.06					MMT16ER100UN	—
9	1.73	0.34	0.29	0.22	0.17	0.15	0.14	0.13	0.12	0.11	0.06					MMT16ER090UN	—
8	1.95	0.35	0.30	0.24	0.19	0.16	0.15	0.14	0.13	0.12	0.11	0.06				MMT16ER080UN	—
7	2.22	0.37	0.33	0.28	0.24	0.20	0.17	0.16	0.15	0.14	0.12	0.06				MMT22ER070UN	—
6	2.60	0.42	0.35	0.29	0.25	0.21	0.18	0.17	0.16	0.15	0.13	0.12	0.11	0.06		MMT22ER060UN	—
5	3.12	0.43	0.39	0.31	0.27	0.24	0.22	0.20	0.19	0.19	0.18	0.17	0.15	0.12	0.06	MMT22ER050UN	—

■ Whitworth for BSW, BSP

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes														Insert Type	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	G-class ground inserts	M-class inserts with 3-D chipbreakers
28	0.58	0.17	0.14	0.11	0.10	0.06										MMT16ER280W	—
26	0.63	0.18	0.15	0.13	0.11	0.06										MMT16ER260W	—
20	0.81	0.20	0.18	0.14	0.12	0.11	0.06									MMT16ER200W	—
19	0.86	0.21	0.19	0.15	0.13	0.12	0.06									MMT16ER190W	MMT16ER190W-S
18	0.90	0.25	0.19	0.15	0.13	0.12	0.06									MMT16ER180W	—
16	1.02	0.21	0.18	0.15	0.13	0.11	0.09	0.09	0.06							MMT16ER160W	—
14	1.16	0.23	0.21	0.17	0.14	0.12	0.12	0.11	0.06							MMT16ER140W	MMT16ER140W-S
12	1.36	0.27	0.25	0.20	0.16	0.15	0.14	0.13	0.06							MMT16ER120W	—
11	1.48	0.27	0.24	0.20	0.17	0.15	0.14	0.13	0.12	0.06						MMT16ER110W	MMT16ER110W-S
10	1.63	0.27	0.25	0.20	0.17	0.15	0.15	0.13	0.13	0.12	0.06					MMT16ER100W	—
9	1.81	0.28	0.26	0.21	0.18	0.16	0.15	0.14	0.13	0.12	0.12	0.06				MMT16ER090W	—
8	2.03	0.30	0.27	0.22	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.06			MMT16ER080W	—
7	2.32	0.34	0.32	0.26	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.12	0.06			MMT22ER070W	—
6	2.71	0.35	0.33	0.27	0.23	0.21	0.20	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.06	MMT22ER060W	—
5	3.25	0.42	0.40	0.35	0.29	0.26	0.24	0.22	0.20	0.19	0.18	0.17	0.15	0.12	0.06	MMT22ER050W	—

■ BSPT

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes														Insert Type	
		1	2	3	4	5	6	7	8	9						G-class ground inserts	M-class inserts with 3-D chipbreakers
28	0.58	0.17	0.14	0.11	0.10	0.06										MMT16ER280BSPT	—
19	0.86	0.22	0.19	0.15	0.12	0.12	0.06									MMT16ER190BSPT	MMT16ER190BSPT-S
14	1.16	0.24	0.20	0.17	0.14	0.12	0.12	0.11	0.06							MMT16ER140BSPT	MMT16ER140BSPT-S
11	1.48	0.25	0.23	0.21	0.18	0.16	0.14	0.13	0.12	0.06						MMT16ER110BSPT	MMT16ER110BSPT-S

Note 1) • Set the finishing allowance on a diameter at approx. 0.1mm when using a full form insert.
• Please note the cutting depth and the number of passes when a corner radius of a partial form insert or of an internal threading insert is small to prevent damage to the insert corner.
• Please set the cutting depth sufficiently deep enough on materials such as hardened steel or austenitic stainless steel to help prevent premature wear and chipping caused by the outer layer of the material.

■ Round DIN 405

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes															Insert Type
		1	2	3	4	5	6	7	8	9	10	11	12	13	14		
10	1.27	0.23	0.21	0.20	0.19	0.16	0.12	0.10	0.06								MMT16ER100RD
8	1.59	0.23	0.21	0.20	0.19	0.18	0.16	0.14	0.12	0.10	0.06						MMT16ER080RD
6	2.12	0.26	0.25	0.24	0.22	0.21	0.19	0.17	0.16	0.14	0.12	0.10	0.06				MMT16ER060RD
4	3.18	0.34	0.33	0.32	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.15	0.12	0.06		MMT22ER040RD

■ ISO Trapezoidal 30°

Pitch (mm)	Total Cutting Depth	Number of Passes															Insert Type
		1	2	3	4	5	6	7	8	9	10	11	12	13	14		
1.5	0.90	0.23	0.21	0.16	0.13	0.11	0.06										MMT16ER150TR
2.0	1.25	0.29	0.26	0.21	0.17	0.14	0.12	0.06									MMT16ER200TR
3.0	1.75	0.32	0.31	0.24	0.19	0.18	0.17	0.15	0.13	0.06							MMT16ER300TR
4.0	2.25	0.33	0.32	0.24	0.22	0.21	0.17	0.16	0.15	0.14	0.13	0.12	0.16				MMT22ER400TR
5.0	2.75	0.35	0.32	0.26	0.24	0.22	0.21	0.19	0.19	0.17	0.15	0.14	0.13	0.12	0.06		MMT22ER500TR

■ American ACME

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes															Insert Type
		1	2	3	4	5	6	7	8	9	10	11	12	13	14		
12	1.19	0.27	0.23	0.20	0.17	0.14	0.12	0.06									MMT16ER120ACME
10	1.52	0.29	0.25	0.21	0.18	0.16	0.14	0.12	0.11	0.06							MMT16ER100ACME
8	1.84	0.30	0.26	0.22	0.19	0.16	0.15	0.14	0.13	0.12	0.11	0.06					MMT16ER080ACME
6	2.37	0.34	0.30	0.27	0.24	0.21	0.19	0.16	0.14	0.12	0.12	0.11	0.11	0.06			MMT22ER060ACME
5	2.79	0.36	0.33	0.30	0.26	0.23	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.06		MMT22ER050ACME

■ UNJ

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes															Insert Type
		1	2	3	4	5	6	7	8	9	10	11					
32	0.46	0.16	0.14	0.10	0.06												MMT16ER320UNJ
28	0.52	0.16	0.12	0.09	0.09	0.06											MMT16ER280UNJ
24	0.61	0.17	0.14	0.14	0.10	0.06											MMT16ER240UNJ
20	0.73	0.19	0.16	0.13	0.10	0.09	0.06										MMT16ER200UNJ
18	0.81	0.23	0.18	0.14	0.10	0.10	0.06										MMT16ER180UNJ
16	0.92	0.26	0.21	0.14	0.12	0.10	0.09										MMT16ER160UNJ
14	1.05	0.26	0.23	0.17	0.12	0.11	0.10	0.06									MMT16ER140UNJ
12	1.22	0.28	0.27	0.20	0.17	0.13	0.11	0.06									MMT16ER120UNJ
10	1.47	0.30	0.29	0.21	0.15	0.13	0.12	0.11	0.10	0.06							MMT16ER100UNJ
8	1.83	0.31	0.30	0.23	0.18	0.15	0.14	0.13	0.12	0.11	0.10	0.06					MMT16ER080UNJ

■ API Buttress Casing

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes															Insert Type
		1	2	3	4	5	6	7	8	9	10	11					
5	1.55	0.25	0.23	0.17	0.15	0.13	0.12	0.12	0.11	0.11	0.10	0.06					MMT22ER050APBU

■ API Round Casing&Tubing

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes															Insert Type
		1	2	3	4	5	6	7	8	9	10	11	12				
10	1.41	0.25	0.23	0.16	0.14	0.12	0.12	0.12	0.11	0.10	0.06						MMT16ER100APRD
8	1.81	0.25	0.24	0.19	0.16	0.14	0.14	0.13	0.13	0.13	0.13	0.11	0.06				MMT16ER080APRD

■ American NPT

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes															Insert Type
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
27	0.66	0.15	0.13	0.12	0.11	0.09	0.06										MMT16ER270NPT
18	1.01	0.20	0.16	0.14	0.13	0.12	0.11	0.09	0.06								MMT16ER180NPT
14	1.33	0.23	0.19	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.06						MMT16ER140NPT
11.5	1.64	0.24	0.19	0.17	0.15	0.15	0.13	0.13	0.12	0.11	0.10	0.09	0.06				MMT16ER115NPT
8	2.42	0.33	0.28	0.23	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.12	0.11	0.11	0.10	0.06	MMT16ER080NPT

■ American NPTF

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes															Insert Type
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
27	0.64	0.16	0.14	0.11	0.09	0.08	0.06										MMT16ER270NPTF
18	1.00	0.19	0.16	0.14	0.13	0.12	0.11	0.09	0.06								MMT16ER180NPTF
14	1.35	0.23	0.21	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.06						MMT16ER140NPTF
11.5	1.63	0.24	0.23	0.19	0.15	0.13	0.11	0.11	0.11	0.10	0.10	0.10	0.06				MMT16ER115NPTF
8	2.38	0.32	0.27	0.23	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.11	0.11	0.10	0.06	MMT16ER080NPTF

Note 1) • Set the finishing allowance on a diameter at approx. 0.1mm when using a full form insert.
• Please note the cutting depth and the number of passes when a corner radius of a partial form insert or of an internal threading insert is small to prevent damage to the insert corner.
• Please set the cutting depth sufficiently deep enough on materials such as hardened steel or austenitic stainless steel to help prevent premature wear and chipping caused by the outer layer of the material.

STANDARD OF DEPTH OF CUT INTERNAL (RADIAL INFEED)

■ISO Metric

Pitch (mm)	Total Cutting Depth	Number of Passes														Insert Type			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	G-class ground inserts		M-class inserts with 3-D chipbreakers	
0.5	0.29	0.09	0.07	0.07	0.06											MMT11IR050ISO	MMT16IR050ISO	—	—
0.75	0.43	0.15	0.13	0.09	0.06											MMT11IR075ISO	MMT16IR075ISO	—	—
1.0	0.58	0.17	0.15	0.11	0.09	0.06										MMT11IR100ISO	MMT16IR100ISO	MMT11IR100ISO-S	MMT16IR100ISO-S
1.25	0.72	0.18	0.16	0.12	0.11	0.09	0.06									MMT11IR125ISO	MMT16IR125ISO	MMT11IR125ISO-S	MMT16IR125ISO-S
1.5	0.87	0.21	0.20	0.16	0.13	0.11	0.06									MMT11IR150ISO	MMT16IR150ISO	MMT11IR150ISO-S	MMT16IR150ISO-S
1.75	1.01	0.21	0.20	0.15	0.12	0.10	0.09	0.08	0.06							MMT11IR175ISO	MMT16IR175ISO	—	MMT16IR175ISO-S
2.0	1.15	0.24	0.22	0.18	0.14	0.12	0.10	0.09	0.06							MMT11IR200ISO	MMT16IR200ISO	—	MMT16IR200ISO-S
2.5	1.44	0.25	0.24	0.21	0.15	0.13	0.12	0.10	0.09	0.09	0.06					—	MMT16IR250ISO	—	MMT16IR250ISO-S
3.0	1.73	0.26	0.25	0.22	0.17	0.14	0.13	0.12	0.11	0.10	0.09	0.08	0.06			—	MMT16IR300ISO	—	MMT16IR300ISO-S
3.5	2.02	0.32	0.30	0.23	0.19	0.17	0.15	0.14	0.13	0.12	0.11	0.10	0.06			—	MMT22IR350ISO	—	—
4.0	2.31	0.33	0.31	0.24	0.22	0.18	0.15	0.14	0.13	0.12	0.12	0.11	0.10	0.10	0.06	—	MMT22IR400ISO	—	—
4.5	2.60	0.36	0.33	0.28	0.24	0.21	0.19	0.16	0.15	0.14	0.13	0.12	0.12	0.11	0.06	—	MMT22IR450ISO	—	—
5.0	2.89	0.41	0.38	0.32	0.27	0.24	0.21	0.18	0.16	0.15	0.14	0.13	0.12	0.12	0.06	—	MMT22IR500ISO	—	—

■American UN

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes														Insert Type		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	G-class ground inserts		M-class inserts with 3-D chipbreakers
32	0.46	0.16	0.14	0.10	0.06											MMT11IR320UN	MMT16IR320UN	—
28	0.52	0.16	0.13	0.09	0.08	0.06										MMT11IR280UN	MMT16IR280UN	—
24	0.61	0.17	0.15	0.13	0.10	0.06										MMT11IR240UN	MMT16IR240UN	—
20	0.73	0.18	0.15	0.13	0.11	0.10	0.06									MMT11IR200UN	MMT16IR200UN	—
18	0.81	0.20	0.18	0.14	0.12	0.11	0.06									MMT11IR180UN	MMT16IR180UN	—
16	0.92	0.20	0.18	0.15	0.12	0.11	0.10	0.06								MMT11IR160UN	MMT16IR160UN	MMT16IR160UN-S
14	1.05	0.21	0.18	0.15	0.13	0.11	0.11	0.10	0.06							MMT11IR140UN	MMT16IR140UN	MMT16IR140UN-S
13	1.13	0.22	0.19	0.16	0.14	0.13	0.12	0.11	0.06							—	MMT16IR130UN	—
12	1.22	0.24	0.22	0.18	0.16	0.13	0.12	0.11	0.06							—	MMT16IR120UN	MMT16IR120UN-S
11	1.33	0.24	0.22	0.20	0.15	0.12	0.12	0.11	0.11	0.06						—	MMT16IR110UN	—
10	1.47	0.25	0.22	0.21	0.14	0.13	0.12	0.12	0.11	0.11	0.06					—	MMT16IR100UN	—
9	1.63	0.31	0.23	0.21	0.17	0.15	0.14	0.13	0.12	0.11	0.06					—	MMT16IR090UN	—
8	1.83	0.31	0.26	0.21	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.06				—	MMT16IR080UN	—
7	2.09	0.36	0.30	0.24	0.21	0.18	0.17	0.16	0.15	0.14	0.12	0.06				—	MMT22IR070UN	—
6	2.44	0.40	0.33	0.25	0.23	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.06		—	MMT22IR060UN	—
5	2.93	0.41	0.35	0.31	0.26	0.23	0.21	0.20	0.19	0.17	0.15	0.14	0.13	0.12	0.06	—	MMT22IR050UN	—

■Whitworth for BSW, BSP

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes														Insert Type		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	G-class ground inserts		M-class inserts with 3-D chipbreakers
28	0.58	0.17	0.14	0.11	0.10	0.06										—	MMT16IR280W	—
26	0.63	0.18	0.15	0.13	0.11	0.06										—	MMT16IR260W	—
20	0.81	0.20	0.18	0.14	0.12	0.11	0.06									—	MMT16IR200W	—
19	0.86	0.21	0.19	0.15	0.13	0.12	0.06									MMT11IR190W	MMT16IR190W	MMT16IR190W-S
18	0.90	0.25	0.19	0.15	0.13	0.12	0.06									—	MMT16IR180W	—
16	1.02	0.21	0.18	0.15	0.13	0.11	0.09	0.09	0.06							—	MMT16IR160W	—
14	1.16	0.23	0.21	0.17	0.14	0.12	0.12	0.11	0.06							MMT11IR140W	MMT16IR140W	MMT16IR140W-S
12	1.36	0.27	0.25	0.20	0.16	0.15	0.14	0.13	0.06							—	MMT16IR120W	MMT16IR120W-S
11	1.48	0.27	0.24	0.20	0.17	0.15	0.14	0.13	0.12	0.06						—	MMT16IR110W	—
10	1.63	0.27	0.25	0.20	0.17	0.15	0.15	0.13	0.13	0.12	0.06					—	MMT16IR100W	—
9	1.81	0.28	0.26	0.21	0.18	0.16	0.15	0.14	0.13	0.12	0.12	0.06				—	MMT16IR090W	—
8	2.03	0.30	0.27	0.22	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.06			—	MMT16IR080W	—
7	2.32	0.34	0.32	0.26	0.22	0.20	0.18	0.17	0.16	0.15	0.14	0.12	0.06			—	MMT22IR070W	—
6	2.71	0.35	0.33	0.27	0.23	0.21	0.20	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.06	—	MMT22IR060W	—
5	3.25	0.42	0.40	0.35	0.29	0.26	0.24	0.22	0.20	0.19	0.18	0.17	0.15	0.12	0.06	—	MMT22IR050W	—

Note 1) • Set the finishing allowance on a diameter at approx. 0.1mm when using a full form insert.
• Please note the cutting depth and the number of passes when a corner radius of a partial form insert or of an internal threading insert is small to prevent damage to the insert corner.
• Please set the cutting depth sufficiently deep enough on materials such as hardened steel or austenitic stainless steel to help prevent premature wear and chipping caused by the outer layer of the material.

■ BSPT

Pitch (thread/inch)	Total Cutting Depth	Number of Passes										Insert Type		
		1	2	3	4	5	6	7	8	9		G-class ground inserts		M-class inserts with 3-D chipbreakers
19	0.86	0.22	0.19	0.15	0.12	0.12	0.06					MMT11IR190BSPT	MMT16IR190BSPT	MMT16IR190BSPT-S
14	1.16	0.24	0.20	0.17	0.14	0.12	0.12	0.11	0.06			MMT11IR140BSPT	MMT16IR140BSPT	MMT16IR140BSPT-S
11	1.48	0.25	0.23	0.21	0.18	0.16	0.14	0.13	0.12	0.06		—	MMT16IR110BSPT	MMT16IR110BSPT-S

■ Round DIN 405

Pitch (thread/inch)	Total Cutting Depth	Number of Passes														Insert Type
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
10	1.27	0.23	0.21	0.20	0.19	0.16	0.12	0.10	0.06							MMT16IR100RD
8	1.59	0.23	0.21	0.20	0.19	0.18	0.16	0.14	0.12	0.10	0.06					MMT16IR080RD
6	2.12	0.26	0.25	0.24	0.22	0.21	0.19	0.17	0.16	0.14	0.12	0.10	0.06			MMT16IR060RD
4	3.18	0.34	0.33	0.32	0.30	0.28	0.26	0.24	0.22	0.20	0.19	0.17	0.15	0.12	0.06	MMT22IR040RD

■ ISO Trapezoidal 30°

Pitch (mm)	Total Cutting Depth	Number of Passes														Insert Type
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1.5	0.90	0.23	0.21	0.16	0.13	0.11	0.06									MMT16IR150TR
2	1.25	0.29	0.26	0.21	0.17	0.14	0.12	0.06								MMT16IR200TR
3	1.75	0.32	0.31	0.24	0.19	0.18	0.17	0.15	0.13	0.06						MMT16IR300TR
4	2.25	0.33	0.32	0.24	0.22	0.21	0.17	0.16	0.15	0.14	0.13	0.12	0.06			MMT22IR400TR
5	2.75	0.35	0.32	0.26	0.24	0.22	0.21	0.19	0.19	0.17	0.15	0.14	0.13	0.12	0.06	MMT22IR500TR

■ American ACME

Pitch (thread/inch)	Total Cutting Depth	Number of Passes														Insert Type
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
12	1.19	0.27	0.23	0.20	0.17	0.14	0.12	0.06								MMT16IR120ACME
10	1.52	0.29	0.25	0.21	0.18	0.16	0.14	0.12	0.11	0.06						MMT16IR100ACME
8	1.84	0.30	0.26	0.22	0.19	0.16	0.15	0.14	0.13	0.12	0.11	0.06				MMT16IR080ACME
6	2.37	0.34	0.30	0.27	0.24	0.21	0.19	0.16	0.14	0.12	0.12	0.11	0.11	0.06		MMT22IR060ACME
5	2.79	0.36	0.33	0.30	0.26	0.23	0.20	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.06	MMT22IR050ACME

■ API Buttress Casing

Pitch (thread/inch)	Total Cutting Depth	Number of Passes											Insert Type
		1	2	3	4	5	6	7	8	9	10	11	
5	1.55	0.25	0.23	0.17	0.15	0.13	0.12	0.12	0.11	0.11	0.10	0.06	MMT22IR050APBU

■ API Round Casing&Tubing

Pitch (thread/inch)	Total Cutting Depth	Number of Passes												Insert Type
		1	2	3	4	5	6	7	8	9	10	11	12	
10	1.41	0.25	0.23	0.16	0.14	0.12	0.12	0.12	0.11	0.10	0.06			MMT16IR100APRD
8	1.81	0.25	0.24	0.19	0.16	0.14	0.14	0.13	0.13	0.13	0.13	0.11	0.06	MMT16IR080APRD

■ American NPT

Pitch (thread/inch)	Total Cutting Depth	Number of Passes															Insert Type
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
27	0.66	0.15	0.13	0.12	0.11	0.09	0.06										MMT16IR270NPT
18	1.01	0.20	0.16	0.14	0.13	0.12	0.11	0.09	0.06								MMT16IR180NPT
14	1.33	0.23	0.19	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.06						MMT16IR140NPT
11.5	1.64	0.24	0.19	0.17	0.15	0.15	0.13	0.13	0.12	0.11	0.10	0.09	0.06				MMT16IR115NPT
8	2.42	0.33	0.28	0.23	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.12	0.11	0.11	0.10	0.06	MMT16IR080NPT

■ American NPTF

Pitch (thread/inch)	Total Cutting Depth	Number of Passes															Insert Type
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
14	1.35	0.23	0.21	0.16	0.14	0.13	0.12	0.11	0.10	0.09	0.06						MMT16IR140NPTF
11.5	1.63	0.24	0.23	0.19	0.15	0.13	0.11	0.11	0.11	0.10	0.10	0.10	0.06				MMT16IR115NPTF
8	2.38	0.32	0.27	0.23	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.11	0.11	0.10	0.06	MMT16IR080NPTF

Note 1) • Set the finishing allowance on a diameter at approx. 0.1mm when using a full form insert.
• Please note the cutting depth and the number of passes when a corner radius of a partial form insert or of an internal threading insert is small to prevent damage to the insert corner.
• Please set the cutting depth sufficiently deep enough on materials such as hardened steel or austenitic stainless steel to help prevent premature wear and chipping caused by the outer layer of the material.

MMT SERIES ORDER NUMBER

HOLDERS

EXTERNAL

MMT E R 12 12 H 16 – C

Designation

Application

E	External

Hand of Tool

R	Right

Tool Size (mm) (Height and Width)

12	12
16	16
20	20
25	25
32	32

Tool Length (mm)

H	100
K	125
M	150
P	170

Insert Size (mm)

16	9.525
22	12.7

Method of Holding

C	Clamp-on

INTERNAL

MMT I R 13 16 A K 11 – S P15

Designation

Application

I	Internal

Hand of Tool

R	Right

Min.Cutting Diameter (mm)

Shank Diameter (mm)

Shank Material

A	Steel Shank with Coolant Hole

Tool Length (mm)

K	125	R	200
M	150	S	250
Q	180	T	300

Insert Size (mm)

11	6.35
16	9.525
22	12.7

Holding Method

S	Screw-on
C	Clamp-on

Lead Angle

P15	1.5°
P25	2.5°
P35	3.5°

INSERTS

M-CLASS

MMT 16 E R 100 ISO – S

S	M-class inserts with 3-D chipbreakers

Designation

Diameter of Inscribed Circle (mm)

11	6.35
16	9.525

Application

E	External
I	Internal

Hand of Tool

R	Right

Pitch

100	1.0mm	A	0.5—1.5mm or 48—16 thread/inch
125	1.25mm		
150	1.5mm	G	1.75—3.0mm or 14—8 thread/inch
175	1.75mm		
200	2.0mm		
250	2.5mm	AG	0.5—3.0mm or 48—8 thread/inch
300	3.0mm		

Threading Type

60	Partial Profile 60°
55	Partial Profile 55°
ISO	ISO Metric
W	Whitworth for BSW, BSP
BSPT	BSPT
UN	American UN

G-CLASS

MMT 16 E R 050 ISO

Designation

Diameter of Inscribed Circle (mm)

11	6.35
16	9.525
22	12.7

Application

E	External
I	Internal

Hand of Tool

R	Right

Pitch

050	0.5mm	A	0.5—1.5mm or 48—16 thread/inch
075	0.75mm		
100	1.0mm		
125	1.25mm	G	1.75—3.0mm or 14—8 thread/inch
150	1.5mm		
175	1.75mm		
200	2.0mm	AG	0.5—3.0mm or 48—8 thread/inch
250	2.5mm		
300	3.0mm		
350	3.5mm	N	3.5—5.0mm or 7—5 thread/inch
400	4.0mm		
450	4.5mm		
500	5.0mm		

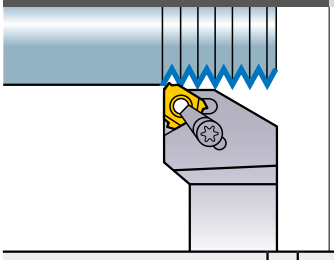
Threading Type

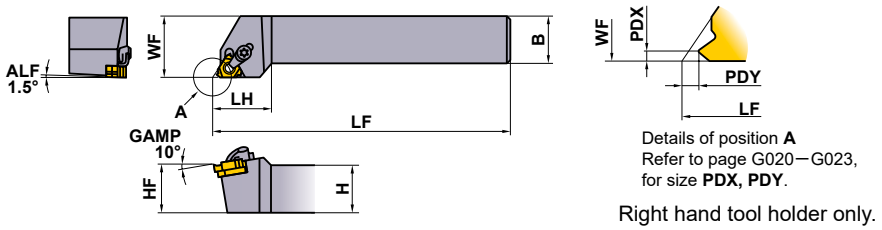
60	Partial Profile 60°
55	Partial Profile 55°
ISO	ISO Metric
W	Whitworth for BSW, BSP
BSPT	BSPT
UN	American UN
RD	Round DIN 405
TR	ISO Trapezoidal 30°
ACME	American ACME
UNJ	UNJ
APBU	API Buttress Casing
APRD	API Round Casing&Tubing
NPT	NPT
NPTF	NPTF

MMTE HOLDER

- Various insert types.
- Precision class insert.
- Available with a wiper cutting edge to provide a precise thread geometry.
- Able to change lead angle by replacing the shim.

MMTE — External threading





Details of position **A**
Refer to page G020—G023, for size **PDX, PDY**.

Right hand tool holder only.

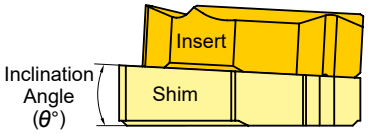
Order Number	Stock	Insert Number	Dimensions (mm)						Clamp Bridge	Clamp Screw *	Stop Ring	Shim Screw *	Shim	Wrench
	R		H	B	LF	LH	HF	WF						
MMTER1212H16-C	●	MMT16ER ○○○○○	12	12	100	25	12	16	SETK51	SETS51	CR4	HFC03008	CTE32TP15	①TKY15F ②HKY20R
MMTER1616H16-C	●		16	16	100	25	16	20	SETK51	SETS51	CR4	HFC03008	CTE32TP15	①TKY15F ②HKY20R
MMTER2020K16-C	●		20	20	125	26	20	25	SETK51	SETS51	CR4	HFC03008	CTE32TP15	①TKY15F ②HKY20R
MMTER2525M16-C	●		25	25	150	28	25	32	SETK51	SETS51	CR4	HFC03008	CTE32TP15	①TKY15F ②HKY20R
MMTER3232P16-C	●		32	32	170	32	32	40	SETK51	SETS51	CR4	HFC03008	CTE32TP15	①TKY15F ②HKY20R
MMTER2525M22-C	●	MMT22ER ○○○○○	25	25	150	32	25	32	SETK61	SETS61	CR5	HFC04010	CTE43TP15	①TKY20F ②HKY25R
MMTER3232P22-C	●		32	32	170	32	32	40	SETK61	SETS61	CR5	HFC04010	CTE43TP15	①TKY20F ②HKY25R

Note 1) Select and use a shim as shown below (sold separately), dependant on the lead angle.
* Clamp Torque (N • m) : SETS51=3.5, SETS61=5.0, HFC03008=1.5, HFC04010=2.2

SHIM

Lead Angle (α°)	Order Number	Stock R	Inclination Angle (θ°)	Applicable Holder
−1.5°	**CTE32TN15**	●	−3°	MMTER ○○○○○ 16-C
−0.5°	**CTE32TN05**	●	−2°	
0.5°	**CTE32TP05**	●	−1°	
1.5°	**CTE32TP15**	●	0°	
2.5°	**CTE32TP25**	●	1°	
3.5°	**CTE32TP35**	●	2°	
4.5°	**CTE32TP45**	●	3°	

Lead Angle (α°)	Order Number	Stock R	Inclination Angle (θ°)	Applicable Holder
−1.5°	**CTE43TN15**	●	−3°	MMTER ○○○○○ 22-C
−0.5°	**CTE43TN05**	●	−2°	
0.5°	**CTE43TP05**	●	−1°	
1.5°	**CTE43TP15**	●	0°	
2.5°	**CTE43TP25**	●	1°	
3.5°	**CTE43TP35**	●	2°	
4.5°	**CTE43TP45**	●	3°	



Standard shim delivered with the holder.

RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Grade	Cutting Speed (m/min)
P	Mild Steel	≤180HB	**MP9025**	80 (60—100)
			VP10MF	150 (70—230)
			VP15TF	100 (60—140)
			VP20RT	80 (60—100)
	Carbon Steel Alloy Steel	180—280HB	**MP9025**	80 (60—100)
			VP10MF	140 (80—200)
			VP15TF	100 (60—140)
			VP20RT	80 (60—100)
M	Stainless Steel	≤200HB	**MP9025**	80 (40—120)
			VP15TF	80 (40—120)
			VP20RT	
K	Gray Cast Iron	Tensile Strength ≤350MPa	**VP10MF**	140 (80—200)
			VP15TF	90 (60—120)

	Material	Hardness	Grade	Cutting Speed (m/min)
S	Heat-Resistant Alloy	—	**MP9025**	30 (20—40)
			VP10MF	45 (15—70)
			VP15TF	30 (20—40)
			VP20RT	
	Titanium Alloy	—	**MP9025**	45 (25—65)
			VP10MF	60 (40—80)
			VP15TF	45 (25—65)
			VP20RT	
H	Heat-Treated Alloy	45—55HRC	**VP10MF**	50 (30—70)
			VP15TF	40 (20—60)

● : **Inventory maintained.**

HOW TO SELECT A SHIM	➤ **G012**
SPARE PARTS	➤ **N001**
TECHNICAL DATA	➤ **P001**

MMT M-CLASS INSERTS WITH 3-D CHIPBREAKERS

INSERTS

Type	Order Number	Coated			Pitch		Dimensions (mm)					Total Cutting Depth (mm)	Geometry
		NEW MP9025	VP15TF	VP20RT	mm	thread/inch	IC	S	PDY	PDX	RE		
Partial Profile 60°	MMT16ERAG60-S	●	●	●	0.5—3.0	48—8	9.525	3.44	1.2	1.7	0.08	—	Partial form PNA 60°
	MMT16ERA60-S	●	●	●	0.5—1.5	48—16	9.525	3.44	0.8	0.9	0.06	—	
	MMT16ERG60-S	●	●	●	1.75—3.0	14—8	9.525	3.44	1.2	1.7	0.23	—	
Partial Profile 55°	MMT16ERAG55-S	●	●	●		48—8	9.525	3.44	1.2	1.7	0.07	—	Partial form PNA 55°
	MMT16ERA55-S	●	●	●		48—16	9.525	3.44	0.8	0.9	0.07	—	
	MMT16ERG55-S	●	●	●		14—8	9.525	3.44	1.2	1.7	0.23	—	
ISO Metric	MMT16ER100ISO-S	●	●	●	1.0		9.525	3.44	0.7	0.7	0.13	0.61	Full form PNA 60°
	MMT16ER125ISO-S	●	●	●	1.25		9.525	3.44	0.8	0.9	0.16	0.77	
	MMT16ER150ISO-S	●	●	●	1.5		9.525	3.44	0.8	1.0	0.20	0.92	
	MMT16ER175ISO-S	●	●	●	1.75		9.525	3.44	0.9	1.2	0.22	1.07	
	MMT16ER200ISO-S	●	●	●	2.0		9.525	3.44	1.0	1.3	0.26	1.23	
	MMT16ER250ISO-S	●	●	●	2.5		9.525	3.44	1.1	1.5	0.33	1.53	
	MMT16ER300ISO-S	●	●	●	3.0		9.525	3.44	1.2	1.6	0.40	1.84	
American UN	MMT16ER160UN-S	★	●	★		16	9.525	3.44	0.9	1.1	0.23	0.97	Full form PNA 60°
	MMT16ER140UN-S	★	●	★		14	9.525	3.44	1.0	1.2	0.26	1.11	
	MMT16ER120UN-S	★	●	★		12	9.525	3.44	1.1	1.4	0.30	1.30	
Whitworth for BSW, BSP	MMT16ER190W-S	●	●	●		19	9.525	3.44	0.8	1.0	0.18	0.86	Full form PNA 55°
	MMT16ER140W-S	●	●	●		14	9.525	3.44	1.0	1.2	0.25	1.16	
	MMT16ER110W-S	●	●	●		11	9.525	3.44	1.1	1.5	0.32	1.48	
BSPT	MMT16ER190BSPT-S	★	●	★		19	9.525	3.44	0.8	0.9	0.18	0.86	Full form PNA 55°
	MMT16ER140BSPT-S	★	●	★		14	9.525	3.44	1.0	1.2	0.25	1.16	
	MMT16ER110BSPT-S	★	●	★		11	9.525	3.44	1.1	1.5	0.32	1.48	

IDENTIFICATION

MMT 16 E R 100 ISO – S

- **MMT** — Designation
- **16** — Diameter of Inscribed Circle (mm)

11	6.35
16	9.525

- **E** — Application

E	External
I	Internal

- **R** — Hand of Tool

R	Right

- **100** — Pitch

100	1.0mm	A	0.5—1.5mm or 48—16 thread/inch
125	1.25mm		
150	1.5mm	G	1.75—3.0mm or 14—8 thread/inch
175	1.75mm		
200	2.0mm		
250	2.5mm	AG	0.5—3.0mm or 48—8 thread/inch
300	3.0mm		

- **ISO** — Threading Type

60	Partial Profile 60°
55	Partial Profile 55°
ISO	ISO Metric
W	Whitworth for BSW, BSP
BSPT	BSPT
UN	American UN

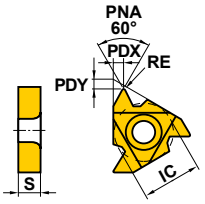
- **S** — M-class inserts with 3-D chipbreakers

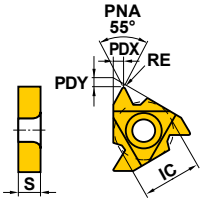
● : Inventory maintained. ★ : Inventory maintained in Japan.
(5 inserts in one case)

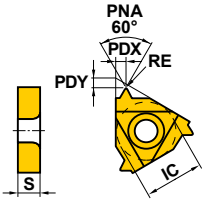
MMT G-CLASS GROUND INSERTS

INSERTS

Type	Thread Tolerance	Order Number	Coated VP10MF	Coated VP15TF	Pitch mm	Pitch thread/inch	IC	S	PDY	PDX	RE	Total Cutting Depth (mm)	Geometry
Partial Profile 60°	—	MMT16ERA60	●	●	0.5—1.5	48—16	9.525	3.44	0.8	0.9	0.05	—	Partial form
		MMT16ERG60	●	●	1.75—3.0	14—8	9.525	3.44	1.2	1.7	0.27	—	
		MMT16ERAG60	●		0.5—3.0	48—8	9.525	3.44	1.2	1.7	0.08	—	
		MMT22ERN60	●		3.5—5.0	7—5	12.7	4.64	1.7	2.5	0.53	—	
Partial Profile 55°	—	MMT16ERA55	●	●		48—16	9.525	3.44	0.8	0.9	0.05	—	Partial form
		MMT16ERG55	●	●		14—8	9.525	3.44	1.2	1.7	0.21	—	
		MMT16ERAG55	●			48—8	9.525	3.44	1.2	1.7	0.07	—	
		MMT22ERN55	●			7—5	12.7	4.64	1.7	2.5	0.44	—	
ISO Metric	6g	MMT16ER050ISO	●		0.5		9.525	3.44	0.6	0.4	0.06	0.31	Full form
		MMT16ER075ISO	●		0.75		9.525	3.44	0.6	0.6	0.10	0.46	
		MMT16ER100ISO	●	●	1.0		9.525	3.44	0.7	0.7	0.16	0.61	
		MMT16ER125ISO	●	●	1.25		9.525	3.44	0.8	0.9	0.19	0.77	
		MMT16ER150ISO	●	●	1.5		9.525	3.44	0.8	1.0	0.23	0.92	
		MMT16ER175ISO	●	●	1.75		9.525	3.44	0.9	1.2	0.21	1.07	
		MMT16ER200ISO	●	●	2.0		9.525	3.44	1.0	1.3	0.31	1.23	
		MMT16ER250ISO	●	●	2.5		9.525	3.44	1.1	1.5	0.32	1.53	
		MMT16ER300ISO	●	●	3.0		9.525	3.44	1.2	1.6	0.46	1.84	
		MMT22ER350ISO	●		3.5		12.7	4.64	1.6	2.3	0.45	2.15	
		MMT22ER400ISO	●		4.0		12.7	4.64	1.6	2.3	0.52	2.45	
		MMT22ER450ISO	●		4.5		12.7	4.64	1.7	2.4	0.58	2.76	
		MMT22ER500ISO	●		5.0		12.7	4.64	1.7	2.5	0.63	3.07	







IDENTIFICATION

MMT **16** **E** **R** **050** **ISO**

Designation

Diameter of Inscribed Circle (mm)

11	6.35
16	9.525
22	12.7

Application

E	External
I	Internal

Hand of Tool

R	Right

Pitch

050	0.5mm	A	0.5—1.5mm or 48—16 thread/inch
075	0.75mm		
100	1.0mm		
125	1.25mm	G	1.75—3.0mm or 14—8 thread/inch
150	1.5mm		
175	1.75mm		
200	2.0mm	AG	0.5—3.0mm or 48—8 thread/inch
250	2.5mm		
300	3.0mm		
350	3.5mm	N	3.5—5.0mm or 7—5 thread/inch
400	4.0mm		
450	4.5mm		
500	5.0mm		

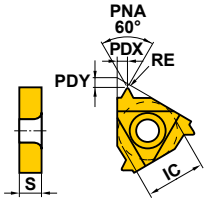
Threading Type

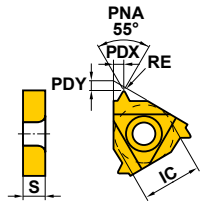
60	Partial Profile 60°
55	Partial Profile 55°
ISO	ISO Metric
W	Whitworth for BSW, BSP
BSPT	BSPT
UN	American UN
RD	Round DIN 405
TR	ISO Trapezoidal 30°
ACME	American ACME
UNJ	UNJ
APBU	API Buttress Casing
APRD	API Round Casing & Tubing
NPT	NPT
NPTF	NPTF

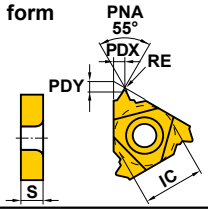
MMT G-CLASS GROUND INSERTS

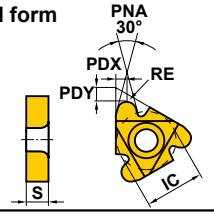
INSERTS

Type	Thread Tolerance	Order Number	Coated VP10MF	Coated VP15TF	Pitch mm	Pitch thread/inch	Dimensions (mm) IC	S	PDY	PDX	RE	Total Cutting Depth (mm)	Geometry
American UN	2A	MMT16ER320UN	●			32	9.525	3.44	0.6	0.6	0.09	0.49	Full form
		MMT16ER280UN	●			28	9.525	3.44	0.6	0.7	0.10	0.56	
		MMT16ER240UN	●			24	9.525	3.44	0.7	0.8	0.16	0.65	
		MMT16ER200UN	●			20	9.525	3.44	0.8	0.9	0.19	0.78	
		MMT16ER180UN	●			18	9.525	3.44	0.8	1.0	0.21	0.87	
		MMT16ER160UN	●	●		16	9.525	3.44	0.9	1.1	0.24	0.97	
		MMT16ER140UN	●	●		14	9.525	3.44	1.0	1.2	0.22	1.11	
		MMT16ER130UN	★			13	9.525	3.44	1.0	1.3	0.24	1.20	
		MMT16ER120UN	●	●		12	9.525	3.44	1.1	1.4	0.32	1.30	
		MMT16ER110UN	★			11	9.525	3.44	1.1	1.5	0.29	1.42	
		MMT16ER100UN	●			10	9.525	3.44	1.1	1.5	0.32	1.56	
		MMT16ER090UN	★			9	9.525	3.44	1.2	1.7	0.35	1.73	
		MMT16ER080UN	●			8	9.525	3.44	1.2	1.6	0.48	1.95	
		MMT22ER070UN	●			7	12.7	4.64	1.6	2.3	0.47	2.22	
		MMT22ER060UN	●			6	12.7	4.64	1.6	2.3	0.53	2.60	
		MMT22ER050UN	●			5	12.7	4.64	1.7	2.5	0.64	3.12	
Whitworth for BSW, BSP	Medium Class A	MMT16ER280W	●			28	9.525	3.44	0.6	0.7	0.09	0.58	Full form
		MMT16ER260W	●			26	9.525	3.44	0.7	0.8	0.10	0.63	
		MMT16ER200W	●			20	9.525	3.44	0.8	0.9	0.18	0.81	
		MMT16ER190W	●	●		19	9.525	3.44	0.8	1.0	0.19	0.86	
		MMT16ER180W	●			18	9.525	3.44	0.8	1.0	0.20	0.90	
		MMT16ER160W	●			16	9.525	3.44	0.9	1.1	0.23	1.02	
		MMT16ER140W	●	●		14	9.525	3.44	1.0	1.2	0.26	1.16	
		MMT16ER120W	★			12	9.525	3.44	1.1	1.4	0.30	1.36	
		MMT16ER110W	●	●		11	9.525	3.44	1.1	1.5	0.33	1.48	
		MMT16ER100W	★			10	9.525	3.44	1.1	1.5	0.37	1.63	
		MMT16ER090W	★			9	9.525	3.44	1.2	1.7	0.34	1.81	
		MMT16ER080W	●			8	9.525	3.44	1.2	1.5	0.39	2.03	
		MMT22ER070W	●			7	12.7	4.64	1.6	2.3	0.46	2.32	
		MMT22ER060W	●			6	12.7	4.64	1.6	2.3	0.53	2.71	
		MMT22ER050W	●			5	12.7	4.64	1.7	2.4	0.66	3.25	
BSPT	Standard BSPT	MMT16ER280BSPT	●			28	9.525	3.44	0.6	0.6	0.09	0.58	Full form
		MMT16ER190BSPT	●	●		19	9.525	3.44	0.8	0.9	0.14	0.86	
		MMT16ER140BSPT	●	●		14	9.525	3.44	1.0	1.2	0.26	1.16	
		MMT16ER110BSPT	●	●		11	9.525	3.44	1.1	1.5	0.33	1.48	
Round DIN 405	7h	MMT16ER100RD	●			10	9.525	3.44	1.1	1.2	0.60	1.27	Full form
		MMT16ER080RD	●			8	9.525	3.44	1.4	1.3	0.75	1.59	
		MMT16ER060RD	●			6	9.525	3.44	1.5	1.7	1.00	2.12	
		MMT22ER040RD	●			4	9.525	3.44	2.2	2.3	1.51	3.18	









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

INSERTS

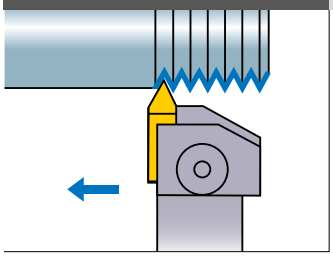
Type	Thread Tolerance	Order Number	Coated VP10MF	Pitch mm	Pitch thread/inch	Dimensions (mm) IC	S	PDY	PDX	RE	Total Cutting Depth (mm)	Geometry
ISO Trapezoidal 30°	7e	**MMT16ER150TR**	●	1.5		9.525	3.44	1.0	1.1	0.08	0.90	Semi-full form PNA 30°
		MMT16ER200TR	●	2.0		9.525	3.44	1.1	1.3	0.15	1.25	
		MMT16ER300TR	●	3.0		9.525	3.44	1.3	1.5	0.15	1.75	
		MMT22ER400TR	●	4.0		12.7	4.64	1.7	1.9	0.15	2.25	
		MMT22ER500TR	●	5.0		12.7	4.64	2.1	2.5	0.15	2.75	
American ACME	3G	**MMT16ER120ACME**	●		12	9.525	3.44	1.1	1.2	0.08	1.19	Semi-full form PNA 29°
		MMT16ER100ACME	●		10	9.525	3.44	1.3	1.4	0.08	1.52	
		MMT16ER080ACME	●		8	9.525	3.44	1.4	1.5	0.10	1.84	
		MMT22ER060ACME	●		6	12.7	4.64	1.8	2.1	0.10	2.37	
		MMT22ER050ACME	●		5	12.7	4.64	2.0	2.3	0.10	2.79	
UNJ	3A	**MMT16ER320UNJ**	●		32	9.525	3.44	0.6	0.7	0.13	0.46	Full form
		MMT16ER280UNJ	●		28	9.525	3.44	0.7	0.7	0.14	0.52	
		MMT16ER240UNJ	●		24	9.525	3.44	0.7	0.8	0.17	0.61	
		MMT16ER200UNJ	●		20	9.525	3.44	0.8	0.9	0.20	0.73	
		MMT16ER180UNJ	●		18	9.525	3.44	0.8	1.0	0.22	0.81	
		MMT16ER160UNJ	●		16	9.525	3.44	0.9	1.1	0.25	0.92	
		MMT16ER140UNJ	●		14	9.525	3.44	1.0	1.2	0.29	1.05	
		MMT16ER120UNJ	●		12	9.525	3.44	1.1	1.3	0.33	1.22	
		MMT16ER100UNJ	★		10	9.525	3.44	1.2	1.5	0.40	1.47	
		MMT16ER080UNJ	★		8	9.525	3.44	1.2	1.6	0.51	1.83	
API Buttress Casing	Standard API	**MMT22ER050APBU**	★		5	12.7	4.64	3.1	1.9	0.18	1.55	Full form
API Round Casing&Tubing	Standard API RD	**MMT16ER100APRD**	●		10	9.525	3.44	1.2	1.4	0.34	1.41	Full form
		MMT16ER080APRD	●		8	9.525	3.44	1.3	1.5	0.41	1.81	
American NPT	Standard NPT	**MMT16ER270NPT**	★		27	9.525	3.44	0.7	0.8	0.04	0.66	Full form
		MMT16ER180NPT	●		18	9.525	3.44	0.8	1.0	0.08	1.01	
		MMT16ER140NPT	●		14	9.525	3.44	0.9	1.2	0.09	1.33	
		MMT16ER115NPT	●		11.5	9.525	3.44	1.1	1.5	0.11	1.64	
		MMT16ER080NPT	●		8	9.525	3.44	1.3	1.8	0.14	2.42	
American NPTF	Class 2	**MMT16ER270NPTF**	★		27	9.525	3.44	0.7	0.8	0.04	0.64	Full form
		MMT16ER180NPTF	●		18	9.525	3.44	0.8	1.0	0.04	1.00	
		MMT16ER140NPTF	●		14	9.525	3.44	0.9	1.2	0.04	1.35	
		MMT16ER115NPTF	●		11.5	9.525	3.44	1.1	1.5	0.04	1.63	
		MMT16ER080NPTF	●		8	9.525	3.44	1.3	1.8	0.04	2.38	

MT HOLDER

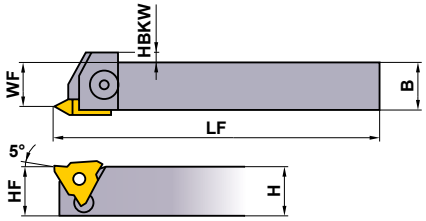
- Clamp-on type.
- Positive insert suffers from negligible chattering and thus produces good finished surfaces.
- Thread pitch ≤4.5mm.

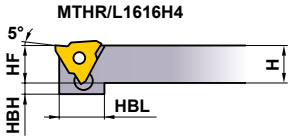
MTH

External threading



Note 1) Cutting in the opposite direction is not possible.





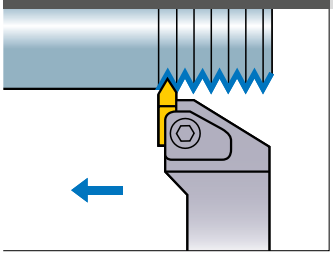
Right hand tool holder shown.

Order Number	Stock		Insert Number	Dimensions (mm)								Clamp Bridge	Clamp Screw *	Spring	Wrench
	R	L		H	B	LF	HF	WF	HBKW	HBH	HBL				
MTHR/L1616H4	★	★	MTTR/L43○○○○	16	16	100	16	13.8	3	3	21	MTK1R/L	HBH06020	MES3	HKY40R
MTHR/L2020K4	●	★		20	20	125	20	17.8	—	—	—	MTK1R/L	HBH06020	MES3	HKY40R
MTHR/L2525M4	●	★		25	25	150	25	22.8	—	—	—	MTK1R/L	HBH06020	MES3	HKY40R

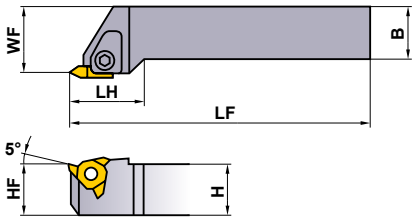
∗ Clamp Torque (N • m) : HBH06020=7.0

MT1

External threading



Note 1) Cutting in the opposite direction is not possible.



Right hand tool holder shown.

Order Number	Stock		Insert Number	Dimensions (mm)						Clamp Bridge	Clamp Screw *	Spring	Wrench
	R	L		H	B	LF	LH	HF	WF				
MT1R/L2020K4	★	★	MTTR/L43○○○○	20	20	125	30	20	25	MTK1R/L	HBH06020	MES3	HKY40R
MT1R/L2525M4	★	★		25	25	150	30	25	32	MTK1R/L	HBH06020	MES3	HKY40R
MT1R/L3232P4	★	★		32	32	170	30	32	40	MTK1R/L	HBH06020	MES3	HKY40R

∗ Clamp Torque (N • m) : HBH06020=7.0

RECOMMENDED CUTTING CONDITIONS

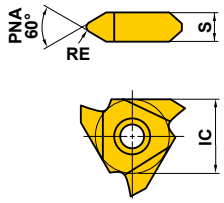
	Material	Hardness	Grade	Cutting Speed (m/min)
P	Mild Steel	≤180HB	**UP20M**	140 (100—180)
			NX2525	200 (150—250)
			UTi20T	120 (100—150)
	Carbon Steel Alloy Steel	180—280HB	**UP20M**	120 (100—150)
			NX2525	170 (150—200)
			UTi20T	100 (70—120)

	Material	Hardness	Grade	Cutting Speed (m/min)
M	Stainless Steel	≤200HB	**UP20M**	120 (80—150)
			UTi20T	100 (70—130)
K	Gray Cast Iron	Tensile Strength ≤350MPa	**UP20M**	80 (60—100)
			UTi20T	80 (60—100)
			HTi10	100 (70—130)

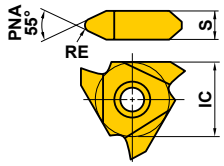
● : Inventory maintained. ★ : Inventory maintained in Japan.
(10 inserts in one case)

INSERTS

Type	Order Number	Class	Coated	Cermet	Carbide		ISO Pitch mm (thread/inch)	Dimensions (mm)			Geometry
			UP20M	NX2525	UTi20T	HTi10		IC	S	RE	
Partial Profile 60°	**MTTR436000**	G		●	●		−0.8	12.7	4.76	0	**MTTR/L(60°)**
	MTTR436001	G	★	●	●	★	1.0−1.75	12.7	4.76	0.1	
	MTTL436001	G	★		●	★	1.0−1.75	12.7	4.76	0.1	
	MTTR436002	G	★	●	●	★	2.0−2.5	12.7	4.76	0.2	
	MTTL436002	G		●	●		2.0−2.5	12.7	4.76	0.2	
	MTTR436003	G	★	●	●	★	3.0−3.5	12.7	4.76	0.3	
	MTTL436003	G		●	●		3.0−3.5	12.7	4.76	0.3	
	MTTR436004	G		●	●		4.0−4.5	12.7	4.76	0.4	
Partial Profile 55°	**MTTR435501**	G		●	★		(28−10)	12.7	4.76	0.1	**MTTR(55°)**
	MTTR435502	G		●	●		(16−8)	12.7	4.76	0.2	
	MTTR435503	G		●	●		(11−8)	12.7	4.76	0.3	



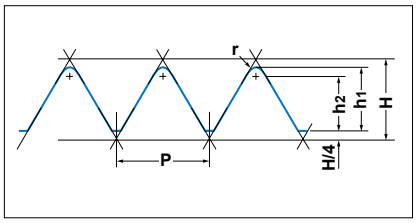
Right hand insert shown.



Right hand insert only.

■ STANDARD OF DEPTH OF CUT

- The chart on the right shows the cutting depths when machining external ISO metric screw threads.
- When using cermet grades or cutting stainless steel, please increase the number of passes by 2−3 times.



● METRIC SCREW THREAD

P (Pitch)		0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50
h_1		0.46	0.61	0.77	0.92	1.07	1.23	1.53	1.84	2.15	2.45	2.76
h_2		0.35	0.47	0.59	0.70	0.82	0.94	1.17	1.41	1.65	1.87	2.11
r (Corner Radius)		0.11	0.14	0.18	0.22	0.25	0.29	0.36	0.43	0.50	0.58	0.65
Number of Passes	1	0.18	0.20	0.20	0.25	0.25	0.25	0.30	0.30	0.35	0.35	0.40
	2	0.13	0.15	0.18	0.20	0.20	0.25	0.25	0.25	0.30	0.30	0.35
	3	0.10	0.10	0.12	0.15	0.20	0.20	0.20	0.25	0.25	0.25	0.30
	4	0.05	0.10	0.12	0.15	0.15	0.15	0.20	0.20	0.20	0.25	0.25
	5		0.06	0.10	0.10	0.12	0.15	0.15	0.20	0.20	0.25	0.25
	6			0.05	0.07	0.10	0.10	0.10	0.15	0.20	0.20	0.20
	7					0.05	0.08	0.10	0.15	0.15	0.20	0.20
	8						0.05	0.10	0.10	0.15	0.15	0.15
	9							0.08	0.10	0.10	0.15	0.15
	10							0.05	0.09	0.10	0.10	0.15
	11								0.05	0.10	0.10	0.10
	12									0.05	0.10	0.10
	13										0.05	0.10
	14											0.06

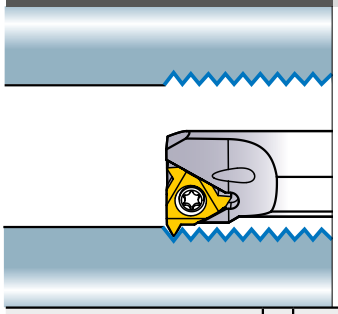
Note 1) The first pass causes a high load on the cutting edge.
In order to avoid damage, keep the depth of cut to 0.4−0.5mm maximum.

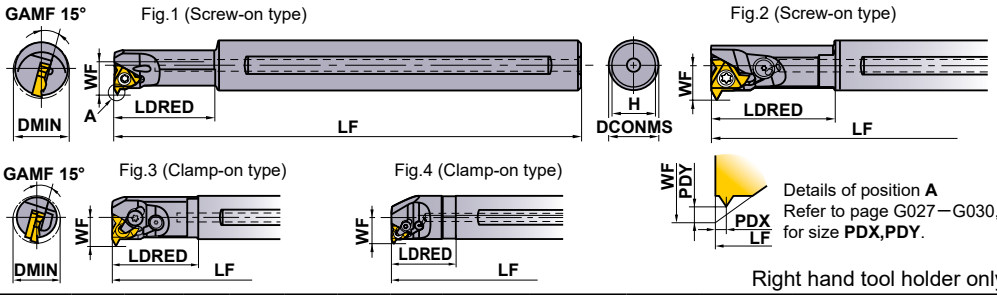
MMTI TYPE BORING BARS

- Minimum cutting diameter 13mm.
- Various insert types.
- Precision class insert.
- Available with a wiper cutting edge to provide a precise thread geometry.
- Able to change lead angle by replacing the shim.

MMTI

Internal threading





Details of position **A** Refer to page G027−G030, for size **PDX,PDY**.

Right hand tool holder only.

Order Number	Stock	Insert Number	Lead Angle	Dimensions (mm)						Clamp Bridge	Clamp Screw *	Stop Ring	①Shim Screw ②Embedded Seat Screw *	Shim	Wrench ①②	Fig
	R			DCONMS	LF	LDRED	WF	H	DMIN							
MMTIR1316AK11-SP15	●	MMT11IR ○○○○○	1.5°	16	125	25	8.7	15	**13**	—	TS25	—	—	—	①TKY08F	1
MMTIR1316AK11-SP25	★		2.5°	16	125	25	8.7	15	**13**	—	TS25	—	—	—	①TKY08F	1
MMTIR1316AK11-SP35	★		3.5°	16	125	25	8.7	15	**13**	—	TS25	—	—	—	①TKY08F	1
MMTIR1516AM11-SP15	●		1.5°	16	150	32	9.7	15	**15**	—	TS25	—	—	—	①TKY08F	1
MMTIR1516AM11-SP25	★		2.5°	16	150	32	9.7	15	**15**	—	TS25	—	—	—	①TKY08F	1
MMTIR1516AM11-SP35	★		3.5°	16	150	32	9.7	15	**15**	—	TS25	—	—	—	①TKY08F	1
MMTIR1916AM16-SP15	●	MMT16IR ○○○○○	1.5°	16	150	40	12.2	15	**19**	—	CS350860T	—	—	—	①TKY15F	2
MMTIR1916AM16-SP25	★		2.5°	16	150	40	12.2	15	**19**	—	CS350860T	—	—	—	①TKY15F	2
MMTIR1916AM16-SP35	★		3.5°	16	150	40	12.2	15	**19**	—	CS350860T	—	—	—	①TKY15F	2
MMTIR2420AQ16-C	●		1.5°	20	180	40	14.2	19	**24**	SETK51	SETS51	CR4	①HFC03006 ②TFS03006	CTI32TP15	①TKY15F ②HKY20R	3
MMTIR2925AS16-C	●		1.5°	25	250	60	16.7	23.4	**29**	SETK51	SETS51	CR4	①HFC03006 ②TFS03006	CTI32TP15	①TKY15F ②HKY20R	3
MMTIR3732AS16-C	●		1.5°	32	250	48	20.5	30.4	**37**	SETK51	SETS51	CR4	①HFC03006 ②TFS03006	CTI32TP15	①TKY15F ②HKY20R	4
MMTIR2420AQ22-SP15	●	MMT22IR ○○○○○	1.5°	20	180	50	15.5	19	**24**	—	TS43	—	—	—	①TKY15F	2
MMTIR2420AQ22-SP25	★		2.5°	20	180	50	15.5	19	**24**	—	TS43	—	—	—	①TKY15F	2
MMTIR2420AQ22-SP35	★		3.5°	20	180	50	15.5	19	**24**	—	TS43	—	—	—	①TKY15F	2
MMTIR3025AR22-C	●		1.5°	25	200	38	17.8	23.4	**30**	SETK61	SETS61	CR5	①HFC04008 ②TFS03006	CTI43TP15	①TKY20F ②HKY25R	4
MMTIR3832AS22-C	●		1.5°	32	250	48	21.8	30.4	**38**	SETK61	SETS61	CR5	①HFC04008 ②TFS03006	CTI43TP15	①TKY20F ②HKY25R	4
MMTIR4640AT22-C	★		1.5°	40	300	60	26.2	38	**46**	SETK61	SETS61	CR5	①HFC04008 ②TFS03006	CTI43TP15	①TKY20F ②HKY25R	4

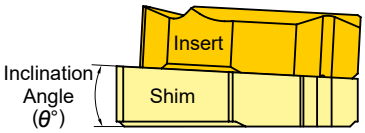
Note 1) Select and use a shim as shown below (sold separately), dependant on the lead angle.
- A screw-on tool holder uses no shim. (The holder body has a lead angle.) Use a tool holder with the appropriate lead angle.
- Min. cutting diameter (DMIN) shows the internal hole diameter, not the thread diameter.

* Clamp Torque (N • m) : TS25=1.0, CS350860T=3.5, SETS51=3.5, TS43=3.5, SETS61=5.0, HFC03006=1.5, HFC04008=2.2

SHIM

Lead Angle (α°)	Order Number	Stock R	Inclination Angle (θ°)	Applicable Holder
−1.5°	**CTI32TN15**	●	−3°	MMTIR ○○○○ ○○16-C
−0.5°	**CTI32TN05**	●	−2°	
0.5°	**CTI32TP05**	●	−1°	
1.5°	**CTI32TP15**	●	0°	
2.5°	**CTI32TP25**	●	1°	
3.5°	**CTI32TP35**	●	2°	
4.5°	**CTI32TP45**	●	3°	

Lead Angle (α°)	Order Number	Stock R	Inclination Angle (θ°)	Applicable Holder
−1.5°	**CTI43TN15**	●	−3°	MMTIR ○○○○ ○○22-C
−0.5°	**CTI43TN05**	●	−2°	
0.5°	**CTI43TP05**	●	−1°	
1.5°	**CTI43TP15**	●	0°	
2.5°	**CTI43TP25**	●	1°	
3.5°	**CTI43TP35**	●	2°	
4.5°	**CTI43TP45**	●	3°	



Standard shim delivered with the holder.

RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Grade	Cutting Speed (m/min)
P	Mild Steel	≤180HB	**MP9025**	80 (60−100)
			VP10MF	150 (70−230)
			VP15TF	100 (60−140)
			VP20RT	80 (60−100)
	Carbon Steel Alloy Steel	180−280HB	**MP9025**	80 (60−100)
			VP10MF	140 (80−200)
			VP15TF	100 (60−140)
			VP20RT	80 (60−100)
M	Stainless Steel	≤200HB	**MP9025**	80 (40−120)
			VP15TF	80 (40−120)
			VP20RT	
K	Gray Cast Iron	Tensile Strength ≤350MPa	**VP10MF**	140 (80−200)
			VP15TF	90 (60−120)

	Material	Hardness	Grade	Cutting Speed (m/min)
S	Heat-Resistant Alloy	—	**MP9025**	30 (20−40)
			VP10MF	45 (15−70)
			VP15TF	30 (20−40)
			VP20RT	
	Titanium Alloy	—	**MP9025**	45 (25−65)
			VP10MF	60 (40−80)
			VP15TF	45 (25−65)
			VP20RT	
H	Heat-Treated Alloy	45−55HRC	**VP10MF**	50 (30−70)
			VP15TF	40 (20−60)

● : Inventory maintained. ★ : Inventory maintained in Japan. (5 inserts in one case)

HOW TO SELECT A SHIM ➤ G012
MMT SERIES ORDER NUMBER ➤ G018

MMT M-CLASS INSERTS WITH 3-D CHIPBREAKERS

INSERTS

Type	Order Number	Coated			Pitch		Dimensions (mm)					Total Cutting Depth (mm)	Geometry
		NEW MP9025	VP15TF	VP20RT	mm	thread/inch	IC	S	PDY	PDX	RE		
Partial Profile 60°	MMT11IRA60-S	●	●	●	0.5—1.5	48—16	6.35	3.04	0.8	0.9	0.03	—	Partial form PNA 60°
	MMT16IRAG60-S	●	●	●	0.5—3.0	48—8	9.525	3.44	1.2	1.7	0.05	—	
	MMT16IRA60-S	●	●	●	0.5—1.5	48—16	9.525	3.44	0.8	0.9	0.03	—	
	MMT16IRG60-S	●	●	●	1.75—3.0	14—8	9.525	3.44	1.2	1.7	0.11	—	
Partial Profile 55°	MMT11IRA55-S	●	●	●		48—16	6.35	3.04	0.8	0.9	0.07	—	Partial form PNA 55°
	MMT16IRAG55-S	●	●	●		48—8	9.525	3.44	1.2	1.7	0.07	—	
	MMT16IRA55-S	●	●	●		48—16	9.525	3.44	0.8	0.9	0.07	—	
	MMT16IRG55-S	●	●	●		14—8	9.525	3.44	1.2	1.7	0.21	—	
ISO Metric	MMT11IR100ISO-S	★	●	★	1.0		6.35	3.04	0.6	0.7	0.06	0.58	Full form PNA 60°
	MMT11IR125ISO-S	★	●	★	1.25		6.35	3.04	0.8	0.9	0.08	0.72	
	MMT11IR150ISO-S	★	●	★	1.5		6.35	3.04	0.8	1.0	0.10	0.87	
	MMT16IR100ISO-S	●	●	●	1.0		9.525	3.44	0.6	0.7	0.06	0.58	
	MMT16IR125ISO-S	●	●	●	1.25		9.525	3.44	0.8	0.9	0.08	0.72	
	MMT16IR150ISO-S	●	●	●	1.5		9.525	3.44	0.8	1.0	0.10	0.87	
	MMT16IR175ISO-S	●	●	●	1.75		9.525	3.44	0.9	1.2	0.11	1.01	
	MMT16IR200ISO-S	●	●	●	2.0		9.525	3.44	1.0	1.3	0.13	1.15	
	MMT16IR250ISO-S	●	●	●	2.5		9.525	3.44	1.1	1.5	0.17	1.44	
	MMT16IR300ISO-S	●	●	●	3.0		9.525	3.44	1.1	1.5	0.20	1.73	
American UN	MMT16IR160UN-S	★	●	★		16	9.525	3.44	0.9	1.1	0.11	0.92	Full form PNA 60°
	MMT16IR140UN-S	★	●	★		14	9.525	3.44	0.9	1.2	0.12	1.05	
	MMT16IR120UN-S	★	●	★		12	9.525	3.44	1.1	1.4	0.14	1.22	
Whitworth for BSW, BSP	MMT16IR190W-S	●	●	●		19	9.525	3.44	0.8	1.0	0.18	0.86	Full form PNA 55°
	MMT16IR140W-S	●	●	●		14	9.525	3.44	1.0	1.2	0.25	1.16	
	MMT16IR110W-S	●	●	●		11	9.525	3.44	1.1	1.5	0.32	1.48	
BSPT	MMT16IR190BSPT-S	★	●	★		19	9.525	3.44	0.8	0.9	0.18	0.86	Full form PNA 55°
	MMT16IR140BSPT-S	★	●	★		14	9.525	3.44	1.0	1.2	0.25	1.16	
	MMT16IR110BSPT-S	★	●	★		11	9.525	3.44	1.1	1.5	0.32	1.48	

IDENTIFICATION

MMT | **16** | **I** | **R** | **100** | **ISO** – **S**

S — M-class inserts with 3-D chipbreakers

Designation

Diameter of Inscribed Circle (mm)

11	6.35
16	9.525

Application

E	External
I	Internal

Hand of Tool

R	Right

Pitch

100	1.0mm	A	0.5—1.5mm or 48—16 thread/inch
125	1.25mm		
150	1.5mm	G	1.75—3.0mm or 14—8 thread/inch
175	1.75mm		
200	2.0mm	AG	0.5—3.0mm or 48—8 thread/inch
250	2.5mm		
300	3.0mm		

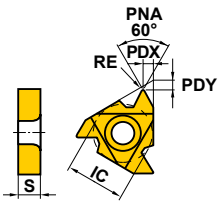
Threading Type

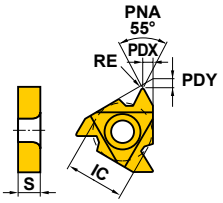
60	Partial Profile 60°
55	Partial Profile 55°
ISO	ISO Metric
W	Whitworth for BSW, BSP
BSPT	BSPT
UN	American UN

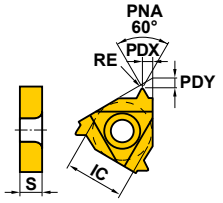
MMT G-CLASS GROUND INSERTS

INSERTS

Type	Thread Tolerance	Order Number	Coated VP10MF	Coated VP15TF	Pitch mm	Pitch thread/inch	Dimensions (mm) IC	S	PDY	PDX	RE	Total Cutting Depth (mm)	Geometry
Partial Profile 60°	—	MMT11IRA60	●	●	0.5—1.5	48—16	6.35	3.04	0.8	0.9	0.05	—	Partial form
		MMT16IRA60	●	●	0.5—1.5	48—16	9.525	3.44	0.8	0.9	0.05	—	
		MMT16IRG60	●	●	1.75—3.0	14—8	9.525	3.44	1.2	1.7	0.16	—	
		MMT16IRAG60	●		0.5—3.0	48—8	9.525	3.44	1.2	1.7	0.05	—	
		MMT22IRN60	●		3.5—5.0	7—5	12.7	4.64	1.7	2.5	0.30	—	
Partial Profile 55°	—	MMT11IRA55	●	●		48—16	6.35	3.04	0.8	0.9	0.05	—	Partial form
		MMT16IRA55	●	●		48—16	9.525	3.44	0.8	0.9	0.05	—	
		MMT16IRG55	●	●		14—8	9.525	3.44	1.2	1.7	0.21	—	
		MMT16IRAG55	●			48—8	9.525	3.44	1.2	1.7	0.07	—	
		MMT22IRN55	●			7—5	12.7	4.64	1.7	2.5	0.44	—	
ISO Metric	6H	MMT11IR050ISO	●		0.5		6.35	3.04	0.6	0.4	0.03	0.29	Full form
		MMT11IR075ISO	●		0.75		6.35	3.04	0.6	0.6	0.04	0.43	
		MMT11IR100ISO	●	●	1.0		6.35	3.04	0.6	0.7	0.10	0.58	
		MMT11IR125ISO	●	●	1.25		6.35	3.04	0.8	0.9	0.12	0.72	
		MMT11IR150ISO	●	●	1.5		6.35	3.04	0.8	1.0	0.14	0.87	
		MMT11IR175ISO	●		1.75		6.35	3.04	0.9	1.1	0.10	1.01	
		MMT11IR200ISO	●		2.0		6.35	3.04	0.9	1.1	0.18	1.15	
		MMT16IR050ISO	●		0.5		9.525	3.44	0.6	0.4	0.03	0.29	
		MMT16IR075ISO	●		0.75		9.525	3.44	0.6	0.6	0.04	0.43	
		MMT16IR100ISO	●	●	1.0		9.525	3.44	0.6	0.7	0.10	0.58	
		MMT16IR125ISO	●	●	1.25		9.525	3.44	0.8	0.9	0.12	0.72	
		MMT16IR150ISO	●	●	1.5		9.525	3.44	0.8	1.0	0.14	0.87	
		MMT16IR175ISO	●	●	1.75		9.525	3.44	0.9	1.2	0.10	1.01	
		MMT16IR200ISO	●	●	2.0		9.525	3.44	1.0	1.3	0.18	1.15	
		MMT16IR250ISO	●	●	2.5		9.525	3.44	1.1	1.5	0.15	1.44	
		MMT16IR300ISO	●	●	3.0		9.525	3.44	1.1	1.5	0.26	1.73	
		MMT22IR350ISO	●		3.5		12.7	4.64	1.6	2.3	0.22	2.02	
		MMT22IR400ISO	●		4.0		12.7	4.64	1.6	2.3	0.25	2.31	
		MMT22IR450ISO	●		4.5		12.7	4.64	1.6	2.4	0.28	2.60	
		MMT22IR500ISO	●		5.0		12.7	4.64	1.6	2.3	0.32	2.89	







IDENTIFICATION

MMT **16** **I** **R** **050** **ISO**

Designation

Diameter of Inscribed Circle (mm)

11	6.35
16	9.525
22	12.7

Application

E	External
I	Internal

Hand of Tool

R	Right

Pitch

050	0.5mm	A	0.5—1.5mm or 48—16 thread/inch
075	0.75mm		
100	1.0mm		
125	1.25mm	G	1.75—3.0mm or 14—8 thread/inch
150	1.5mm		
175	1.75mm		
200	2.0mm	AG	0.5—3.0mm or 48—8 thread/inch
250	2.5mm		
300	3.0mm		
350	3.5mm	N	3.5—5.0mm or 7—5 thread/inch
400	4.0mm		
450	4.5mm		
500	5.0mm		

Threading Type

60	Partial Profile 60°
55	Partial Profile 55°
ISO	ISO Metric
W	Whitworth for BSW, BSP
BSPT	BSPT
UN	American UN
RD	Round DIN 405
TR	ISO Trapezoidal 30°
ACME	American ACME
UNJ	UNJ
APBU	API Buttress Casing
APRD	API Round Casing&Tubing
NPT	NPT
NPTF	NPTF

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

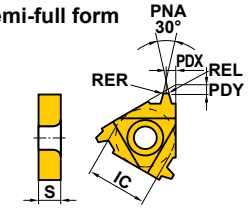
INSERTS

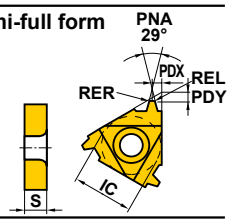
Type	Thread Tolerance	Order Number	Coated VP10MF	Coated VP15TF	Pitch mm	Pitch thread/inch	Dimensions (mm) IC	S	PDY	PDX	RE	Total Cutting Depth (mm)	Geometry
American UN	2B	**MMT11IR320UN**	★			32	6.35	3.04	0.6	0.6	0.04	0.46	Full form
		MMT11IR280UN	★			28	6.35	3.04	0.6	0.7	0.05	0.52	
		MMT11IR240UN	●			24	6.35	3.04	0.7	0.8	0.09	0.61	
		MMT11IR200UN	●			20	6.35	3.04	0.8	0.9	0.11	0.73	
		MMT11IR180UN	●			18	6.35	3.04	0.8	1.0	0.12	0.81	
		MMT11IR160UN	●			16	6.35	3.04	0.9	1.1	0.14	0.92	
		MMT11IR140UN	●			14	6.35	3.04	0.9	1.1	0.11	1.05	
		MMT16IR320UN	●			32	9.525	3.44	0.6	0.6	0.04	0.46	
		MMT16IR280UN	●			28	9.525	3.44	0.6	0.7	0.05	0.52	
		MMT16IR240UN	●			24	9.525	3.44	0.7	0.8	0.09	0.61	
		MMT16IR200UN	●			20	9.525	3.44	0.8	0.9	0.11	0.73	
		MMT16IR180UN	●			18	9.525	3.44	0.8	1.0	0.12	0.81	
		MMT16IR160UN	●	●		16	9.525	3.44	0.9	1.1	0.14	0.92	
		MMT16IR140UN	●	●		14	9.525	3.44	0.9	1.2	0.11	1.05	
		MMT16IR130UN	●			13	9.525	3.44	1.0	1.3	0.10	1.13	
		MMT16IR120UN	●	●		12	9.525	3.44	1.1	1.4	0.18	1.22	
		MMT16IR110UN	●			11	9.525	3.44	1.1	1.5	0.13	1.33	
		MMT16IR100UN	●			10	9.525	3.44	1.1	1.5	0.15	1.47	
		MMT16IR090UN	●			9	9.525	3.44	1.2	1.7	0.17	1.63	
		MMT16IR080UN	●			8	9.525	3.44	1.1	1.5	0.27	1.83	
		MMT22IR070UN	●			7	12.7	4.64	1.6	2.3	0.23	2.09	
		MMT22IR060UN	●			6	12.7	4.64	1.6	2.3	0.26	2.44	
		MMT22IR050UN	●			5	12.7	4.64	1.6	2.3	0.32	2.93	
Whitworth for BSW, BSP	Medium Class A	**MMT11IR190W**	●			19	6.35	3.04	0.8	1.0	0.19	0.86	Full form
		MMT11IR140W	●			14	6.35	3.04	0.9	1.1	0.26	1.16	
		MMT16IR280W	●			28	9.525	3.44	0.6	0.7	0.09	0.58	
		MMT16IR260W	●			26	9.525	3.44	0.7	0.8	0.10	0.63	
		MMT16IR200W	●			20	9.525	3.44	0.8	0.9	0.18	0.81	
		MMT16IR190W	●	●		19	9.525	3.44	0.8	1.0	0.19	0.86	
		MMT16IR180W	●			18	9.525	3.44	0.8	1.0	0.20	0.90	
		MMT16IR160W	●			16	9.525	3.44	0.9	1.1	0.23	1.02	
		MMT16IR140W	●	●		14	9.525	3.44	1.0	1.2	0.26	1.16	
		MMT16IR120W	●			12	9.525	3.44	1.1	1.4	0.30	1.36	
		MMT16IR110W	●	●		11	9.525	3.44	1.1	1.5	0.33	1.48	
		MMT16IR100W	●			10	9.525	3.44	1.1	1.5	0.37	1.63	
		MMT16IR090W	●			9	9.525	3.44	1.2	1.7	0.34	1.81	
		MMT16IR080W	●			8	9.525	3.44	1.2	1.5	0.39	2.03	
		MMT22IR070W	●			7	12.7	4.64	1.6	2.3	0.46	2.32	
		MMT22IR060W	●			6	12.7	4.64	1.6	2.3	0.53	2.71	
		MMT22IR050W	●			5	12.7	4.64	1.7	2.4	0.66	3.25	
BSPT	Standard BSPT	**MMT11IR190BSPT**	●			19	6.35	3.04	0.8	0.9	0.14	0.86	Full form
		MMT11IR140BSPT	●			14	6.35	3.04	0.9	1.0	0.26	1.16	
		MMT16IR190BSPT	★	★		19	9.525	3.44	0.8	0.9	0.14	0.86	
		MMT16IR140BSPT	★	★		14	9.525	3.44	1.0	1.2	0.26	1.16	
		MMT16IR110BSPT	★	★		11	9.525	3.44	1.1	1.5	0.33	1.48	
Round DIN 405	7H	**MMT16IR100RD**	●			10	9.525	3.44	1.1	1.2	0.55	1.27	Full form
		MMT16IR080RD	●			8	9.525	3.44	1.4	1.4	0.70	1.59	
		MMT16IR060RD	●			6	9.525	3.44	1.4	1.5	0.93	2.12	
		MMT22IR040RD	●			4	12.7	4.64	2.2	2.3	1.40	3.18	

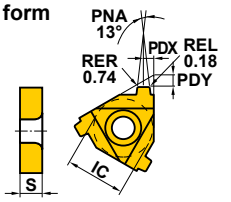
MMT G-CLASS GROUND INSERTS

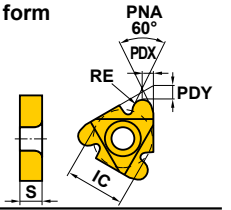
INSERTS

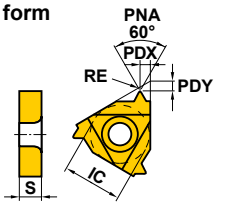
Type	Thread Tolerance	Order Number	Coated VP10MF	Pitch mm	Pitch thread/inch	Dimensions (mm) IC	S	PDY	PDX	RE	Total Cutting Depth (mm)	Geometry
ISO Trapezoidal 30°	7H	MMT16IR150TR	●	1.5		9.525	3.44	1.0	1.1	0.08	0.90	Semi-full form
		MMT16IR200TR	●	2.0		9.525	3.44	1.1	1.3	0.15	1.25	
		MMT16IR300TR	●	3.0		9.525	3.44	1.3	1.5	0.15	1.75	
		MMT22IR400TR	●	4.0		12.7	4.64	1.7	1.9	0.15	2.25	
		MMT22IR500TR	●	5.0		12.7	4.64	2.1	2.5	0.15	2.75	
American ACME	3G	MMT16IR120ACME	●		12	9.525	3.44	1.2	1.3	0.05	1.19	Semi-full form
		MMT16IR100ACME	●		10	9.525	3.44	1.2	1.3	0.08	1.52	
		MMT16IR080ACME	●		8	9.525	3.44	1.4	1.5	0.10	1.84	
		MMT22IR060ACME	●		6	12.7	4.64	1.8	2.1	0.10	2.37	
		MMT22IR050ACME	●		5	12.7	4.64	2.0	2.3	0.10	2.79	
UNJ		When machining an internal UNJ thread, cut an internal hole with the appropriate diameter. Then machine with American UN 60°. In this case, a full form type insert cannot be used.										
API Buttress Casing	Standard API	MMT22IR050APBU	●		5	12.7	4.64	2.8	1.9	0.18	1.55	Full form
API Round Casing&Tubing	Standard API RD	MMT16IR100APRD	●		10	9.525	3.44	1.2	1.4	0.34	1.41	Full form
		MMT16IR080APRD	●		8	9.525	3.44	1.3	1.5	0.41	1.81	
American NPT	Standard NPT	MMT16IR270NPT	★		27	9.525	3.44	0.7	0.8	0.04	0.66	Full form
		MMT16IR180NPT	★		18	9.525	3.44	0.8	1.0	0.08	1.01	
		MMT16IR140NPT	●		14	9.525	3.44	0.9	1.2	0.09	1.33	
		MMT16IR115NPT	●		11.5	9.525	3.44	1.1	1.5	0.11	1.64	
		MMT16IR080NPT	●		8	9.525	3.44	1.3	1.8	0.14	2.42	
American NPTF	Class 2	MMT16IR140NPTF	★		14	9.525	3.44	0.9	1.2	0.04	1.35	Full form
		MMT16IR115NPTF	★		11.5	9.525	3.44	1.1	1.5	0.04	1.63	
		MMT16IR080NPTF	★		8	9.525	3.44	1.3	1.8	0.04	2.38	

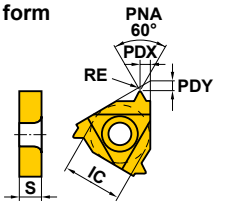










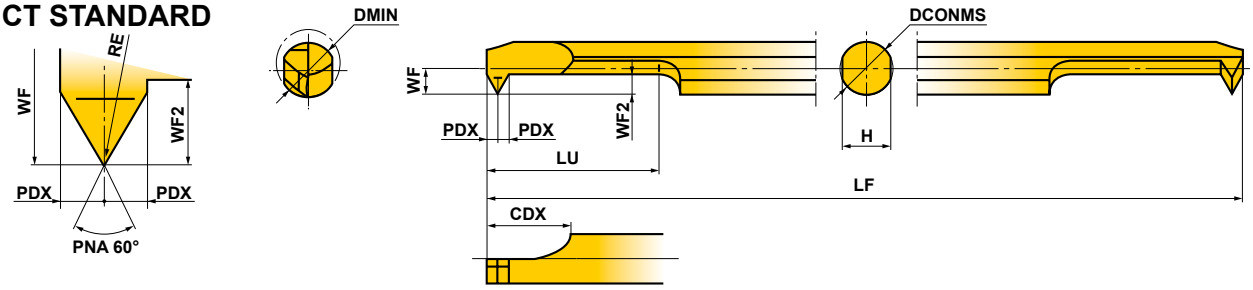


● : Inventory maintained. ★ : Inventory maintained in Japan.
(5 inserts in one case)

STANDARD OF DEPTH OF CUT ➤ G016

MICRO-MINI TWIN

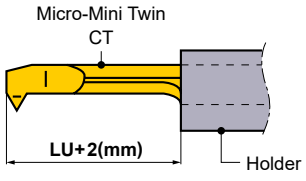
■CT STANDARD



Order Number	Stock: Coated Carbide NEW MS7025	Stock: Coated Carbide NEW MS9025	Stock: Coated Carbide VP15TF	Stock: Micro Grain Carbide TF15	Chipbreaker	Threads: Metric Screw Thread	Threads: Metric Screw Pitch (mm)	Threads: Unified Coarse Screw Thread	Threads: Unified Coarse Screw Pitch (thread/inch)	Dimensions (mm) DMIN	RE	DCONMS	LF	LU	CDX	WF	PDX	WF2	H
CT0305RS-M4			★	★	Without	≧M4	0.5—1.0	≧NO.8-32UNC	36—24	3	0.03	3	50	5.2	6	1.3	0.6	1.2	2.7
CT03RS-M4			●	●	Without	≧M4	0.5—1.0	≧NO.8-36UNF	36—24	3	0.03	3	50	10.2	6	1.3	0.6	1.2	2.7
CT03RS-M4B	●	●	●	●	With	≧M4	0.5—1.0		36—24	3	0.03	3	50	10.2	6	1.3	0.6	1.2	2.7
NEW CT035RS-M5B	●	●			With	≧M5	0.5—1.0	≧NO.10-24UNC ≧NO.10-32UNF	32—24	4	0.03	3.5	60	10.4	6.5	1.55	0.7	1.45	3.15
CT0407RS-M6			★	★	Without	≧M6	0.75—1.25	≧1/4-20UNC	28—20	4.5	0.05	4	60	7.6	7	1.8	0.8	1.7	3.6
CT04RS-M6			●	●	Without	≧M6	0.75—1.25	≧1/4-28UNF	28—20	4.5	0.05	4	60	15.6	7	1.8	0.8	1.7	3.6
CT04RS-M6B	●	●	●	●	With	≧M6	0.75—1.25		28—20	4.5	0.05	4	60	15.6	7	1.8	0.8	1.7	3.6
NEW CT045RS-M7B	●	●			With	≧M7	0.75—1.25	≧1/4-20UNC ≧1/4-28UNF	28—20	5	0.05	4.5	70	15.8	7.5	2.05	0.9	1.95	4.05
CT0511RS-M8			★	★	Without	≧M8	0.75—1.5	≧5/16-18UNC	24—18	6	0.05	5	70	11	8	2.3	1	2.2	4.5
CT05RS-M8			●	●	Without	≧M8	0.75—1.5	≧5/16-24UNF	24—18	6	0.05	5	70	21	8	2.3	1	2.2	4.5
CT05RS-M8B	●	●	●	●	With	≧M8	0.75—1.5		24—18	6	0.05	5	70	21	8	2.3	1	2.2	4.5
CT0611RS-M10			★	★	Without	≧M10	0.75—1.75	≧3/8-16UNC	24—16	7	0.05	6	75	11	8	2.8	1	2.2	5.4
CT06RS-M10			●	●	Without	≧M10	0.75—1.75	≧3/8-24UNF	24—16	7	0.05	6	75	21	8	2.8	1	2.2	5.4
CT06RS-M10B	●	●	●	●	With	≧M10	0.75—1.75		24—16	7	0.05	6	75	21	8	2.8	1	2.2	5.4

RECOMMENDED CUTTING CONDITIONS

	Material	Cutting Speed (m/min)	Recommended Tool Overhang (mm)
P	Carbon Steel Alloy Steel	50 (30—80)	
M	Stainless Steel	50 (30—80)	
K	Cast Iron	50 (30—80)	
N	Non-Ferrous Metal	80 (50—100)	
S	Heat-Resistant Alloy	40 (30—60)	



(Note 1) Wet cutting is recommended.
(Note 2) Pay special attention to machining of small diameters at high revolutions as the feed rate cannot keep up with the speed.

■STANDARD OF DEPTH OF CUT

●The chart on the right shows the cutting depths when machining external ISO metric screw threads.

● Metric

(mm)

P (Pitch)		0.50	0.75	1.00	1.25	1.50	1.75
Total Cutting Depth		0.29	0.43	0.58	0.72	0.87	1.01
Number of Passes	1	0.06	0.06	0.07	0.07	0.07	0.07
	2	0.05	0.06	0.06	0.07	0.07	0.07
	3	0.05	0.05	0.06	0.07	0.07	0.07
	4	0.04	0.05	0.05	0.07	0.07	0.07
	5	0.03	0.04	0.05	0.06	0.06	0.07
	6	0.03	0.04	0.05	0.06	0.06	0.06
	7	0.02	0.04	0.04	0.05	0.06	0.06
	8	0.01	0.03	0.04	0.05	0.06	0.06
	9	—	0.03	0.04	0.05	0.05	0.06
	10	—	0.02	0.03	0.04	0.05	0.05
	11	—	0.01	0.03	0.04	0.05	0.05
	12	—	—	0.03	0.03	0.04	0.05
	13	—	—	0.02	0.03	0.04	0.04
	14	—	—	0.01	0.02	0.03	0.04
	15	—	—	—	0.01	0.03	0.04
	16	—	—	—	—	0.03	0.03
	17	—	—	—	—	0.02	0.03
	18	—	—	—	—	0.01	0.03
	19	—	—	—	—	—	0.03
	20	—	—	—	—	—	0.02
	21	—	—	—	—	—	0.01

● : Inventory maintained. ★ : Inventory maintained in Japan.
(MICRO-MINI TWIN is available in 1 piece in one pack.)

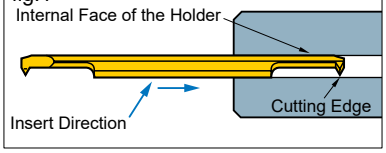
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

■PRECAUTIONS WHEN USING THE MICRO-MINI TWIN

● When using a holder for general purpose / small automatic lathe:

1 To avoid chipping of the 2nd cutting edge take care when inserting the boring bar into the holder. Refer to fig.1. If the 2nd edge contacts the internal face of the holder there is a possibility that it may chip.

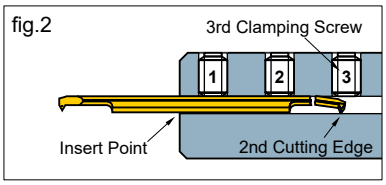
fig.1



2 When using this type of holder, there is a possibility that damage to the shank and the 2nd cutting edge can occur. Make sure that the clamping screws are tightened to the set torque value. Additionally make sure that there is no clamping screw near the 2nd cutting edge as this can break the boring bar.

◎ When using Mitsubishi Materials holders
When using holders with a tool overhang of recommended quantity, ensure that the 3rd clamping screw is removed prior to machining. The set torque value for the clamping screw is 2.0 N • m.

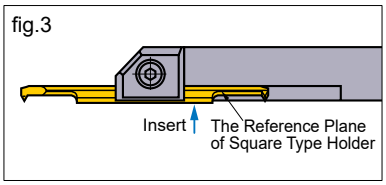
fig.2



● When using a square type holder:

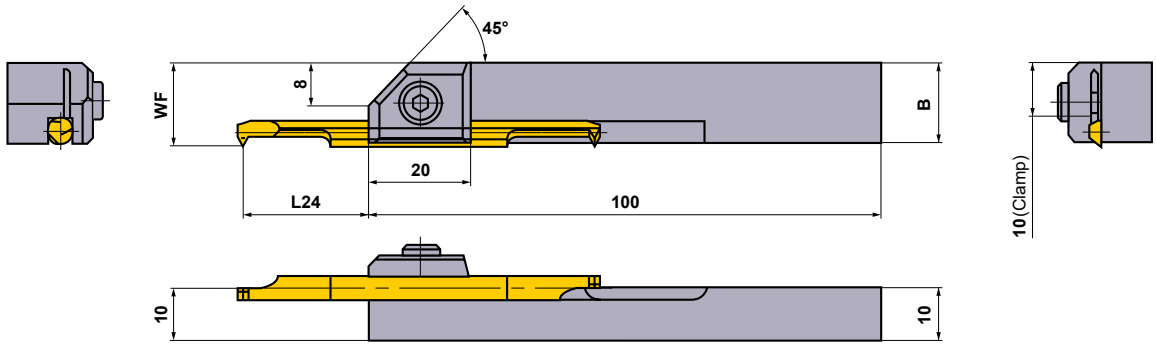
1 When installing the boring bar into the holder, tighten the clamp screws after ensuring the flats on the tool holder are parallel to the reference flats on the micro-mini bar. Refer to fig.3.
2 Make sure that the clamping screws are tightened to the recommended values.
3 Do not tighten the clamp screw without a bar in place, otherwise the bridge will be deformed.

fig.3



G
THREADING

SQUARE TYPE HOLDER



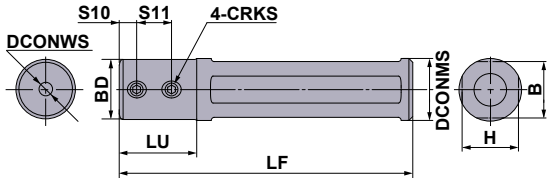
Order Number	Stock	Dimensions (mm) Micro-Mini Twin **CT** B	WF	L24 *	Micro-Mini Twin **CT**	Clamp Screw	Wrench	Torque (N•m)
SBH1030R	★	13.8	13.8	13—17.5(14)	0305RS-M4, 03RS-M4(B)	HSC05012	HKY40R	9.5
SBH1040R	★	14.7	14.8	18.5—22(19.5)	0407RS-M6, 04RS-M6(B)	HSC05012	HKY40R	9.5
SBH1050R	★	15.6	15.8	24—26.5(25)	0511RS-M8, 05RS-M8(B)	HSC05012	HKY40R	9.5
SBH1060R	★	16.5	16.8	24—31.5(25)	0611RS-M10, 06RS-M10(B)	HSC05012	HKY40R	9.5

* L24 is the length of overhang for sufficient clamping, and ( ) is the recommended length for machining of carbon and alloy steel.

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

ROUND TYPE HOLDER

NEW



Order Number	Stock	Dimensions (mm)								
		DCONMS	DCONWS	BD	LF	LU	H	B	S10	S11
SLV190085025N	●	19.05	2.5	18.5	85	20	17.8	17.8	4.5	9
SLV190085035N	●	19.05	3.5	18.5	85	20	17.8	17.8	4.5	9
SLV190085045N	●	19.05	4.5	18.5	85	20	17.8	17.8	4.5	9
SLV190110025N	●	19.05	2.5	18.5	110	20	17.8	17.8	4.5	9
SLV190110035N	●	19.05	3.5	18.5	110	20	17.8	17.8	4.5	9
SLV190110045N	●	19.05	4.5	18.5	110	20	17.8	17.8	4.5	9
SLV200085025N	●	20.0	2.5	19.0	85	20	18.8	18.8	4.5	9
SLV200085035N	●	20.0	3.5	19.0	85	20	18.8	18.8	4.5	9
SLV200085045N	●	20.0	4.5	19.0	85	20	18.8	18.8	4.5	9
SLV220135025N	●	22.0	2.5	20.0	135	20	20.8	20.8	4.5	9
SLV220135035N	●	22.0	3.5	20.0	135	20	20.8	20.8	4.5	9
SLV220135045N	●	22.0	4.5	20.0	135	20	20.8	20.8	4.5	9
SLV250067025N	●	25.0	2.5	20.0	67	20	23.9	23.9	4.5	9
SLV250067035N	●	25.0	3.5	20.0	67	20	23.9	23.9	4.5	9
SLV250067045N	●	25.0	4.5	20.0	67	20	23.9	23.9	4.5	9
SLV250110025N	●	25.0	2.5	20.0	110	20	23.9	23.9	4.5	9
SLV250110035N	●	25.0	3.5	20.0	110	20	23.9	23.9	4.5	9
SLV250110045N	●	25.0	4.5	20.0	110	20	23.9	23.9	4.5	9
SLV254085025N	●	25.4	2.5	20.0	85	20	24.4	24.4	4.5	9
SLV254085035N	●	25.4	3.5	20.0	85	20	24.4	24.4	4.5	9
SLV254085045N	●	25.4	4.5	20.0	85	20	24.4	24.4	4.5	9
SLV254110025N	●	25.4	2.5	20.0	110	20	24.4	24.4	4.5	9
SLV254110035N	●	25.4	3.5	20.0	110	20	24.4	24.4	4.5	9
SLV254110045N	●	25.4	4.5	20.0	110	20	24.4	24.4	4.5	9

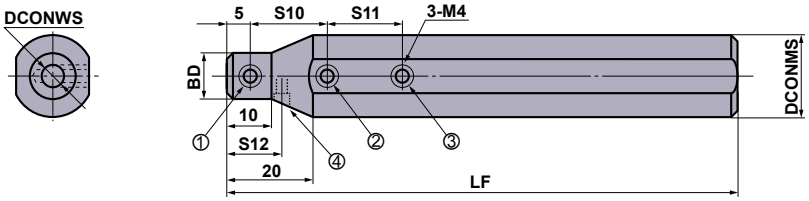
MOUNTING CHART

Series		Boring Bar Type		Holder Type
MICRO-MINI TWIN	Threading	CT	035RS(-B)	SLV○○○○○○035N
MICRO-MINI TWIN	Threading	CT	045RS(-B)	SLV○○○○○○045N

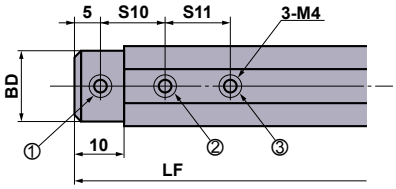
SPARE PARTS

Holder Type	Clamp Screw	Wrench	Clamp Torque (N • m)
SLV○○○○○○025N	HSS04005	HKY20R	2.0
SLV○○○○○○035N	HSS04005	HKY20R	2.0
SLV○○○○○○045N	HSS04005	HKY20R	2.0

ROUND TYPE HOLDER



RBH22□□N has a temporary set screw for different machine specifications.
(Represented by number 4)



RBH158□□N, RBH16□□N,
RBH190□□N

Order Number	Stock	Dimensions (mm)							Micro-Mini Twin CT	✶1 Clamp Screw				Wrench	Torque (N•m)
		DCONMS	DCONWS	BD	LF	S10	S11	S12		①	②	③	④		
RBH15830N	★	15.875	3	15	100	10	10	—	0305RS-M4, 03RS-M4(B)	A	A	A	—	HKY20F	2.0
RBH15840N	★	15.875	4	15	100	15	15	—	0407RS-M6, 04RS-M6(B)	A	A	A	—	HKY20F	2.0
RBH15850N	★	15.875	5	15	100	15	15	—	0511RS-M8, 05RS-M8(B)	A	A	A	—	HKY20F	2.0
RBH15860N	★	15.875	6	15	100	15	15	—	0611RS-M10, 06RS-M10(B)	A	A	A	—	HKY20F	2.0
RBH1630N	●	16	3	15	100	10	10	—	0305RS-M4, 03RS-M4(B)	A	A	A	—	HKY20F	2.0
RBH1640N	●	16	4	15	100	15	15	—	0407RS-M6, 04RS-M6(B)	A	A	A	—	HKY20F	2.0
RBH1650N	●	16	5	15	100	15	15	—	0511RS-M8, 05RS-M8(B)	A	A	A	—	HKY20F	2.0
RBH1660N	●	16	6	15	100	15	15	—	0611RS-M10, 06RS-M10(B)	A	A	A	—	HKY20F	2.0
✶2 **RBH19030N**	★	19.05	3	18	125	10	10	—	0305RS-M4, 03RS-M4(B)	B	B	B	—	HKY20F	2.0
✶2 **RBH19040N**	★	19.05	4	18	125	15	15	—	0407RS-M6, 04RS-M6(B)	B	B	B	—	HKY20F	2.0
✶2 **RBH19050N**	★	19.05	5	18	125	15	15	—	0511RS-M8, 05RS-M8(B)	B	B	B	—	HKY20F	2.0
✶2 **RBH19060N**	★	19.05	6	18	125	15	15	—	0611RS-M10, 06RS-M10(B)	B	B	B	—	HKY20F	2.0
RBH2030N	★	20	3	12	125	10	10	—	0305RS-M4, 03RS-M4(B)	A	A	B	—	HKY20F	2.0
RBH2040N	★	20	4	13	125	15	15	—	0407RS-M6, 04RS-M6(B)	A	B	B	—	HKY20F	2.0
RBH2050N	★	20	5	14	125	15	15	—	0511RS-M8, 05RS-M8(B)	A	B	B	—	HKY20F	2.0
RBH2060N	★	20	6	15	125	15	15	—	0611RS-M10, 06RS-M10(B)	A	B	B	—	HKY20F	2.0
RBH2230N	★	22	3	12	125	10	10	10	0305RS-M4, 03RS-M4(B)	A	B	C	A	HKY20F	2.0
RBH2240N	★	22	4	13	125	15	15	12.5	0407RS-M6, 04RS-M6(B)	A	B	B	A	HKY20F	2.0
RBH2250N	★	22	5	14	125	15	15	12.5	0511RS-M8, 05RS-M8(B)	A	B	B	A	HKY20F	2.0
RBH2260N	★	22	6	15	125	15	15	15	0611RS-M10, 06RS-M10(B)	A	B	B	A	HKY20F	2.0
RBH2530N	★	25	3	12	150	10	10	—	0305RS-M4, 03RS-M4(B)	A	B	C	—	HKY20F	2.0
RBH2540N	★	25	4	13	150	15	15	—	0407RS-M6, 04RS-M6(B)	A	C	C	—	HKY20F	2.0
RBH2550N	★	25	5	14	150	15	15	—	0511RS-M8, 05RS-M8(B)	A	C	C	—	HKY20F	2.0
RBH2560N	★	25	6	15	150	15	15	—	0611RS-M10, 06RS-M10(B)	A	C	C	—	HKY20F	2.0
RBH25430N	★	25.4	3	12	150	10	10	—	0305RS-M4, 03RS-M4(B)	A	B	C	—	HKY20F	2.0
RBH25440N	★	25.4	4	13	150	15	15	—	0407RS-M6, 04RS-M6(B)	A	C	C	—	HKY20F	2.0
RBH25450N	★	25.4	5	14	150	15	15	—	0511RS-M8, 05RS-M8(B)	A	C	C	—	HKY20F	2.0
RBH25460N	★	25.4	6	15	150	15	15	—	0611RS-M10, 06RS-M10(B)	A	C	C	—	HKY20F	2.0

✶1 Order number of clamp screw A=HSS04004, B=HSS04006, C=HSS04008
✶2 Revised order number.

Conventional Order Number	Revised Order Number
RBH1930N	**RBH19030N**
RBH1940N	**RBH19040N**
RBH1950N	**RBH19050N**
RBH1960N	**RBH19060N**

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

SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

Memo

HOW TO READ THE STANDARD OF HSK-T TOOLS

●How this section page is organised

①Organised by product series.
(Refer to the index on the next page.)

FIGURE SHOWING THE TOOLING APPLICATION
Uses illustrations and arrows to depict available machining applications along with cutting edge lead angles.

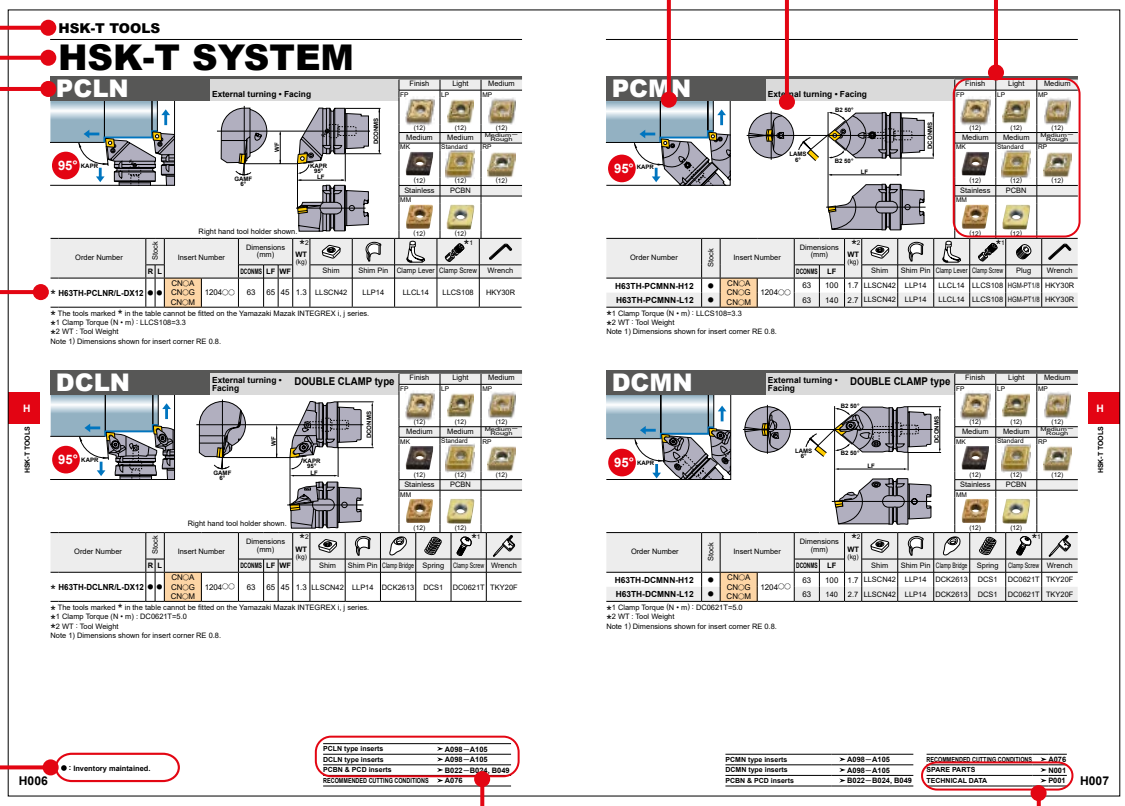
PRODUCT TYPE
Indicates the first four letters of the order number, as well as cutting applications.

TITLE OF PRODUCT SERIES

PRODUCT SECTION

GEOMETRY

CHIPBREAKER BY CUTTING APPLICATION



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

REFERENCE PAGE FOR APPLICABLE INSERTS
Indicates reference pages for details of inserts that are applicable to the product.

PRODUCT STANDARDS
Indicates order numbers, stock status (per right/left hand), applicable inserts, dimensions, and spare parts.

PAGE REFERENCE
▪SPARE PARTS
▪TECHNICAL DATA
Indicates reference pages, including the above, on the right hand page of each double-page spread.

●To Order : Please specify
①order number and hand of tool (right/left).

HSK-T TOOLS

OVERVIEW OF HSK-T TOOLS ····· H002
CLASSIFICATION OF HSK-T TOOLS ····· H004
HSK-T TOOL STANDARDS
EXTERNAL TURNING • FACING
CN○○ INSERTS TOOL HOLDERS ····· H006
DN○○ INSERTS TOOL HOLDERS ····· H011
EXTERNAL TURNING • FACING • BORING
CN○○ INSERTS TOOL HOLDERS ····· H008
EXTERNAL TURNING • COPYING
DN○○ INSERTS TOOL HOLDERS ····· H009
EXTERNAL TURNING • FACING • COPYING
RC○○ INSERTS TOOL HOLDERS ····· H012
FACING • COPYING
VB○○ INSERTS TOOL HOLDERS ····· H013
GROOVING
MG INSERTS TOOL HOLDERS ····· H014
THREADING
MMT INSERTS TOOL HOLDERS ····· H016
MT INSERTS TOOL HOLDERS ····· H017

EXTERNAL TURNING TOOL HOLDERS ····· H019
BORING BAR HOLDERS ····· H021
BORING BAR SLEEVES ····· H022

*Alphabetical order index

H022 **H100TH-B○○-○○○**
H020 **H100TH-EN3232R/L-130**
H019 **H100TH-EV3232R/L-180**
H008 **H63TH-A○○○DCLNR/L12**
H021 **H63TH-B○○-○○**
H008 **H63TH-DCLNL-L12-3**
H006 **H63TH-DCLNR/L-DX12**
H007 **H63TH-DCMNN-H/L12**
H011 **H63TH-DDJNL-L15-3**
H009 **H63TH-DDJNR/L-DX15**
H010 **H63TH-DDNNN-H/L15**
H020 **H63TH-EN2525R/L-115**
H021 **H63TH-EV2020R/L-105-3**
H019 **H63TH-EV2525R/L-112**
H014 **H63TH-MGHR/L-DX43○○**
H016 **H63TH-MMTENR-H/L16**
H016 **H63TH-MMTER-DX16**
H017 **H63TH-MTHR/L-DX43**
H006 **H63TH-PCLNR/L-DX12**
H007 **H63TH-PCMNN-H/L12**
H009 **H63TH-PDJNR/L-DX15**
H010 **H63TH-PDNNN-H/L15**
H012 **H63TH-PRDCN-H/L12**
H012 **H63TH-PRGCR/L-DX12**
H013 **H63TH-SVPBR/L-DX16**
H013 **H63TH-SVVBN-H/L16**
H022 **SL32○○-90**

Tooling system
for turning on
multi-task machines

HSK TOOLS

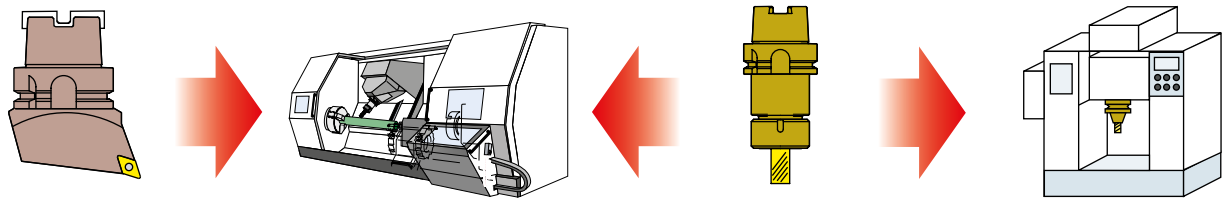
HSK-T System

HSK-T is a new type of HSK system designed for turning on multi-task machines that are compatible with HSK-A type (ISO standard: ISO12164-1:2001). The HSK system was developed by a consortium of 17 Japanese manufacturers and registered in ISO standard (ISO12164-3:2008) under the name HSK-T type in 2008 and JIS standard (JIS B6064-3) in 2013.

High accuracy cutting edge positioning

The HSK-T type has a closer tolerance between the spindle key and tool holder keyway than the HSK-A type. This results in higher cutting edge positional accuracy. For milling, the conventional HSK-A type tools can be still used.

Compatible with both multi-task machines and machining centres



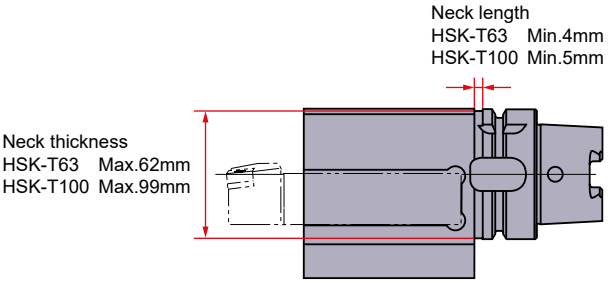
HSK-T
Turning tool holder

HSK-T spindle
Multi-task machines

HSK-A
Rotating tool holder

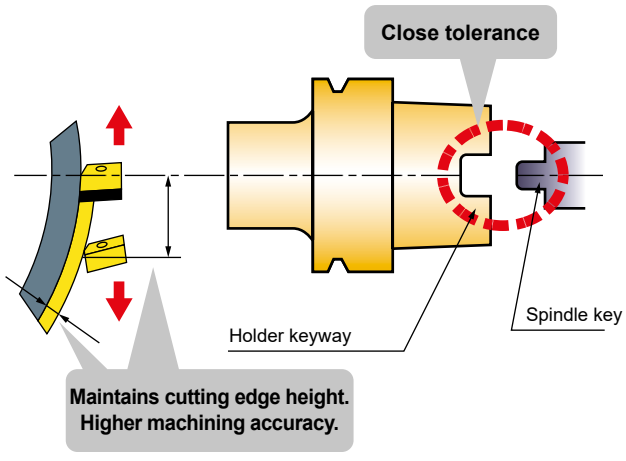
HSK-A spindle
Machining centre

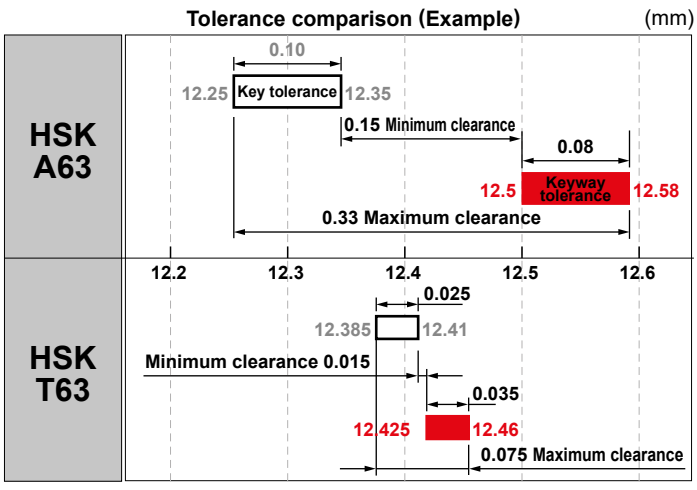
*Note
Short neck length from the flange with thick body of the HSK-T turning tool as shown in the figure at the left.
Because there are machines which cannot be mounted depending on the ATC specifications of the multi-task machine (HSK-A type), please check beforehand.
Also be careful of interference in the magazine with adjacent tools.



HSK-T turning tool standard (Example)

Improved keyway tolerance



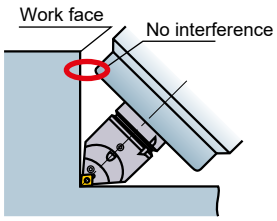


High accuracy and rigidity HSK-T type tooling system developed for use on multi-task machines.

Straight type tools suitable for use on multi-task machines

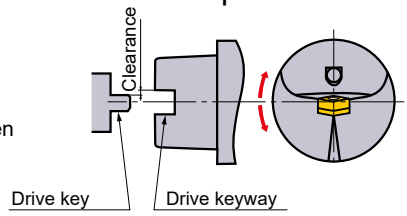
Avoid workpiece interference with improved tool accessibility.

By tilting the machines B spindle (main axis of the tool) at 45 deg, interference between the spindle, holder, workpiece and chuck can be avoided.



Improve centreline height by positioning the cutting edge at the centre of the spindle.

Increased stability and accuracy can be achieved because the cutting edge centreline height is not affected by the gap between the spindle and the key.



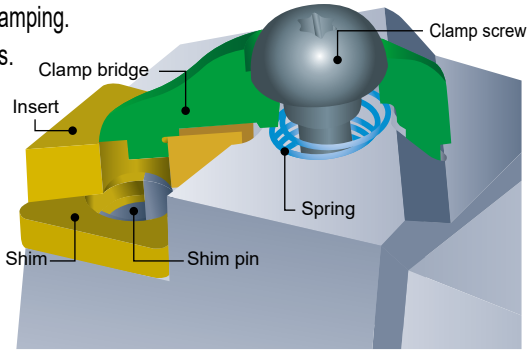
New one-action type double clamp series

The double clamp mechanism offers high rigidity, accuracy and reliability for secure insert clamping.
Making it suitable for difficult to machine materials such as stainless and heat resistant alloys.

Handed type for turning and facing

Straight type for turning and facing

For turning, facing and boring



3 on 1 tool for process and tool consolidation

3 turning inserts of the same geometry can be installed on a single tool.

The same type of inserts can be installed for quick tool changes.

Different types of inserts can be installed for different applications (roughing, semi finishing and finishing)

Different grade inserts can be installed to cover various types of workpieces.

New HSK-T100 size for large workpieces

Larger tool holder sizes for high efficiency machining.

Square shank holder type

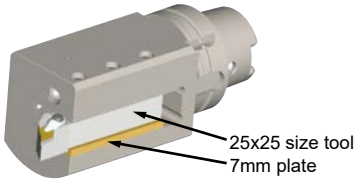
Boring bar / Drill type

Sleeve

A single tool can be used with different sized tool holders.

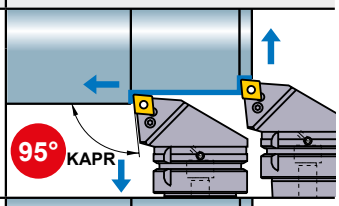
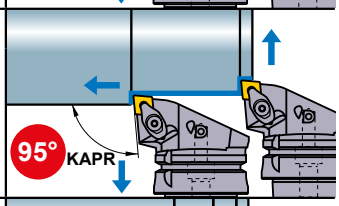
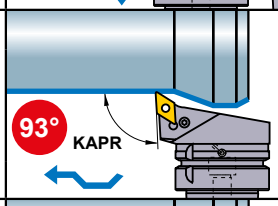
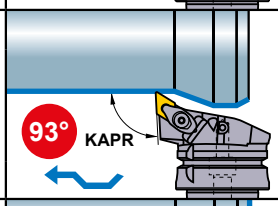
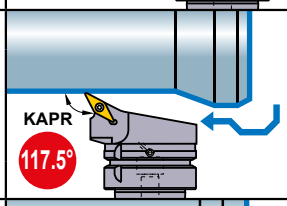
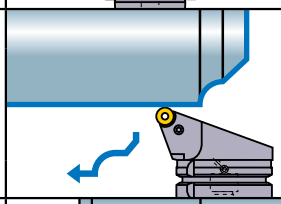
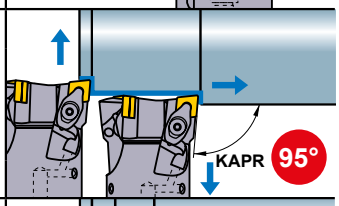
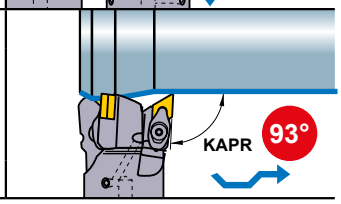
- Available for use with JIS B4126 (ISO 5610) 32 x 32 and 32 x 25 tools.
- Possible to fit a 25 x 25 tool by using a 7mm plate.

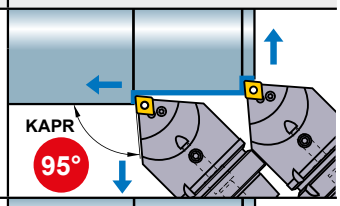
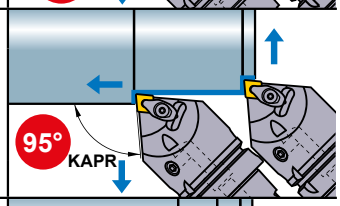
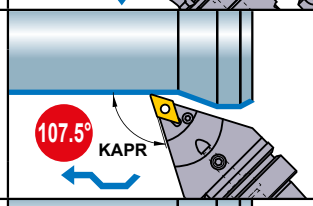
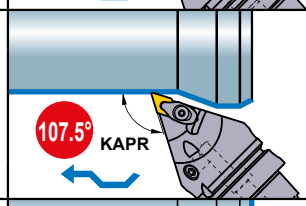
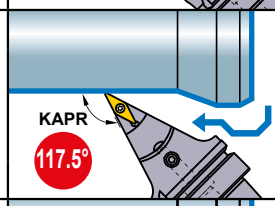
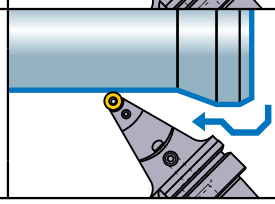
*Plate not supplied.



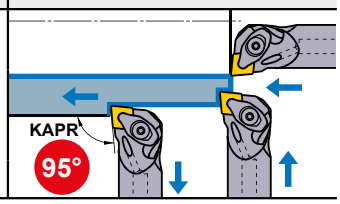
CLASSIFICATION OF HSK-T TOOLS

EXTERNAL TURNING • FACING • COPYING

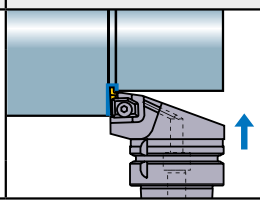
Order Number	Geometry
H63TH-PCLNR/L-DX12 H006	
H63TH-DCLNR/L-DX12 H006	
H63TH-PDJNR/L-DX15 H009	
H63TH-DDJNR/L-DX15 H009	
H63TH-SVPBR/L-DX16 H013	
H63TH-PRGCR/L-DX12 H012	
H63TH-DCLNL-L12-3 H008	
H63TH-DDJNL-L15-3 H011	

Order Number	Geometry
H63TH-PCMNN-H/L12 H007	
H63TH-DCMNN-H/L12 H007	
H63TH-PDNNN-H/L15 H010	
H63TH-DDNNN-H/L15 H010	
H63TH-SVVBN-H/L16 H013	
H63TH-PRDCN-H/L12 H012	

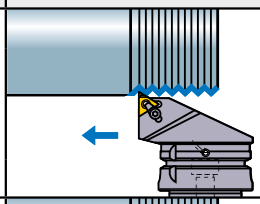
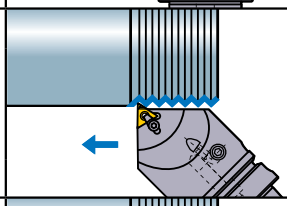
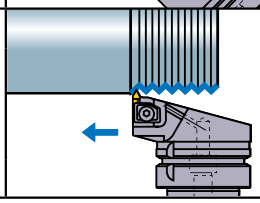
EXTERNAL TURNING • FACING • BORING

Order Number	Geometry
H63TH-A25KDCLNR/L12 **H63TH-A32LDCLNR/L12** H008	

GROOVING

Order Number	Geometry
H63TH-MGHR/L-DX43○○ ➲ H014	

THREADING

Order Number	Geometry
H63TH-MMTER-DX16 ➲ H016	
H63TH-MMTENR-H/L16 ➲ H016	
H63TH-MTHR/L-DX43 ➲ H017	

EXTERNAL TURNING TOOL HOLDERS

Order Number	Holder
H63TH-EV2525R/L-112 ➲ H019	
H100TH-EV3232R/L-180 ➲ H019	
H63TH-EN2525R/L-115 ✶1 ➲ H020	
H100TH-EN3232R/L-130 ✶1 ➲ H020	
H63TH-EV2020R/L-105-3 ➲ H021	

BORING BAR HOLDERS

Order Number	Holder
H63TH-B○○-○○ ➲ H021	
H100TH-B○○-○○○ ➲ H022	
SL32○○-90 (Sleeve) ✶2 ➲ H022	

Note 1) The HSK63A shank type has a built-in coolant pipe for installation.

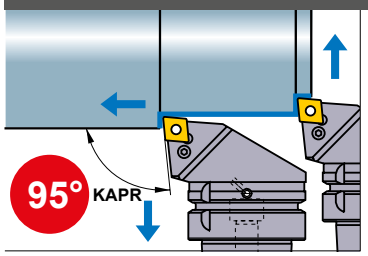
✶1 Mitsubishi Materials is licensed for production and distribution of these tools from MORI SEIKI CO., LTD under Patent No.3720202.

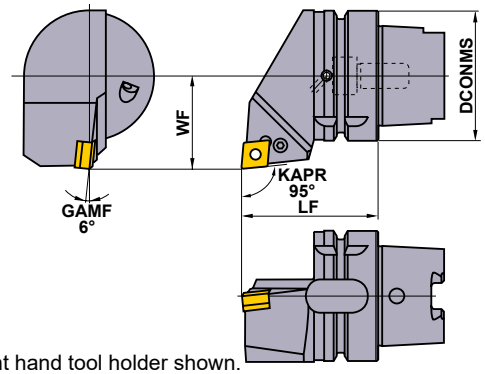
✶2 The SL32○○-90 sleeve is only for use with H100TH-B32-135.

HSK-T SYSTEM

PCLN

External turning • Facing





Right hand tool holder shown.

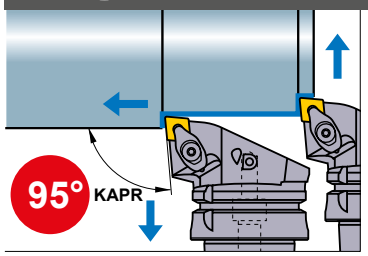
Finish	Light	Medium
FP	LP	MP
(12)	(12)	(12)
Medium	Medium	Medium—Rough
MK	Standard	RP
(12)	(12)	(12)
Stainless	PCBN	
MM		
(12)	(12)	

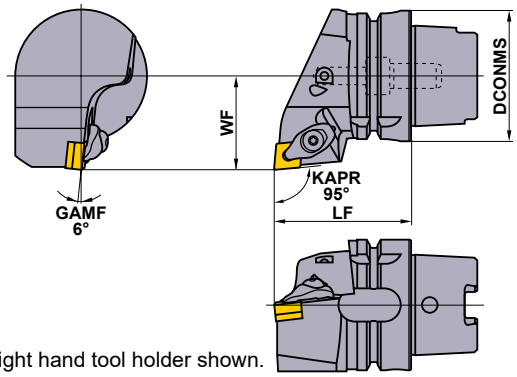
Order Number	Stock		Insert Number		Dimensions (mm)			*2 WT (kg)	Shim	Shim Pin	Clamp Lever	*1 Clamp Screw	Wrench
	R	L			DCONMS	LF	WF						
* H63TH-PCLNR/L-DX12	●	●	CN○A CN○G CN○M	1204○○	63	65	45	1.3	LLSCN42	LLP14	LLCL14	LLCS108	HKY30R

* The tools marked * in the table cannot be fitted on the Yamazaki Mazak INTEGREX i, j series.
*1 Clamp Torque (N • m) : LLCS108=3.3
*2 WT : Tool Weight
Note 1) Dimensions shown for insert corner RE 0.8.

DCLN

External turning • Facing **DOUBLE CLAMP type**





Right hand tool holder shown.

Finish	Light	Medium
FP	LP	MP
(12)	(12)	(12)
Medium	Medium	Medium—Rough
MK	Standard	RP
(12)	(12)	(12)
Stainless	PCBN	
MM		
(12)	(12)	

Order Number	Stock		Insert Number		Dimensions (mm)			*2 WT (kg)	Shim	Shim Pin	Clamp Bridge	Spring	*1 Clamp Screw	Wrench
	R	L			DCONMS	LF	WF							
* H63TH-DCLNR/L-DX12	●	●	CN○A CN○G CN○M	1204○○	63	65	45	1.3	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

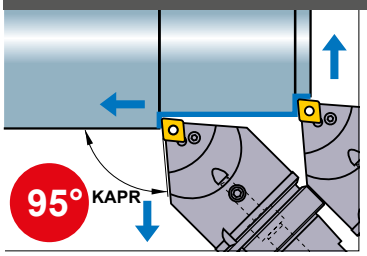
* The tools marked * in the table cannot be fitted on the Yamazaki Mazak INTEGREX i, j series.
*1 Clamp Torque (N • m) : DC0621T=5.0
*2 WT : Tool Weight
Note 1) Dimensions shown for insert corner RE 0.8.

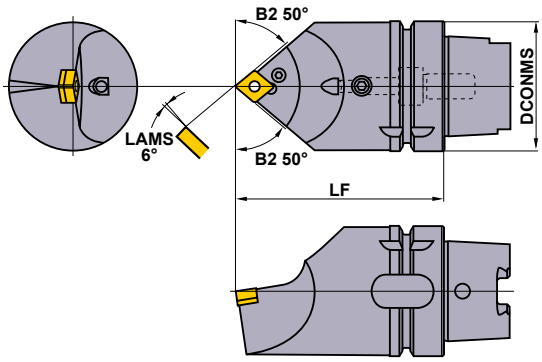
● : Inventory maintained.

PCLN type inserts	➤ A098—A105
DCLN type inserts	➤ A098—A105
PCBN & PCD inserts	➤ B022—B024, B049
RECOMMENDED CUTTING CONDITIONS	➤ A076

PCMN

External turning • Facing





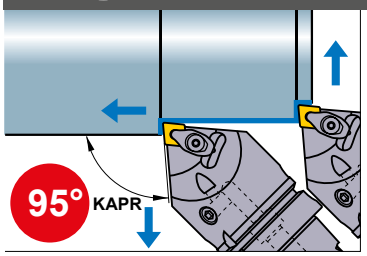
Finish	Light	Medium
FP	LP	MP
(12)	(12)	(12)
Medium	**Medium**	**Medium—Rough**
MK	Standard	RP
(12)	(12)	(12)
Stainless	**PCBN**	
MM		
(12)	(12)	

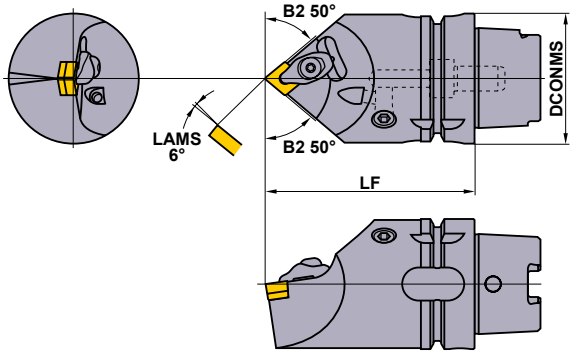
Order Number	Stock	Insert Number		Dimensions (mm)		*2 WT (kg)	Shim	Shim Pin	Clamp Lever	Clamp Screw *1	Plug	Wrench
				DCONMS	LF							
H63TH-PCMNN-H12	●	CN○A CN○G CN○M	1204○○	63	100	1.7	LLSCN42	LLP14	LLCL14	LLCS108	HGM-PT1/8	HKY30R
H63TH-PCMNN-L12	●			63	140	2.7	LLSCN42	LLP14	LLCL14	LLCS108	HGM-PT1/8	HKY30R

*1 Clamp Torque (N • m) : LLCS108=3.3
*2 WT : Tool Weight
Note 1) Dimensions shown for insert corner RE 0.8.

DCMN

External turning • Facing **DOUBLE CLAMP type**





Finish	Light	Medium
FP	LP	MP
(12)	(12)	(12)
Medium	**Medium**	**Medium—Rough**
MK	Standard	RP
(12)	(12)	(12)
Stainless	**PCBN**	
MM		
(12)	(12)	

Order Number	Stock	Insert Number		Dimensions (mm)		*2 WT (kg)	Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw *1	Wrench
				DCONMS	LF							
H63TH-DCMNN-H12	●	CN○A CN○G CN○M	1204○○	63	100	1.7	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
H63TH-DCMNN-L12	●			63	140	2.7	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

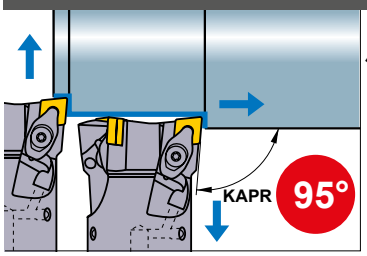
*1 Clamp Torque (N • m) : DC0621T=5.0
*2 WT : Tool Weight
Note 1) Dimensions shown for insert corner RE 0.8.

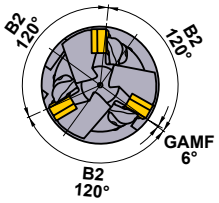
PCMN type inserts	➤ A098—A105	RECOMMENDED CUTTING CONDITIONS	➤ A076
DCMN type inserts	➤ A098—A105	SPARE PARTS	➤ N001
PCBN & PCD inserts	➤ B022—B024, B049	TECHNICAL DATA	➤ P001

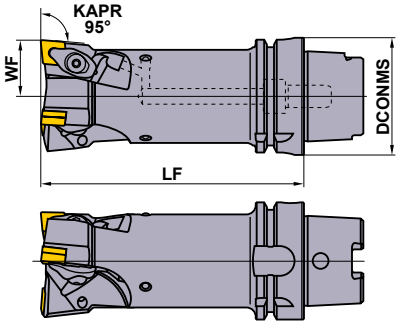
HSK-T SYSTEM

DCLN

External turning • Facing **DOUBLE CLAMP type**







Left hand tool holder only.

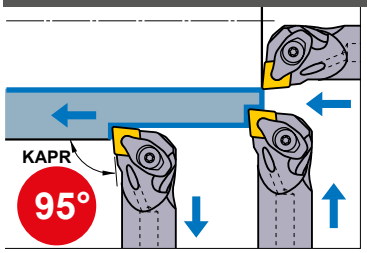
Finish	Light	Medium
FP (12)	LP (12)	MP (12)
Medium	**Medium**	**Medium—Rough**
MK (12)	Standard (12)	RP (12)
Stainless	**PCBN**	
MM (12)	(12)	

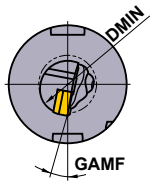
Order Number	Stock	Insert Number		Dimensions (mm)			*2 WT (kg)	Shim	Shim Pin	Clamp Bridge	Spring	*1 Clamp Screw	Wrench
	L			DCONMS	LF	WF		Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench
H63TH-DCLNL-L12-3	●	CN○A CN○G CN○M	1204○○	63	140	30	2.2	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

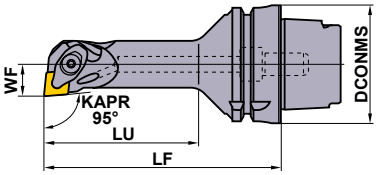
*1 Clamp Torque (N • m) : DC0621T=5.0
*2 WT : Tool Weight
Note 1) Dimensions shown for insert corner RE 0.8.

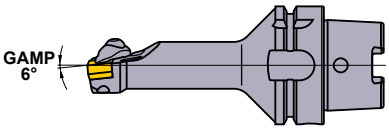
DCLN

External turning • Facing • Boring **DOUBLE CLAMP type**









Right hand tool holder shown.

Finish	Light	Medium
FP (12)	LP (12)	MP (12)
Medium	**Medium**	**Medium—Rough**
MK (12)	Standard (12)	RP (12)
Stainless	**PCBN**	
MM (12)	(12)	

Order Number	Stock		Insert Number		Dimensions (mm)						*2 WT (kg)	Shim	Shim Pin	Clamp Bridge	Spring	*1 Clamp Screw	Wrench
	R	L			DCONMS	LF	LU	WF	GAMF	DMIN		Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench
H63TH-A25KDCLNR/L12	●	●	CN○A CN○G CN○M	1204○○	63	125	82	17	11°	32	1.1	LLSCP42	LLP14	DCK2613	DCS1	DC0621T	TKY20F
H63TH-A32LDCLNR/L12	●	●			63	140	100	22	13°	40	1.4	LLSCN42	LLP14	DCK2613	DCS1	DC0621T	TKY20F

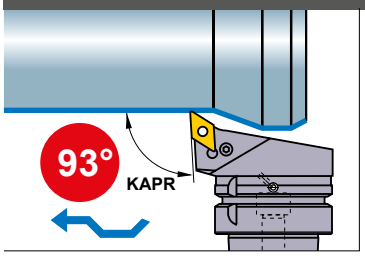
*1 Clamp Torque (N • m) : DC0621T=5.0
*2 WT : Tool Weight
Note 1) Dimensions shown for insert corner RE 0.8.

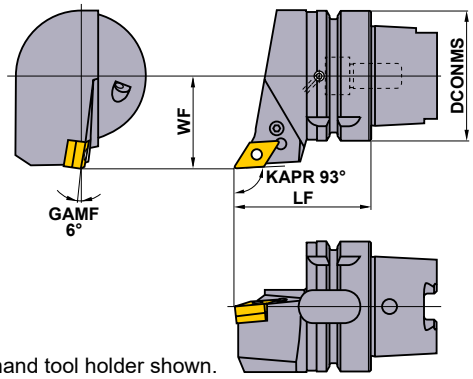
● : Inventory maintained.

DCLN type inserts	➤ A098—A105
PCBN & PCD inserts	➤ B022—B024, B049
RECOMMENDED CUTTING CONDITIONS	➤ A076

PDJN

External turning • Copying





Right hand tool holder shown.

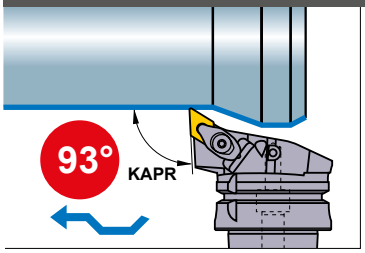
Finish	Light	Medium
FP	LP	MP
(15)	(15)	(15)
Medium	**Medium—Rough**	**Stainless**
MK	RP	MM
(15)	(15)	(15)
G Class	**PCBN**	
R/L		
(15)	(15)	

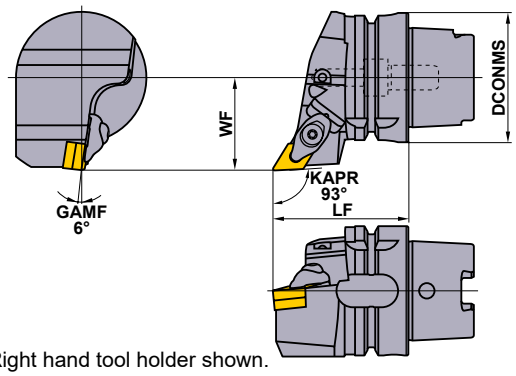
Order Number	Stock		Insert Number		Dimensions (mm)			*3 WT (kg)	*2			*1	
	R	L			DCONMS	LF	WF		Shim	Shim Pin	Clamp Lever	Clamp Screw	Wrench
* H63TH-PDJNR/L-DX15	●	●	DN○A DN○G DN○M DNMX	1504○○	63	65	45	1.2	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HKY30R

* The tools marked * in the table cannot be fitted on the Yamazaki Mazak INTEGREX i, j series.
*1 Clamp Torque (N • m) : LLCS108=3.3
*2 Please use shim no. LLSDN42 with 6.35mm thick inserts. When using 6.35mm thick inserts, the shim should be ordered separately.
*3 WT : Tool Weight
Note 1) Dimensions shown for insert corner RE 0.8.

DDJN

External turning • Copying **DOUBLE CLAMP type**





Right hand tool holder shown.

Finish	Light	Medium
FP	LP	MP
(15)	(15)	(15)
Medium	**Medium—Rough**	**Stainless**
MK	RP	MM
(15)	(15)	(15)
G Class	**PCBN**	
R/L		
(15)	(15)	

Order Number	Stock		Insert Number		Dimensions (mm)			*3 WT (kg)	*2				*1	
	R	L			DCONMS	LF	WF		Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench
* H63TH-DDJNR/L-DX15	●	●	DN○A DN○G DN○M DNMX	1504○○	63	65	45	1.2	LLSDN43 (LLSDN42)	LLP24	DCK2613	DCS1	DC0621T	TKY20F

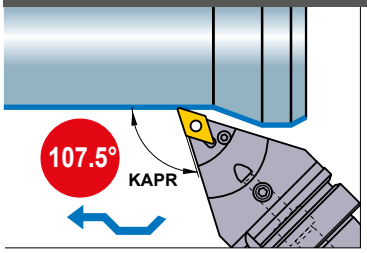
* The tools marked * in the table cannot be fitted on the Yamazaki Mazak INTEGREX i, j series.
*1 Clamp Torque (N • m) : DC0621T=5.0
*2 Please use shim no. LLSDN42 with 6.35mm thick inserts. When using 6.35mm thick inserts, the shim should be ordered separately.
*3 WT : Tool Weight
Note 1) Dimensions shown for insert corner RE 0.8.

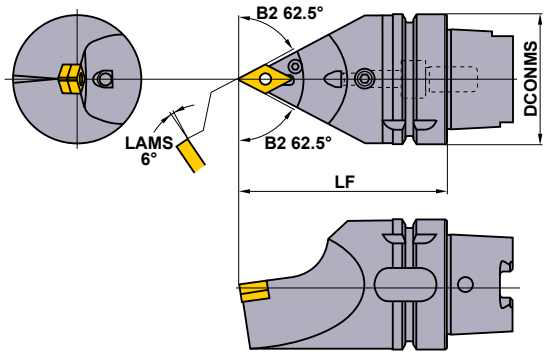
PDJN type inserts	➤ A106—A112	RECOMMENDED CUTTING CONDITIONS	➤ A076
DDJN type inserts	➤ A106—A112	SPARE PARTS	➤ N001
PCBN & PCD inserts	➤ B025—B028, B050	TECHNICAL DATA	➤ P001

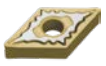
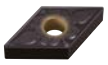
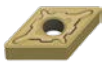
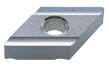
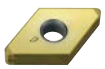
HSK-T SYSTEM

PDNN

External turning • Copying





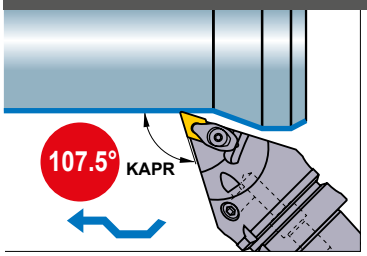
Finish	Light	Medium
FP	LP	MP
		
(15)	(15)	(15)
Medium	**Medium—Rough**	**Stainless**
MK	RP	MM
		
(15)	(15)	(15)
G Class	**PCBN**	
R/L		
		
(15)	(15)	

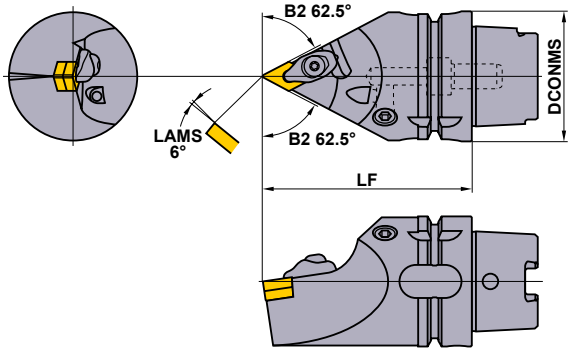
Order Number	Stock	Insert Number		Dimensions (mm)		✶3 WT (kg)	✶2 Shim	Shim Pin	Clamp Lever	✶1 Clamp Screw	Plug	Wrench
				DCONMS	LF							
H63TH-PDNNN-H15	●	DN○A DN○G DN○M	1504○○	63	100	1.6	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HGM-PT1/8	HKY30R
H63TH-PDNNN-L15	●			63	140	2.5	LLSDN43 (LLSDN42)	LLP14	LLCL24	LLCS108	HGM-PT1/8	HKY30R

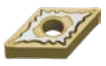
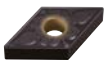
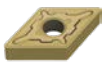
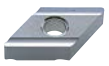
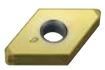
✶1 Clamp Torque (N • m) : LLCS108=3.3
✶2 Please use shim no. LLSDN42 with 6.35mm thick inserts. When using 6.35mm thick inserts, the shim should be ordered separately.
✶3 WT : Tool Weight
Note 1) Dimensions shown for insert corner RE 0.8.

DDNN

External turning • Copying **DOUBLE CLAMP type**





Finish	Light	Medium
FP	LP	MP
		
(15)	(15)	(15)
Medium	**Medium—Rough**	**Stainless**
MK	RP	MM
		
(15)	(15)	(15)
G Class	**PCBN**	
R/L		
		
(15)	(15)	

Order Number	Stock	Insert Number		Dimensions (mm)		✶3 WT (kg)	✶2 Shim	Shim Pin	Clamp Bridge	Spring	✶1 Clamp Screw	Wrench
				DCONMS	LF							
H63TH-DDNNN-H15	●	DN○A DN○G DN○M	1504○○	63	100	1.6	LLSDN43 (LLSDN42)	LLP24	DCK2613	DCS1	DC0621T	TKY20F
H63TH-DDNNN-L15	●			63	140	2.5	LLSDN43 (LLSDN42)	LLP24	DCK2613	DCS1	DC0621T	TKY20F

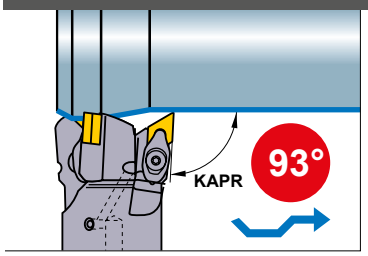
✶1 Clamp Torque (N • m) : DC0621T=5.0
✶2 Please use shim no. LLSDN42 with 6.35mm thick inserts. When using 6.35mm thick inserts, the shim should be ordered separately.
✶3 WT : Tool Weight
Note 1) Dimensions shown for insert corner RE 0.8.

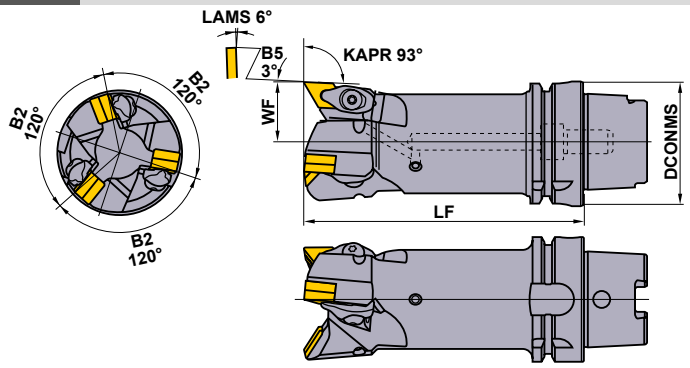
● : Inventory maintained.

PDNN type inserts	➤ A106—A112
DDNN type inserts	➤ A106—A112
PCBN & PCD inserts	➤ B025—B028, B050
RECOMMENDED CUTTING CONDITIONS	➤ A076

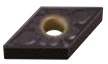
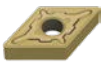
DDJN

External turning • Facing **DOUBLE CLAMP type**





Left hand tool holder only.

Finish	Light
FP	LP
(15)	(15)
Medium	**Medium**
MP	MK
(15)	 (15)
Medium—Rough	**Stainless**
RP	MM
 (15)	(15)

Order Number	Stock	Insert Number		Dimensions (mm)			∗3 WT (kg)	∗2				∗1	
	L			DCONMS	LF	WF		Shim	Shim Pin	Clamp Bridge	Spring	Clamp Screw	Wrench
H63TH-DDJNL-L15-3	●	DN○A DN○G DN○M DNMX	1504○○	63	140	30	2.2	LLSDN43 (LLSDN42)	LLP24	DCK2613	DCS1	DC0621T	TKY20F

∗1 Clamp Torque (N • m) : DC0621T=5.0
∗2 Please use shim no. LLSDN42 with 6.35mm thick inserts. When using 6.35mm thick inserts, the shim should be ordered separately.
∗3 WT : Tool Weight
Note 1) Dimensions shown for insert corner RE 0.8.

DDJN type inserts	➤ A106—A112
PCBN & PCD inserts	➤ B025—B028, B050
RECOMMENDED CUTTING CONDITIONS	➤ A076

SPARE PARTS	➤ N001
TECHNICAL DATA	➤ P001

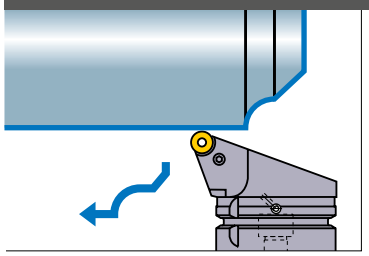
HSK-T SYSTEM

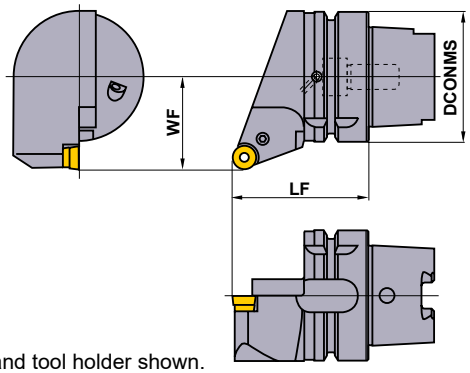
PRGC

External turning • Facing • Copying

Medium

(12)





Right hand tool holder shown.

Order Number	Stock		Insert Number		Dimensions (mm)			*2 WT (kg)	Shim	Shim Pin	Clamp Lever	*1 Clamp Screw	Wrench
	R	L			DCONMS	LF	WF		LLSRN123	LLP13	LLCL112	LLCS106	HKY25R
* **H63TH-PRGCR/L-DX12**	●	●	RCMX	1204M0	63	65	45	1.2					

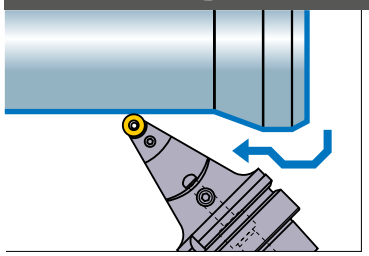
* The tools marked * in the table cannot be fitted on the Yamazaki Mazak INTEGREX i, j series.
*1 Clamp Torque (N • m) : LLCS106=2.2
*2 WT : Tool Weight

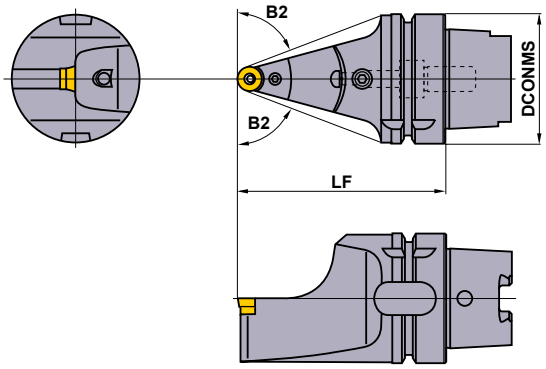
PRDC

External turning • Facing • Copying

Medium

(12)





Order Number	Stock	Insert Number		Dimensions (mm)			*2 WT (kg)	Shim	Shim Pin	Clamp Lever	*1 Clamp Screw	Plug	Wrench
				DCONMS	LF	B2		LLSRN123	LLP13	LLCL112	LLCS106	HGM-PT1/8	HKY25R
H63TH-PRDCN-H12	●	RCMX	1204M0	63	100	69°	1.4						
H63TH-PRDCN-L12	●			63	140	75°	2.3						

*1 Clamp Torque (N • m) : LLCS106=2.2
*2 WT : Tool Weight

RECOMMENDED CUTTING CONDITIONS

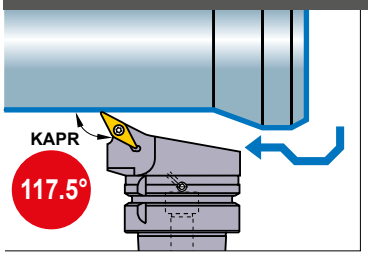
	Material	Hardness	Cutting Mode	Chipbreaker	Grade	Cutting Speed (m/min)
P	Mild Steel	≤180HB	Medium Cutting	**Standard**	**MC6115**	245—440
	Carbon Steel Alloy Steel	180HB—350HB	Medium Cutting	**Standard**	**MC6115**	200—300
M	Stainless Steel	≤200HB	Medium Cutting	**Standard**	**US735**	70—130

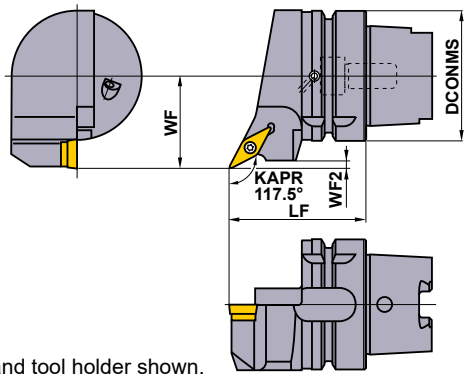
● : **Inventory maintained.**

PRGC type inserts ➤ A160
PRDC type inserts ➤ A160

SVPB

Facing • Copying





Right hand tool holder shown.

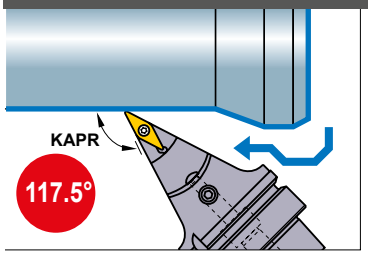
Finish	Light
R/L-F	SV
(16)	(16)
Medium	**Medium**
MV	MP
(16)	(16)
PCBN	
(16)	

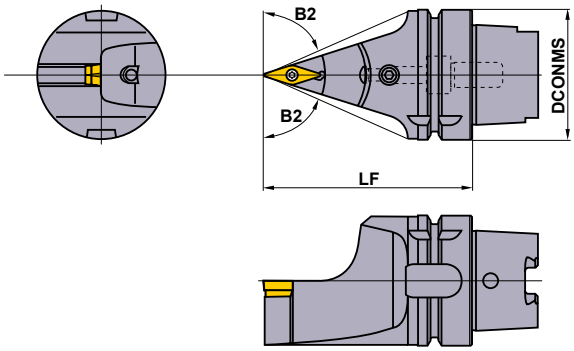
Order Number	Stock		Insert Number		Dimensions (mm)				∗2 WT (kg)	Shim	Shim Pin	∗1 Clamp Screw	Wrench
	R	L			DCONMS	LF	WF	WF2					
∗ **H63TH-SVPBR/L-DX16**	●	●	VB□T VB□W	1604□□	63	65	45	3.8	1.1	SPSVN32	BCP141	TS35D	TKY15F

∗ The tools marked ∗ in the table cannot be fitted on the Yamazaki Mazak INTEGREX i, j series.
∗1 Clamp Torque (N • m) : TS35D=3.5
∗2 WT : Tool Weight
Note 1) Dimensions shown for insert corner RE 0.8.

SVVB

Facing • Copying





Finish	Light
R/L-F	SV
(16)	(16)
Medium	**Medium**
MV	MP
(16)	(16)
PCBN	
(16)	

Order Number	Stock	Insert Number		Dimensions (mm)			∗2 WT (kg)	Shim	Shim Pin	∗1 Clamp Screw	Plug	Wrench
				DCONMS	LF	B2						
H63TH-SVVBN-H16	●	VB□T VB□W	1604□□	63	100	66.5°	1.3	SPSVN32	BCP141	TS35D	HGM-PT1/8	TKY15F
H63TH-SVVBN-L16	●			63	140	72.5°	2.2	SPSVN32	BCP141	TS35D	HGM-PT1/8	TKY15F

∗1 Clamp Torque (N • m) : TS35D=3.5
∗2 WT : Tool Weight
Note 1) Dimensions shown for insert corner RE 0.8.

RECOMMENDED CUTTING CONDITIONS

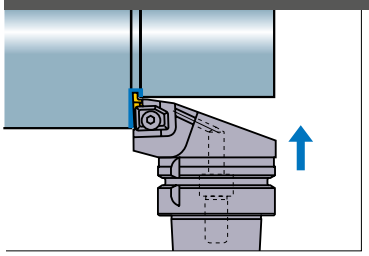
	Material	Hardness	Cutting Mode	Chipbreaker	Grade	Cutting Speed (m/min)
P	Mild Steel	≤180HB	Finish Cutting	**F**	**AP25N**	250 (150−300)
			Medium Cutting	**MP**	**MC6115**	250 (180−330)
	Carbon Steel Alloy Steel	180HB−350HB	Finish Cutting	**F**	**AP25N**	210 (150−260)
			Medium Cutting	**MP**	**MC6125**	210 (160−260)
M	Stainless Steel	≤200HB	Medium Cutting	**MM**	**MP7035**	100 (70−120)
K	Cast Iron	Tensile Strength≤350MPa	Medium Cutting	**MK**	**MC5115**	220 (160−290)

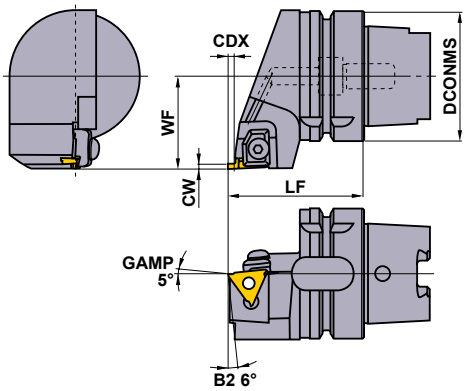
SVPB type inserts ➤ **A174−A176**
SVVB type inserts ➤ **A174−A176**
PCBN inserts ➤ **B045**
SPARE PARTS ➤ **N001**
TECHNICAL DATA ➤ **P001**

HSK-T SYSTEM

MG

Grooving





Right hand tool holder shown.

Order Number	Stock R	Stock L	Insert Number		Dimensions (mm) DCOMMS	CW	CDX	LF	WF	*2 WT (kg)	Clamp Bridge	*1 Clamp Screw	Spring	Wrench
* H63TH-MGHR/L-DX4315	★	★	MGTR/L	43125 I 43470	63	1.25	1.2	65	45	1.2	MTK1R/L	HBH06020	MES3	HKY40R
					63	1.45	1.5	65	45	1.2				
					63	1.5≤CW≤2.3	3	65	45	1.2				
* H63TH-MGHR/L-DX4323	★	★			63	2.3＜CW≤3.3	4.5	65	45	1.2				
* H63TH-MGHR/L-DX4333	★	★			63	3.3＜CW≤4.7	4.5	65	45	1.2				

* The tools marked * in the table cannot be fitted on the Yamazaki Mazak INTEGREX i, j series.
*1 Clamp Torque (N • m) : HBH06020=7.0
*2 WT : Tool Weight

H

HSK-T TOOLS

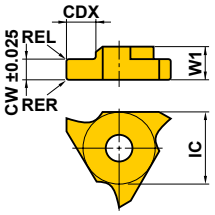
RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Grade	Cutting Speed (m/min)	Feed (mm/rev)
P	Carbon Steel Alloy Steel	180－350HB	**VP20MF**	120 (100－140)	0.10 (0.03－0.18)
			NX2525	130 (100－160)	0.12 (0.03－0.2)
M	Stainless Steel	≤200HB	**VP20MF**	120 (100－140)	0.10 (0.03－0.18)
K	Cast Iron	Tensile Strength≤350MPa	**VP20MF**	120 (100－140)	0.10 (0.03－0.18)

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

INSERTS

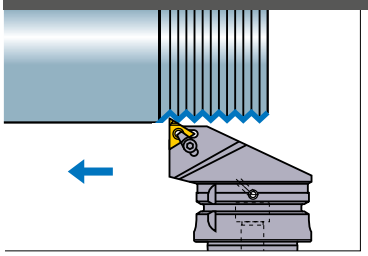
Order Number	Stock						Dimensions (mm)						Geometry
	Coated		Cermet		Carbide								
	VP20MF		NX2525		UTi20T		CW	CDX	IC	W1	RER/L	LE	
	R	L	R	L	R	L							
MGTR/L43125	★	★	★	★	●	●	1.25	1.2	12.7	4.76	0.2	2.7	**MGTR/L...**
MGTR/L43145	★	★		★	●	★	1.45	1.5	12.7	4.76	0.2	–	
MGTR/L43150	★	★	★	●	●	●	1.5	3	12.7	4.76	0.2	2.7	
MGTR/L43175	★	★	★	★	●	●	1.75	3	12.7	4.76	0.2	–	
MGTR/L43200	★	★	★	●	●	●	2	3	12.7	4.76	0.2	2.7	
MGTR/L43230	★	★	●	★	●	●	2.3	3	12.7	4.76	0.2	–	
MGTR/L43250	★	★	★	★	●	●	2.5	4.5	12.7	4.76	0.3	2.7	
MGTR/L43260	★	★	★		●	●	2.6	4.5	12.7	4.76	0.3	–	
MGTR/L43270	★	★			●	★	2.7	4.5	12.7	4.76	0.3	–	
MGTR/L43280		★		★	●	●	2.8	4.5	12.7	4.76	0.3	–	
MGTR/L43300	★	★	★	★	●	●	3	4.5	12.7	4.76	0.3	2.7	
MGTR/L43320	★				●	●	3.2	4.5	12.7	4.76	0.3	–	
MGTR/L43330		★		★	●	●	3.3	4.5	12.7	4.76	0.3	–	
MGTR/L43350	★	★	★	★	●	●	3.5	4.5	12.7	4.76	0.3	2.7	
MGTR/L43400	★	★	★		●	●	4	4.5	12.7	4.76	0.3	2.7	
MGTR/L43420	★	★	★		●	●	4.2	4.5	12.7	4.76	0.4	–	
MGTR/L43430	★	★	★		●	●	4.3	4.5	12.7	4.76	0.4	–	
MGTR/L43450	★	★	●	★	●	●	4.5	4.5	12.7	4.76	0.4	–	
MGTR/L43470	★	★	★	★	●	★	4.7	4.5	12.7	4.76	0.4	–	Right hand tool holder shown.

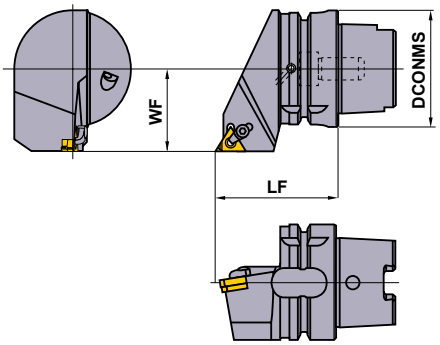


HSK-T SYSTEM

MMTE

Threading





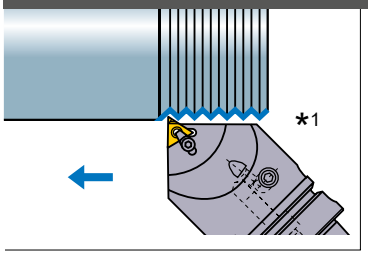
Right hand tool holder only.

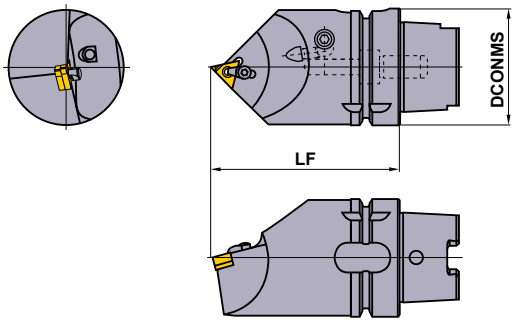
Order Number	Stock	Insert Number		Dimensions (mm)			∗2 WT (kg)	Clamp Bridge	∗1 Clamp Screw	Stop Ring	Shim	∗1 Shim Screw	F R Wrench
	R			DCONMS	LF	WF							
∗ **H63TH-MMTER-DX16**	★	MMT16ER	○○○○○	63	65	45	1.2	SETK51	SETS51	CR4	CTE32TP15	HFC03008	TKY15F HKY20R

∗ The tools marked ∗ in the table cannot be fitted on the Yamazaki Mazak INTEGREX i, j series.
∗1 Clamp Torque (N • m) : SETS51=3.5, HFC03008=1.5
∗2 WT : Tool Weight

MMTEN

Threading





Tool holder for right hand insert only.

Order Number	Stock	Insert Number		Dimensions (mm)		∗3 WT (kg)	Clamp Bridge	∗2 Clamp Screw	Stop Ring	Shim	∗2 Shim Screw	Plug	F R Wrench
				DCONMS	LF								
H63TH-MMTENR-H16	★	MMT16ER	○○○○○	63	100	1.7	SETK51	SETS51	CR4	CTE32TP15	HFC03008	HGM-PT1/8	TKY15F HKY20R
H63TH-MMTENR-L16	★			63	140	2.7	SETK51	SETS51	CR4	CTE32TP15	HFC03008	HGM-PT1/8	TKY15F HKY20R

∗1 For use with B axis tilted at 45 degrees.
∗2 Clamp Torque (N • m) : SETS51=3.5, HFC03008=1.5
∗3 WT : Tool Weight

RECOMMENDED CUTTING CONDITIONS

	Material	Hardness	Grade	Cutting Speed (m/min)
P	Mild Steel	≤180HB	**MP9025**	80 (60—100)
			VP10MF	150 (70—230)
			VP15TF	100 (60—140)
			VP20RT	80 (60—100)
	Carbon Steel Alloy Steel	180—280HB	**MP9025**	80 (60—100)
			VP10MF	140 (80—200)
			VP15TF	100 (60—140)
			VP20RT	80 (60—100)

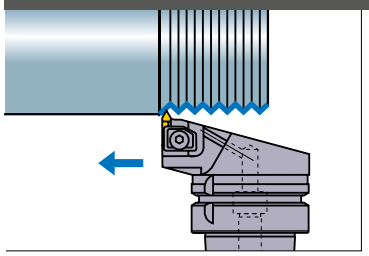
	Material	Hardness	Grade	Cutting Speed (m/min)
M	Stainless Steel	≤200HB	**MP9025**	80 (40—120)
			VP15TF	80 (40—120)
			VP20RT	
K	Cast Iron	Tensile Strength ≤350MPa	**VP10MF**	140 (80—200)
			VP15TF	90 (60—120)

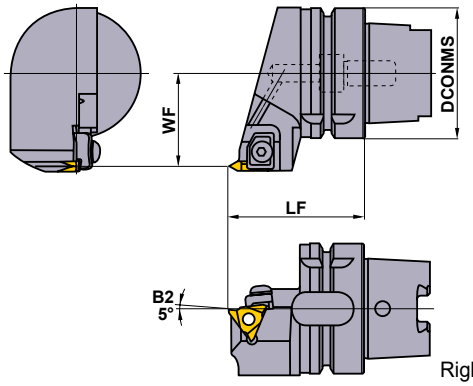
★ : **Inventory maintained in Japan.**

APPLICABLE INSERT ➤ G020—G023

MT

Threading





Right hand tool holder shown.

Order Number	Stock		Insert Number		Dimensions (mm)			*2 WT (kg)		*1		
	R	L			DCONMS	LF	WF		Clamp Bridge	Clamp Screw	Spring	Wrench
* **H63TH-MTHR/L-DX43**	★	★	MTTR/L	43○○○○	63	65	45	1.2	MTK1R/L	HBH06020	MES3	HKY40R

* The tools marked * in the table cannot be fitted on the Yamazaki Mazak INTEGREX i, j series.
*1 Clamp Torque (N • m) : HBH06020=7.0
*2 WT : Tool Weight

RECOMMENDED CUTTING CONDITIONS

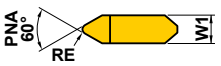
	Material	Hardness	Grade	Cutting Speed (m/min)
P	Mild Steel	≤180HB	**UP20M**	140 (100—180)
			NX2525	200 (150—250)
			UTi20T	120 (100—150)
	Carbon Steel Alloy Steel	180HB—350HB	**UP20M**	120 (100—150)
			NX2525	170 (150—200)
			UTi20T	100 (70—120)
M	Stainless Steel	≤200HB	**UP20M**	120 (80—150)
			UTi20T	100 (70—130)
K	Cast Iron	Tensile Strength≤350MPa	**UP20M**	80 (60—100)
			UTi20T	80 (60—100)
			HTi10	100 (70—130)

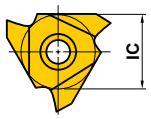
APPLICABLE INSERT ➤ H018
SPARE PARTS ➤ N001
TECHNICAL DATA ➤ P001

HSK-T SYSTEM

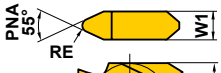
INSERTS

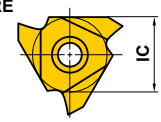
Type	Order Number	Class	Coated	Cermet	Carbide		ISO Pitch mm (thread/inch)	Dimensions (mm)			Geometry
			UP20M	NX2525	UTi20T	HTi10		IC	W1	RE	
General 60°	**MTTR436000**	G		●	●		−0.8	12.7	4.76	0	**MTTR/L(60°)** (G Class)
	MTTR436001	G	★	●	●	★	1.0−1.75	12.7	4.76	0.1	
	MTTL436001	G	★		●	★	1.0−1.75	12.7	4.76	0.1	
	MTTR436002	G	★	●	●	★	2.0−2.5	12.7	4.76	0.2	
	MTTL436002	G		●	●		2.0−2.5	12.7	4.76	0.2	
	MTTR436003	G	★	●	●	★	3.0−3.5	12.7	4.76	0.3	
	MTTL436003	G		●	●		3.0−3.5	12.7	4.76	0.3	
	MTTR436004	G		●	●		4.0−4.5	12.7	4.76	0.4	
General 55°	**MTTR435501**	G		●	★		(28−10)	12.7	4.76	0.1	**MTTR(55°)** (G Class)
	MTTR435502	G		●	●		(16−8)	12.7	4.76	0.2	
	MTTR435503	G		●	●		(11−8)	12.7	4.76	0.3	





Right hand insert shown.

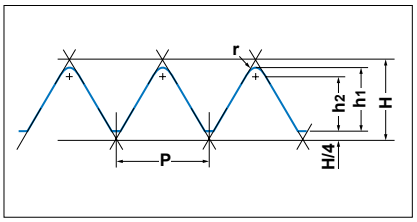




Right hand insert shown.

■ STANDARD OF DEPTH OF CUT

●The chart on the right shows the cutting depths when machining external ISO metric screw threads.
●When using cermet grades or cutting stainless steel, please increase the number of passes by 2−3 times.



●METRIC SCREW THREAD

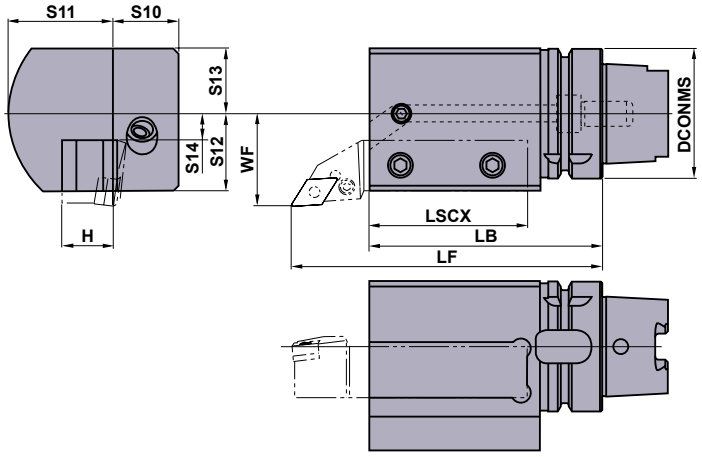
Unit : mm

P (Pitch)		0.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00	4.50
h_1		0.46	0.61	0.77	0.92	1.07	1.23	1.53	1.84	2.15	2.45	2.76
h_2		0.35	0.47	0.59	0.70	0.82	0.94	1.17	1.41	1.65	1.87	2.11
r (Nose Radius)		0.11	0.14	0.18	0.22	0.25	0.29	0.36	0.43	0.50	0.58	0.65
Number of Passes	1	0.18	0.20	0.20	0.25	0.25	0.25	0.30	0.30	0.35	0.35	0.40
	2	0.13	0.15	0.18	0.20	0.20	0.25	0.25	0.25	0.30	0.30	0.35
	3	0.10	0.10	0.12	0.15	0.20	0.20	0.20	0.25	0.25	0.25	0.30
	4	0.05	0.10	0.12	0.15	0.15	0.15	0.20	0.20	0.20	0.25	0.25
	5		0.06	0.10	0.10	0.12	0.15	0.15	0.20	0.20	0.25	0.25
	6			0.05	0.07	0.10	0.10	0.10	0.15	0.20	0.20	0.20
	7					0.05	0.08	0.10	0.15	0.15	0.20	0.20
	8						0.05	0.10	0.10	0.15	0.15	0.15
	9							0.08	0.10	0.10	0.15	0.15
	10							0.05	0.09	0.10	0.10	0.15
	11								0.05	0.10	0.10	0.10
	12									0.05	0.10	0.10
	13										0.05	0.10
	14											0.06

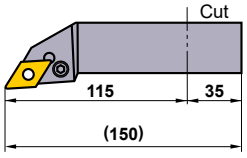
Note 1) The first pass causes a high load on the cutting edge.
In order to avoid damage, restrict the depth of cut to a maximum of 0.4−0.5mm.

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

EXTERNAL TURNING TOOL HOLDERS External turning • Facing



■This holder is for 25×25 size tools.
Please shorten the tool as shown below before use.

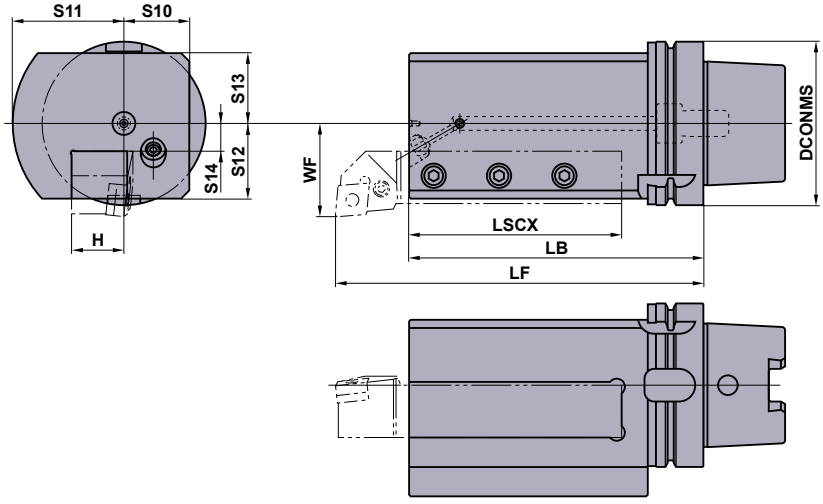


Right hand tool holder shown.

Order Number	Stock		Dimensions (mm)											✶1 WT (kg)		
	R	L	DCONMS	LF	LB	LSCX	H	S10	S11	WF	S14	S12	S13		Clamp Screw	Plug
✶ **H63TH-EV2525R/L-112**	★	★	63	150	112	77	25	32	53	45	13	38	32	3.9	HSS12025	HGM-PT1/8

✶ The tools marked ✶ in the table cannot be fitted on the Yamazaki Mazak INTEGREX i, j series.
✶1 WT : Tool Weight

EXTERNAL TURNING TOOL HOLDERS External turning • Facing



■This holder is for 32×32 and 32×25 size tools.

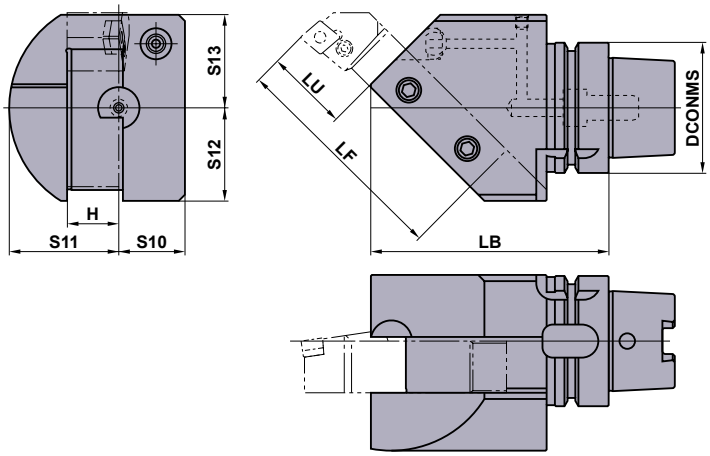
Right hand tool holder shown.

Order Number	Stock		Dimensions (mm)											✶1 WT (kg)		
	R	L	DCONMS	LF	LB	LSCX	H	S10	S11	WF	S14	S12	S13		Clamp Screw	Plug
✶ **H100TH-EV3232R/L-180**	★	★	100	220	180	130	32	40	68	57	17	46	43	11.7	HSS14035	HSS06006

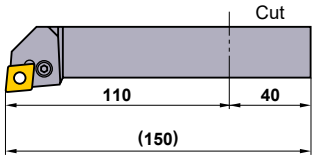
✶ The tools marked ✶ in the table cannot be fitted on the Yamazaki Mazak INTEGREX e, i series.
✶1 WT : Tool Weight
Note 1) Can be used with 32 x 32 and 32 x 25 tool holders. Possible to fit a 25 x 25 tool by using a 7mm plate.

HSK-T SYSTEM

EXTERNAL TURNING TOOL HOLDERS External turning • Facing



■This holder is for 25×25 size tools.
Please shorten the tool as shown below before use.



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Right hand tool holder shown.

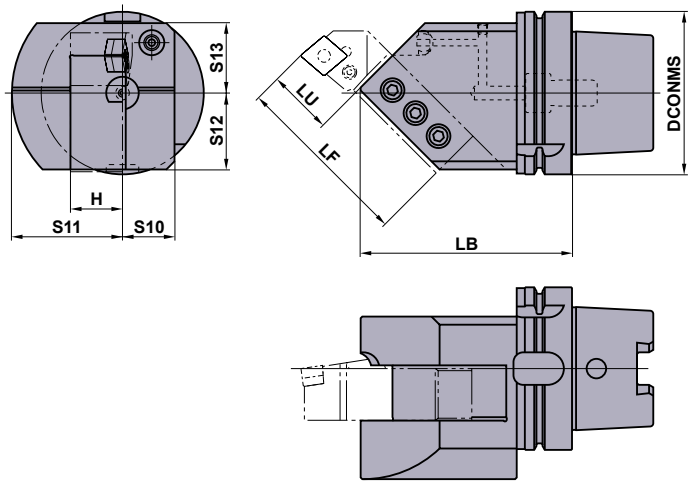
Order Number	Stock		Dimensions (mm)									★1 WT (kg)		
	R	L	DCONMS	LB	LU	LF	H	S10	S11	S12	S13		Clamp Screw	Plug
★ H63TH-EN2525R/L-115	★	★	63	115	40	110	25	32	53	45	45	3.7	HSS12030	HSS06006

★ The tools marked ★ in the table cannot be fitted on the Yamazaki Mazak INTEGREX i, j series.
★1 WT : Tool Weight

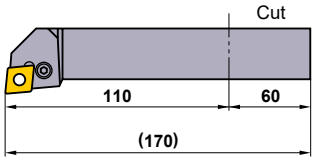
H

HSK-T TOOLS

EXTERNAL TURNING TOOL HOLDERS External turning • Facing



■This holder is for 32×32 and 32×25 size tools.
Please shorten the tool as shown below before use.



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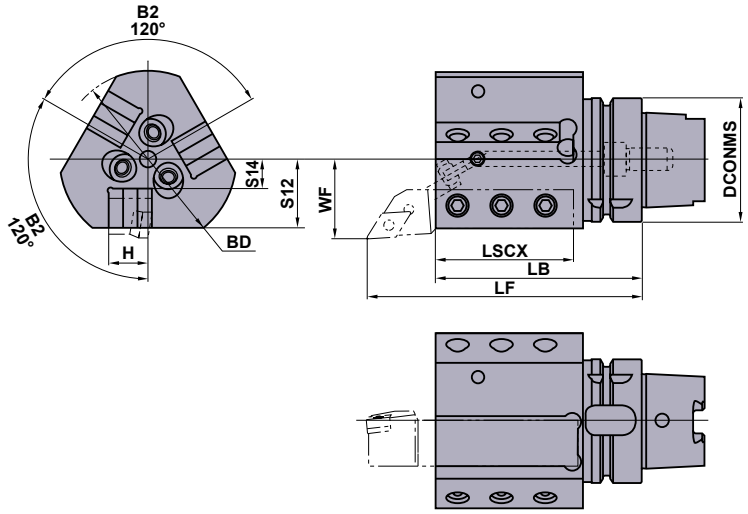
Right hand tool holder shown.

Order Number	Stock		Dimensions (mm)									★1 WT (kg)		
	R	L	DCONMS	LB	LU	LF	H	S10	S11	S12	S13		Clamp Screw	Plug
★ H100TH-EN3232R/L-130	★	★	100	130	40	110	32	32	68	47	43	6.6	HSS14030	HSS06006

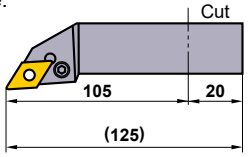
★ The tools marked ★ in the table cannot be fitted on the Yamazaki Mazak INTEGREX e, i series.
★1 WT : Tool Weight
Note 1) Can be used with 32 x 32 and 32 x 25 tool holders. Possible to fit a 25 x 25 tool by using a 7mm plate.

★ : Inventory maintained in Japan.

EXTERNAL TURNING TOOL HOLDERS External turning • Facing



■This holder is for 20×20 size tools.
Please shorten the tool as shown below before use.

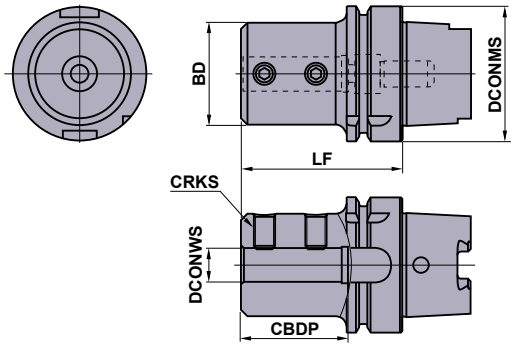


Right hand tool holder shown.

Order Number	Stock		Dimensions (mm)									＊1 WT (kg)			
	R	L	DCONMS	LF	LB	LSCX	H	BD	WF	S14	S12		Clamp Screw	Nozzle Plug	Plug
＊ H63TH-EV2020R/L-105-3	★	★	63	140	105	70	20	90	40	15	35	2.9	HSS12030	HSS05012	HSS06006

＊ The tools marked ＊ in the table cannot be fitted on the Yamazaki Mazak INTEGREX i, j series.
＊1 WT : Tool Weight

BORING BAR HOLDERS Boring

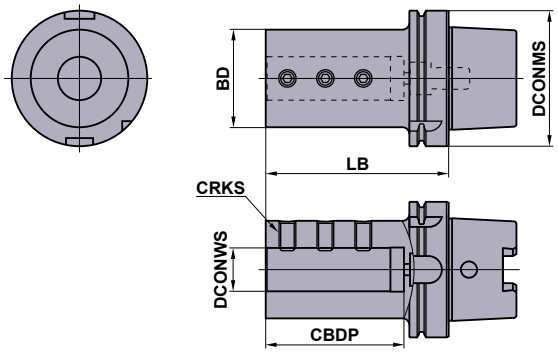


Order Number	Stock	Dimensions (mm)						＊ WT (kg)	
		DCONMS	BD	DCONWS	LF	CBDP	CRKS		Clamp Screw
H63TH-B08-65	★	63	28	8	65	40	M8	0.9	HSS08010
H63TH-B10-70	★	63	35	10	70	45	M8	1.0	HSS08012
H63TH-B12-70	★	63	42	12	70	45	M8	1.1	HSS08012
H63TH-B16-75	★	63	48	16	75	50	M10	1.3	HSS10016
H63TH-B20-75	★	63	52	20	75	50	M10	1.4	HSS10016
H63TH-B25-83	★	63	62	25	83	58	M12	1.7	HSS12016
H63TH-B32-87	★	63	62	32	87	62	M12	1.7	HSS12016
H63TH-B40-97	★	63	65	40	97	72	M16	1.8	HSS16012

Note 1) Please cut the boring bar to adjust the shank length. This also applies to indexable type drills.
＊ WT : Tool Weight

HSK-T SYSTEM

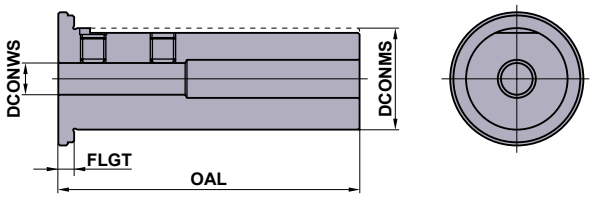
BORING BAR HOLDERS Boring



Order Number	Stock	Dimensions (mm)						* WT (kg)	Clamp Screw
		DCONMS	BD	DCONWS	LB	CBDP	CRKS		
H100TH-B25-120	★	100	62	25	120	88	M12	3.9	HSS12016
H100TH-B32-135	★	100	72	32	135	102	M12	4.8	HSS12018
H100TH-B40-150	★	100	82	40	150	117	M16	5.9	HSS16020
H100TH-B50-180	★	100	92	50	180	147	M16	7.7	HSS16020

Note 1) Available for use with a sleeve for small round-shank tool installation.
* WT : Tool Weight

BORING BAR SLEEVES FOR H100TH-B32-135



Order Number	Stock	Dimensions (mm)				* WT (kg)	Clamp Screw
		DCONWS	DCONMS	OAL	FLGT		
SL3208-90	★	8	32	95	5	0.6	HSS06008
SL3210-90	★	10	32	95	5	0.5	HSS08008
SL3212-90	★	12	32	95	5	0.5	HSS08008
SL3216-90	★	16	32	95	5	0.5	HSS08006
SL3220-90	★	20	32	95	5	0.4	HSS08005

Note 1) These sleeves are only compatible with H100TH-B32-135 holder.
* WT : Tool Weight

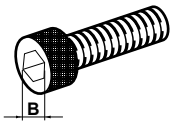
SPARE PARTS

IDENTIFICATION ····· N002
SPARE PARTS
- CLAMP SCREW ····· N003
- SET BOLT ····· N008
- ADJUSTMENT SCREW / NUT ····· N009
- SHIM ····· N010
- SHIM PIN AND CLAMP LEVER ····· N013
- LOCK PIN ····· N014
- CLAMP BRIDGE ····· N014
- BREAKER PIECE ····· N016
- ANTI SEIZE LUBRICANT ····· N017

IDENTIFICATION

■ IDENTIFICATION OF CLAMP SCREW (Metric coarse right hand screw thread)

H **SC** **060** **05**



● **Hexagonal Hole Dimensions**

Diameter	Pitch	B Dimensions			
		HBH	HFC	HSC	HS◌
M2	0.4	—	—	1.5	0.9
M2.5	0.45	—	—	2	1.3
M3	0.5	2	2	2.5	1.5
M4	0.7	2.5	2.5	3	2
M5	0.8	3	3	4	2.5
M6	1	4	4	5	3
M8	1.25	5	5	6	4
M10	1.5	6	6	8	5

Length

Example	
Symbol	L
05	5
10	10
20	20
30	30

Screw Diameter

Example	
Symbol	d
050	M5
060	M6

Screw Head

Symbol		
BH	CHUUBURASHI CO. / UNBRAKO CO.	Button Head
BHA		
FC	CHUUBURASHI CO.	Flat Head
SC	JIS Standard	Socket Head
PM		Pan Head
FM		Flat Head
SD		Set Screw (Cut Point)
SP		Set Screw (Cone Point)
SR		Set Screw (Dog Point)
SS		Set Screw (Flat Point)

Hexagonal Hole Dimensions

Symbol	Geometry
H	

With Slot

Symbol	Geometry
S	

With Cross Hole

Symbol	Geometry
C	

■ IDENTIFICATION OF WRENCH

HKY **15** **R**

Symbol	Wrench
HKY	Hexagonal Wrench
TKY	Torx Wrench
RKY	R Wrench
TIP	Torx plus Wrench

Hexagonal Wrench

Symbol	B
15	1.5
20	2
25	2.5
30	3
35	3.5
40	4
50	5
60	6

Torx Wrench

Symbol	B	Size
06	1.7	T6
08	2.3	T8
10	2.7	T10
15	3.3	T15
20	3.8	T20
25	4.4	T25
27	5.0	T27
30	5.5	T30

Torx plus Wrench

Symbol	B	Size
06	1.8	6IP
07	2.1	7IP
08	2.4	8IP
10	2.8	10IP
15	3.4	15IP

R	Standard L Wrench	
L	Long L Wrench	
T	T Wrench	
F FS	Flag Wrench	
W	Flag Wrench	
D DS	Driver	
S	Wrench	

IMX **10** - **WR**

Symbol	Wrench
iMX	Wrench for iMX Series

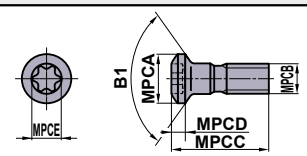
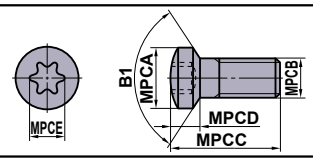
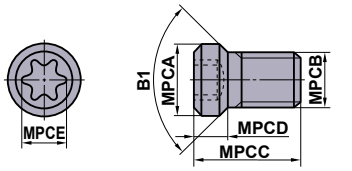
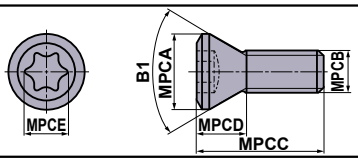
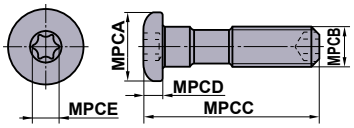
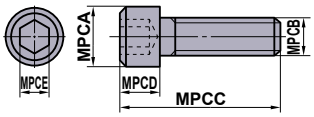
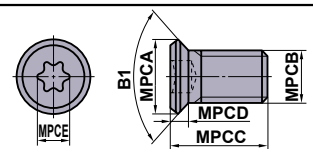
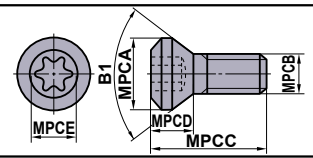
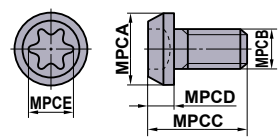
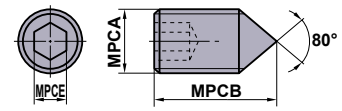
Hexagonal Wrench

Symbol	B
10	8
12	10
16	13
20	16
25	20

WR

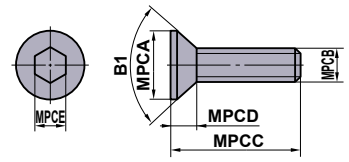
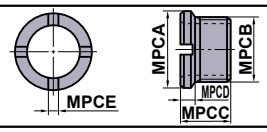
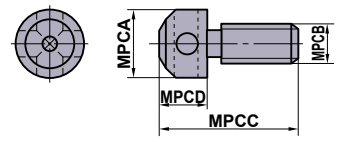
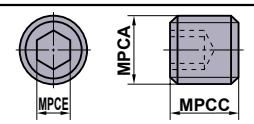
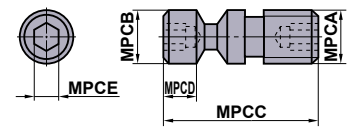
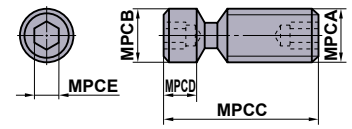
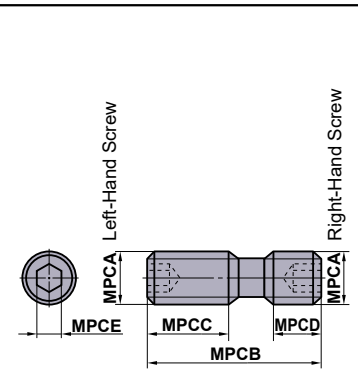
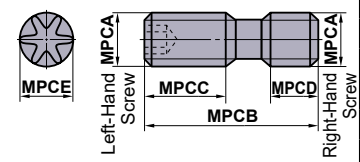
SPARE PARTS

CLAMP SCREW

Geometry	Order Number	Dimensions (mm)					Angle	MPCDS	TQ (N•m)	Tool Holder
		MPCA	MPCB	MPCC	MPCD	MPCE	B1			
	**AJS3010T10**	5	M3×0.5	10	1.5	2.8	120°	T10	2.5	**Profile** Holder (➲C032) **AJX** (➲K194)
	AJS4012T15	7	M4×0.7	12	2.2	3.4	120°	T15	3.5	**AJX** (➲K194)
	AJS5014T25	8	M5×0.8	14	2.7	4.5	120°	T25	7.5	
	**BRS103**	5	M3×0.5	9.9	2.9	3.4	120°	T15	3.5	
	BRS105	8	M5×0.8	13.8	3.8	4.5	120°	T25	7.5	
	**CS200T**	3.2	M2×0.4	5	1.6	1.8	90°	T6	0.6	**F** Type Boring Bar (➲E028)
	CS250T	3.7	M2.5×0.45	6	1.8	2.4	90°	T8	1.0	**Milling Tools** Series (➲K001)
	* **CS250560T**	3.9	M2.5×0.45	5.2	2.5	2.4	60°	T8	1.0	**BRP** (➲K206)
	CS300590T	4.1	M3×0.5	5.5	2.1	2.4	90°	T8	1.0	
	CS300890T	4.1	M3×0.5	8	2.1	2.4	90°	T8	1.0	**DCCC** (➲K216)
	* **CS350860T**	5.5	M3.5×0.6	8.4	4.0	3.4	60°	T15	3.5	**MMTI** Type Boring Bar (➲G026) **BRP** (➲K206)
*	**CS350990T**	4.8	M3.5×0.6	9	2.4	2.8	90°	T10	2.5	**DCCC** (➲K216)
	CS401160T	5.7	M4×0.7	11	4.5	3.4	60°	T15	3.5	
	CS401990T	6.0	M4×0.7	19	3.0	3.9	90°	T20	3.5	
	CS451190T	6.3	M4.5×0.75	11	2.9	3.9	90°	T20	5.0	**AL** Type Holder (➲C034)
	* **CS5015060T**	7.2	M5×0.8	15	2.4	3.9	60°	T20	5.0	**AHX640S** (➲K042)
	CS502190T	8.5	M5×0.8	21	4.0	5.1	90°	T27	7.5	
	**CSF401260T**	7.2	M4×0.5	12	5.2	3.9	60°	T20	5.0	**PMR** (➲K252)
	**DC0520T**	8.5	M5×0.8	22.5	2.5	3.4	—	T15	3.5	**DOUBLE CLAMP** Holder (➲C008)
	DC0621T	10.5	M6×1.0	25	4	3.9	—	T20	5.0	**DOUBLE CLAMP DIMPLE BAR** (➲E015) **HSK** Tool Holder (➲H001)
	**DKS4**	5.6	M4×0.7	18	3.5	3	—	—	3.3	
	**FC400890T**	5.6	M4×0.7	7.5	1.3	2.8	90°	T10	2.5	**AL** Type Holder (➲C035) **AL** Type Boring Bar (➲E043)
	**GY05016S**	8.7	M5×0.8	16	3.5	3.9	90°	T20	5.0	**GY** Series (➲F004)
	**GY06013M**	12	M6×1	18	5	5.6	—	T30	6.0	**GY** Series (➲F004)
	**HSP05008C**	M5×0.8	8	—	—	2.5	—	—	2.5	**MP** Type Holder (➲C019)

SPARE PARTS

CLAMP SCREW

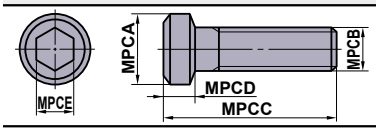
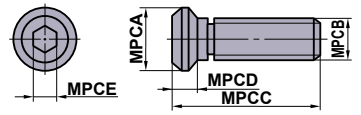
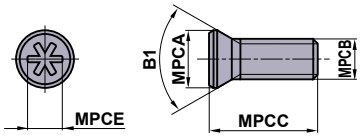
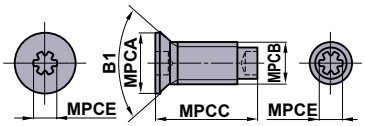
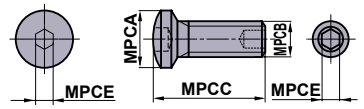
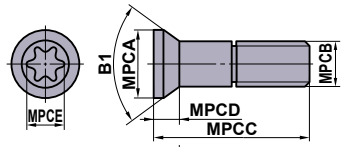
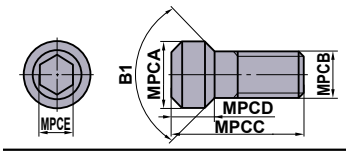
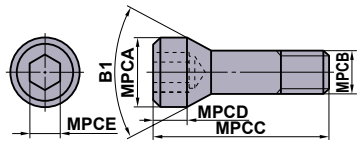
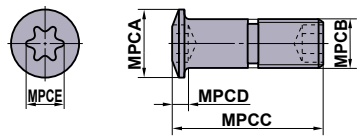
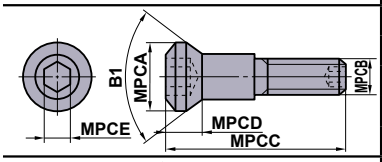
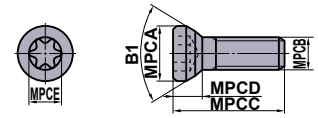
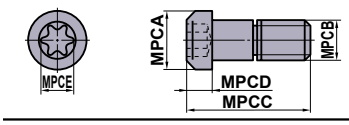
Geometry	Order Number	Dimensions (mm) MPCA	MPCB	MPCC	MPCD	MPCE	Angle B1	MPCDS	TQ (N•m)	Tool Holder
	**HY-A1**	4.4	M3×0.5	7	2.1	2	82°	—	1.5	
	HY-V1	5.5	M3×0.5	7	2.5	2	82°	—	1.5	
	HY2	5.5	M3×0.5	10	2.5	2	82°	—	1.5	
	HY3	7	M3.5×0.6	12	2.9	2	82°	—	1.5	
	HY4	9.3	M5×0.8	16	3.6	3	82°	—	3.3	
	**JSS6**	6.9	M6×0.75	4.5	1.5	0.8	—	—	—	
	JSS7	8	M7×0.75	4.4	1.5	1	—	—	—	
	**KS1**	7	M4×0.7	14	5	—	—	—	—	
	KS2	10	M6×1	18	7	—	—	—	—	
	KS2S	10	M6×1	18	7	—	—	—	—	
	**LLR1**	M5×0.8	—	3.5	—	2.5	—	—	—	
	LLR2	M6×1	—	5	—	3	—	—	—	
	☆**LLCS103**	M3×0.5	4	11	4.6	2	—	—	1.5	
	✱ **LLCS105**	M5×0.8	M5×0.8	10	1.5	2	—	—	1.5	**P** Type Boring Bar (➲E038)
	LLCS106	M6×1	6	16.5	3.5	2.5	—	—	2.2	**HSK** Tool Holder (➲H001)
	✱ **LLCS106S**	M6×1	6	13.4	0.7	2.5	—	—	2.2	
	LLCS108	M8×1.25	8	21	6.5	3	—	—	3.3	
	✱ **LLCS108S**	M8×1.25	8	16.5	2	3	—	—	3.3	
	**LLCS110**	M10×1.5	10	29	8	4	—	—	7.0	
	LLCS112	M12×1	11.9	36.2	9	5	—	—	8.0	
	LLCS125	M5×0.8	M5×0.8	12	2	2	—	—	1.5	
	LLCS205	M5×0.8	M5×0.8	16	4	2	—	—	1.5	
	LLCS206	M6×1	6	26	13	2.5	—	—	2.2	
	LLCS208	M8×1.25	8	24	6.5	3	—	—	3.3	
	LLCS306	M6×1	6	21	4	2.5	—	—	2.2	
	LLCS310	M10×1	10	29	8	4	—	—	7.0	
	LLCS410	M10×1	10	30	6.6	4	—	—	7.0	
	LLCS508	M8×1	8	24	6.5	3	—	—	3.3	
	✱ **LLCS508S**	M8×1	8	20.5	3	3	—	—	3.3	
	**LS1**	M6×1	22	8	8	3	—	—	5.0	
	LS2	M8×1	29	13	10	4	—	—	8.2	
	✱ **LS4**	M6×1	15	8	4	3	—	—	5.0	**Milling Tools** Series (➲K001)
	✱ **LS5**	M6×1	18	8	5	3	—	—	5.0	
	✱ **LS6**	M8×1	24	13	5	4	—	—	8.2	
	✱ **LS7**	M8×1	27	13	8	4	—	—	8.2	
	✱ **LS8**	M6×0.75	18	7	7	3	—	—	5.0	
	✱ **LS9**	M6×0.75	22	8	8	3	—	—	5.0	
	✱ **LS10**	M7×0.75	16	6	6	4	—	—	8.2	
	✱ **LS11**	M8×1	16	6	6	4	—	—	7.8	
	✱ **LS12**	M8×1	24	7	7	4	—	—	7.8	
	✱ **LS16**	M7×0.75	23	11	8	4	—	—	7.8	
	✱ **LS20**	M10×1.5	26	9	9	5	—	—	9.0	
	✱ **LS21**	M10×1.5	32	12	12	5	—	—	9.0	
	LS24	M8×1.25	24	8.5	8.5	4	—	—	7.8	
	LS25	M8×1	28.5	12.0	10.5	4	—	—	8.2	**DOUBLE CLAMP** Holder (➲C009)
	**LS14T**	M7×0.75	24	10	10	4.5	—	T25	8.0	
	LS15T	M7×0.75	18	7	7	4.5	—	T25	8.0	
	LS10TS	M7×0.75	13	6	4	4.5	—	T25	8.5	
	LS0622T	M6×0.75	22	8	8	3.4	—	T15	6.0	**AHX640W** (➲K049)

LLCS103, LLCS105
LLCS112, LLCS125
LLCS205

The products with "✱" do not have a hexagonal hole at the end marked **MPCB**.

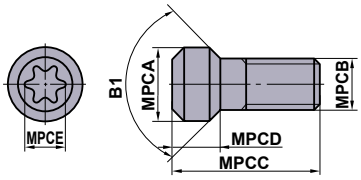
The products with "☆" do not have a hexagonal hole at the end marked **MPCA**.

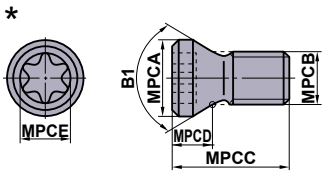
✱Without Hexagonal Hole on Right-Hand Screw

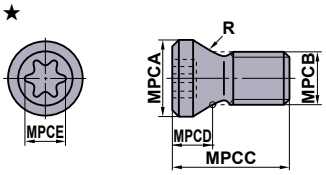
Geometry	Order Number	Dimensions (mm)					Angle	MPCDS	TQ (N•m)	Tool Holder
		MPCA	MPCB	MPCC	MPCD	MPCE	B1			
	**MGS6**	10	M6×1	26	4	5	—	—	9.0	**APX3000** (➲K146)
	**MHT1**	11	M8×1	18.5	3.5	4	—	—	8.7	
	**NS251**	3.6	M2.5×0.45	7	—	2.2	60°	—	0.7	**BTVH** (➲D016)
	NS401	5.8	M4×0.7	6	—	3.6	60°	—	3.5	**CTAH-S** (➲D020)
	**NS402W**	5.85	M4×0.7	10	—	2.2	60°	—	0.7	**CTAH** (➲D020) **CTBH** (➲D022)
	NS403W	5.85	M4×0.7	12	—	2.2	60°	—	0.7	
	NS404W	5.8	M4×0.7	10	—	2.2	90°	—	0.7	
	**NS501W**	8	M5×0.8	16	—	2.5	120°	—	2.2	**SMALL TOOLS** (➲D001)
	NS502W	8	M5×0.8	20	—	2.5	120°	—	2.2	
	**RS3008T**	4.3	M3×0.35	8.6	2	2.4	61°	T8	1.5	**SRF** (➲K228) **SUF** (➲K232)
	RS3510T	5	M3.5×0.35	10	2.3	2.8	61°	T10	2.5	
	RS4015T	6	M4×0.5	14	2.7	3.4	61°	T15	3.3	
	RS5020T	8.1	M5×0.5	16.4	3.6	3.9	61°	T20	5.0	
	RS6025T	9.5	M6×0.75	21.5	4.2	4.5	61°	T25	7.5	
	RS8030T	12	M8×0.75	25	5	5.6	61°	T30	10.0	
	**S1**	3.5	M2×0.4	5.5	2.2	1.5	92°	—	0.6	
	S3	4.5	M3×0.5	7.7	2.4	2	92°	—	1.5	
	S4	5.3	M4×0.7	8	1.8	2.5	62°	—	2.2	
	S5	6.8	M5×0.8	9	2.4	3	62°	—	3.3	
	**SD32**	12	M8×1.25	28	7.2	6	50°	—	9.5	
	SD40	12	M8×1.25	36	7.2	6	50°	—	9.5	
	SD50	16	M10×1.5	46	8.2	8	50°	—	1.0	
	SD63	16	M10×1.5	61	8.2	8	50°	—	1.0	
	**SETS51**	6.8	M5×0.8	14.8	1.5	3.4	—	T15	3.5	**MMTE** Type Holder (➲G019)
	SETS61	8	M6×1	20	1.8	3.9	—	T20	5.0	**MMTI** Type Boring Bar (➲G026)
										HSK Tool Holder (➲H001)
	**SLCS105**	10	M5×0.8	25	6.3	4	90°	—	7.0	**WP** Type Holder (➲C017)
	SLCS106	12	M6×1	32	6.2	4	90°	—	7.0	
	**SPS1**	8.5	M5×0.8	16	4	4.5	70°	T25	5.0	
	**SRS5**	6.7	M5×0.8	16	3.5	3.9	—	T20	5.0	

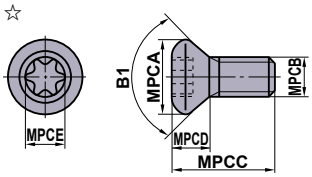
SPARE PARTS

CLAMP SCREW

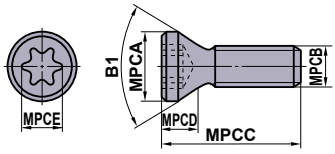
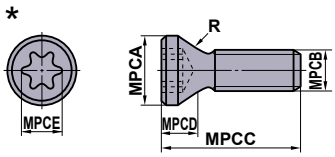
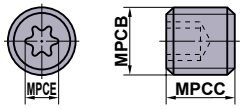
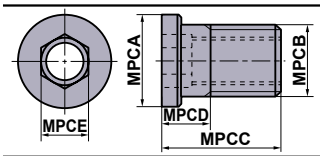
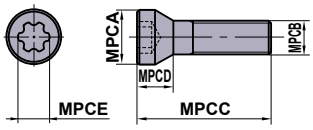
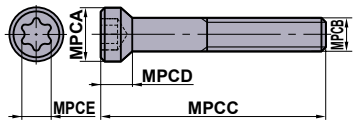


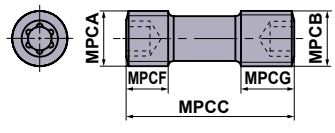






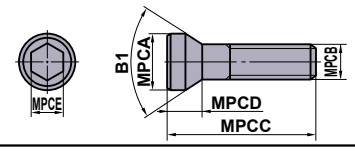
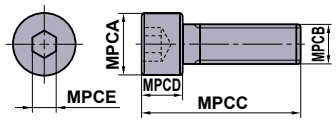
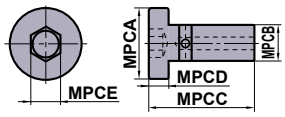
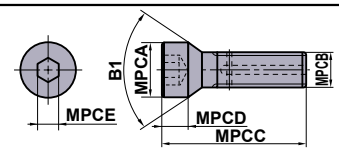
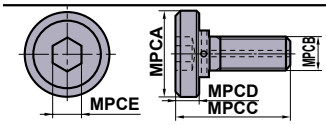
Geometry	Order Number	Dimensions (mm)					Angle	MPCDS	TQ (N•m)	Tool Holder
		MPCA	MPCB	MPCC	MPCD	MPCE	B1			
	* **TS16**	2.5	M1.6×0.35	3.2	1.6	1.8	60°	T6	0.6	**MICRO-DEX** (➲E018)
	TS2	2.7	M2×0.4	4.6	1.4	1.8	60°	T6	0.6	
	* **TS2A**	2.7	M2×0.4	4.5	1.2	1.8	60°	T6	0.6	**AQX** (➲K186)
	TS2C	2.7	M2×0.4	3.8	1.4	1.8	60°	T6	0.6	
	☆ **TS2D**	3.8	M2×0.4	5.3	1.9	1.8	82°	T6	0.6	**DIMPLE BAR** (➲E007)
	TS21	2.7	M2×0.4	3.4	1.4	1.8	60°	T6	0.6	**F** Type Boring Bar (➲E030)
	* **TS22**	3.0	M2.2×0.45	5	1.2	1.8	60°	T6	0.6	**S** Type Boring Bar (➲E031)
	* **TS25**	3.3	M2.5×0.45	5.5	1.7	2.4	60°	T8	1.0	**AQX** (➲K186) **AJX** (➲K194)
	☆ **TS25D**	4.4	M2.5×0.45	6.2	2.2	2.4	82°	T8	1.0	**MMTI** Type Boring Bar (➲G026)
	* **TS25H**	3.6	M2.5×0.45	5.5	2	2.4	60°	T8	1.0	**SRM2** (➲K236)
	TS202	2.7	M2×0.4	5.5	1.8	1.8	60°	T6	0.6	
	TS253	3.3	M2.5×0.45	4.5	1.7	2.4	60°	T8	1.0	**Milling Tools** Series (➲K001)
	TS254	3.3	M2.5×0.45	7	1.7	2.4	60°	T8	1.0	**SMALL TOOLS** (➲D001) **PMF** (➲K250)
	* **TS255**	3.5	M2.5×0.45	7.5	1.6	2.4	60°	T8	1.0	**Profile Holder** (➲C032)
	TS3	3.9	M3×0.5	6	2	2.4	60°	T8	1.0	**TSMP** (➲K248)
	TS3D	5.0	M3×0.5	6	2.3	2.8	82°	T10	2.5	**DIMPLE BAR** (➲E007)
*	* **TS3SB**	4.4	M3×0.5	8	2	2.4	80°	T8	1.5	**AXD4000** (➲K168)
	TS3SBS	4.4	M3×0.5	6.5	2	2.4	80°	T8	1.5	**AXD4000** (➲K168)
	☆ **TS31D**	4.8	M3×0.5	7.2	2.2	2.8	82°	T10	2.5	**DIMPLE BAR** (➲E007)
	* **TS32**	3.9	M3×0.5	7.5	2	2.4	60°	T8	2.0	**SRM2** (➲K236)
	* **TS33**	3.9	M3×0.5	6.7	2	2.4	60°	T8	1.5	**AQX** (➲K186) **AJX** (➲K194)
	TS35	4.8	M3.5×0.6	6.5	2.4	2.8	60°	T10	2.5	
	* **TS35D**	5.3	M3.5×0.6	12	2.8	3.4	60°	T15	3.5	**HSK** Tool Holder (➲H001)
★	★ **TS35R**	5.7	M3.5×0.6	10	2.1	3.4	—	T15	3.5	**AHX440S** (➲K034) **AHX475S** (➲K038)
	TS351	4.8	M3.5×0.6	7.2	2.4	2.8	60°	T10	2.5	**AJX** (➲K194) **SRM2** (➲K236)
	TS352	4.8	M3.5×0.6	10	3	2.8	60°	T10	2.5	**VFX5** (➲K208)
	* **TS4SB**	5.8	M4×0.7	9	2.7	3.4	80°	T15	3.5	**AXD7000** (➲K180)
	* **TS4SBL**	5.8	M4×0.7	10.5	2.7	3.4	80°	T15	3.5	**GY** SERIES (➲F004) **AXD7000** (➲K180)
	TS4	5.4	M4×0.7	8	2.6	3.4	60°	T15	3.5	**CE/CF/CGSP** (➲K246) **TSMP** (➲K248)
	TS4D	5.6	M4×0.7	7.7	2.5	3.4	82°	T15	3.5	**DIMPLE BAR** (➲E007)
	TS42	5.4	M4×0.7	6	2.6	3.4	60°	T15	3.5	
	TS43	5.4	M4×0.7	10	2.6	3.4	60°	T15	3.5	**AJX** (➲K194) **BRP** (➲K206) **SRM2** (➲K236)
	TS44	5.4	M4×0.7	12	2.6	3.4	60°	T15	3.5	
	TS406	5.4	M4×0.7	15.5	2.6	3.4	60°	T15	3.5	
☆	**TS407**	5.4	M4×0.7	9	2.6	3.4	60°	T15	3.5	**AQX** (➲K186) **AJX** (➲K194)
	TS450	5.9	M4.5×0.75	13	3.6	3.9	60°	T20	5.0	**VFX6** (➲K212)
	TS5S	6.8	M5×0.8	9	2.9	4.5	80°	T25	7.5	
	TS5	6.8	M5×0.8	9	3.2	4.5	60°	T25	7.5	**SP** Holder (➲C024) **CE/CF/CGSP** (➲K246) **TSMP** (➲K248)
	TS5L	6.8	M5×0.8	15	2.9	4.5	80°	T25	7.5	
	★ **TS5R**	6.9	M5×0.8	12	3.5	3.9	—	T20	5.0	**WWX400** (➲K067) **WJX** (➲K085)
	TS52	6.8	M5×0.8	8	3.2	4.5	60°	T25	7.5	**CE/CF/CGSP** (➲K246)
	TS53	6.8	M5×0.8	16	3.2	4.5	60°	T25	7.5	
	TS54	6.8	M5×0.8	12	3.2	4.5	60°	T25	7.5	**AJX** (➲K194)
	TS55	6.8	M5×0.8	10.5	3.2	4.5	60°	T25	7.5	**GY** SERIES (➲F004) **AQX** (➲K186) **SPX** (➲K219) **SRM2** (➲K236)
	* **TS6S**	8.5	M6×1.0	13	4.4	5.6	60°	T30	10.0	**AQX** (➲K186) **SRM2** (➲K236)
	* **TS6**	8.5	M6×1.0	16	4.4	5.6	60°	T30	10.0	**SRM2** (➲K236)

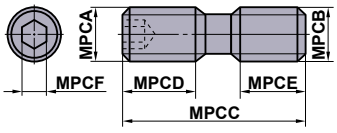
Geometry	Order Number	Dimensions (mm)					Angle	MPCDS	TQ (N•m)	Tool Holder
		MPCA	MPCB	MPCC	MPCD	MPCE	B1			
	**TPS20-1**	2.65	M2×0.4	4.7	2.4	1.8	60°	6IP	0.6	**MVX** (➲M158)
	TPS25	3.3	M2.5×0.45	5.5	1.7	2.1	60°	7IP	1.0	**APX3000** (➲K146) **MVX** (➲M158)
	TPS25-1	3.3	M2.5×0.45	6.5	1.7	2.1	60°	7IP	1.0	**APX3000** (➲K146)
	TPS27F1	3.7	M2.7×0.35	6.5	1.8	2.1	60°	7IP	1.0	**VPX200** (➲K099)
	TPS27F2	3.7	M2.7×0.35	8.0	1.8	2.1	60°	7IP	1.0	**VPX300** (➲K113)
	TPS3	3.9	M3×0.5	6.7	1.4	2.82	60°	10IP	1.0	**MVX** (➲M158)
*	**TPS3R**	4.6	M3×0.5	8.5	1.4	2.82	—	10IP	2.0	**WJX09** (➲K085)
	TPS3SB	4.4	M3×0.5	8	2.0	2.82	80°	10IP	3.0	**AXD4000A** (➲K176)
	TPS35	5.3	M3.5×0.6	11.5	2.8	3.4	60°	15IP	3.5	**ASX445** (➲K026) **ASX400** (➲K080) **PMR** (➲K252)
* 	**TPS351**	4.8	M3.5×0.6	7.2	1.4	2.82	60°	10IP	2.5	**MVX** (➲M158)
	TPS351B	5.1	M3.5×0.6	7.2	1.4	2.82	60°	10IP	2.5	**ARP** (➲K254)
	TPS4	5.3	M4×0.7	8	2.6	3.4	60°	15IP	3.5	**APX4000** (➲K153) **ARP** (➲K254) **MVX** (➲M158)
	TPS40F1	5.3	M4×0.5	10.5	2.8	3.4	60°	15IP	3.0	**VPX300** (➲K113)
	TPS43	5.3	M4×0.7	10	2.6	3.4	60°	15IP	4.0	**APX4000** (➲K153) **MVX** (➲M158)
*	**TPS4R**	6.4	M4×0.7	10.6	2.9	3.4	—	15IP	3.5	**WSX445** (➲K016)
	TPS54	6.8	M5×0.8	12	3.2	4.5	60°	25IP	7.5	**MVX** (➲M158)
	**TSS04005**	—	M4×0.7	5	—	2.4	—	T8	—	**PMF** (➲K250)
	TSS04505S	—	M4.5×0.7	5	—	3.5	—	T10	3.5	**FMAX** (➲K056)
	TSS05006	—	M5×0.8	6	—	2.8	—	T10	—	
	TSS06010	—	M6×1	10	—	3.9	—	T20	—	
	**WCS503507H**	6.3	M5×0.5	7	3.3	3.5	—	—	5.0	**ASX445** (➲K026) **ASX400** (➲K080) **PMR** (➲K252)
	WCS604010H	7.8	M6×0.75	10	4.1	4.0	—	—	7.0	**PMR** (➲K252)
	**WS203107TPS**	3.1	M2×0.25	7.3	1.7	1.8	60°	6IP	1.0	**STAW** (➲M139)
	WS203108TPS	3.1	M2×0.25	8.3	1.9	1.8	60°	6IP	1.0	
	WS253909TPS	3.9	M2.5×0.35	9.5	2.4	2.4	60°	8IP	2.0	
	WS304912TPS	4.9	M3×0.35	12	3.25	2.82	60°	10IP	2.5	
	**WS254012T**	4	M2.5×0.45	11.5	2.2	2.4	80°	T8	2.0	**TAW** (➲M148)
	WS254013T	4	M2.5×0.45	12.5	2.2	2.4	80°	T8	2.0	
	WS254014T	4	M2.5×0.45	13.5	2.2	2.4	80°	T8	2.0	
	WS254015T	4	M2.5×0.45	14.5	2.2	2.4	80°	T8	2.0	
	WS254016T	4	M2.5×0.45	15.5	2.2	2.4	80°	T8	2.0	
	WS304517T	4.5	M3×0.5	16.5	3.4	2.8	60°	T10	3.5	
	WS304518T	4.5	M3×0.5	17.5	3.4	2.8	60°	T10	3.5	
	WS355520T	5.5	M3.5×0.6	19.5	3.9	3.4	60°	T15	5.5	
	WS355521T	5.5	M3.5×0.6	20.5	3.9	3.4	60°	T15	5.5	
	WS406023T	6	M4×0.7	22.0	4.4	4.5	60°	T25	8.5	
	WS406024T	6	M4×0.7	23.0	4.4	4.5	60°	T25	8.5	
	WS508026T	8	M5×0.8	25.0	5.2	5.1	60°	T27	12.0	
	WS508027T	8	M5×0.8	26.0	5.2	5.1	60°	T27	12.0	

Geometry	Order Number	Dimensions (mm)					Angle	MPCDS	TQ (N•m)	Tool Holder
		MPCA	MPCB	MPCC	MPCF	MPCG	B1			
	**RX1ST8TP1**	M4×0.7	M4×0.5	16.5	7.0	7.0	—	TX8	2.0	**RX1S** (➲M197)
	RX1ST10TP23	M5×0.8	M5×0.5	17.0	7.5	7.0	—	TX10	3.0	
	RX1ST15TP45	M6×1.0	M6×0.75	18.0	6.5	8.5	—	TX15	6.5	
	RX1ST25TP6	M10×1.5	M10×1.25	30.0	7.5	9.5	—	TX25	15.0	

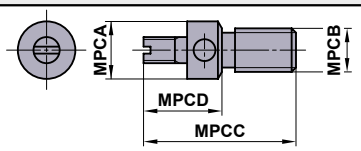
SPARE PARTS

SET BOLT

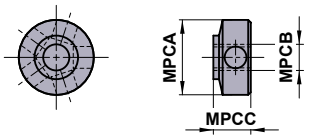
Geometry	Order Number	Dimensions (mm) MPCA	MPCB	MPCC	MPCD	MPCE	Angle B1	MPCDS	TQ (N•m)	Tool Holder
	**BOES101**	15	M10×1.5	45	10	8	60°	—	10.0	
	*** HSC08025H**	13	M8×1.25	33	8	5	—	—	24	**VPX200/300** (➲K099,K113) **ARP** (➲K254)
	HSC05030	8.5	M5×0.8	35	5	4	—	—	10	**APX3000/4000** (➲K146,K153)
	*** HSC08030H**	13	M8×1.25	38	8	5	—	—	24	**WSX445** (➲K016)
	HSC08045	13	M8×1.25	53	8	5	—	—	24	**VPX200/300** (➲K099,K113)
	HSC08040	13	M8×1.25	48	8	5	—	—	24	**WSX445** (➲K016)
	HSC08050	13	M8×1.25	58	8	5	—	—	24	**VPX200/300** (➲K099,K113)
	*** HSC10030H**	16	M10×1.5	40	10	6	—	—	40	APX3000/4000 (➲K146,K153) **AJX** (➲K194) **WSX445** (➲K016)
	HSC10035	16	M10×1.5	45	10	6	—	—	44	**VFX5** (➲K208) **VFX6** (➲K212)
	HSC10050	16	M10×1.5	60	10	8	—	—	44	APX3000/4000 (➲K146,K153) **VPX200/300** (➲K099,K113)
	HSC10055	16	M10×1.5	65	10	8	—	—	44	**VFX5** (➲K208)
	HSC10060	16	M10×1.5	70	10	8	—	—	44	**VPX200/300** (➲K099,K113)
	HSC10070	16	M10×1.5	80	10	8	—	—	44	**VPX200/300** (➲K099,K113) **ASPX** (➲K224)
	HSC12035	18	M12×1.75	47	12	10	—	—	80	**WSX445** (➲K016)
	*** HSC12035H**	18	M12×1.75	47	12	10	—	—	80	**APX3000/4000** (➲K146,K153) **AJX** (➲K194)
	HSC12040	18	M12×1.75	52	12	10	—	—	80	
	HSC12045	18	M12×1.75	57	12	10	—	—	80	**WSX445** (➲K016)
	HSC12060	18	M12×1.75	72	12	10	—	—	80	**VPX200/300** (➲K099,K113)
	HSC12070	18	M12×1.75	82	12	10	—	—	80	APX3000/4000 (➲K146,K153) **AJX** (➲K194) **WSX445** (➲K016)
	HSC16040	24	M16×2	56	16	14	—	—	150	**WSX445** (➲K016)
	*** HSC16040H**	24	M16×2	56	16	14	—	—	150	**APX3000/4000** (➲K146,K153) **AJX** (➲K194)
	HSC16055	24	M16×2	71	16	14	—	—	150	**VPX200/300** (➲K099,K113)
	HSC16065	24	M16×2	81	16	14	—	—	150	**VPX200/300** (➲K099,K113)
	HSC16080	24	M16×2	96	16	14	—	—	150	
* With coolant hole.	**HSC20040**	30	M20×2.5	60	20	17	—	—	320	
	HSC20090	30	M20×2.5	110	20	17	—	—	320	
	**HSCX12030H**	24	M12×1.75	37	7	8	—	—	40	**FMAX** (➲K056)
	HSCX16035H	30	M16×2	44	9	12	—	—	100	
	HSCX20035H	36	M20×2.5	46	11	14	—	—	180	
	**HFF08033H**	11	M8×1.25	33	5	5	90°	—	8.2	**WJX09** (➲K085)
	HFF08043H	11	M8×1.25	43	5	5	90°	—	8.2	**AXD4000** (➲K168)
	**MBA16033H**	40	M16×2	43	10	14	—	—	150	**AHX640** (For ϕ100) (➲K042) **WSX445** (➲K016)
	MBA20040H	50	M20×2.5	54	14	17	—	—	320	**APX4000** (➲K153) **AHX475S** (➲K038) **AHX640S** (➲K042) **AXD4000** (➲K168) **AXD7000** (➲K180) **AJX** (➲K194)

Geometry	Order Number	Dimensions (mm) MPCA	MPCB	MPCC	MPCD	MPCE	MPCF	TQ (N•m)	Tool Holder
	**HDS08030**	M8×0.75	M8×1.25	30	13.5	11.5	4	8.2	**BRP** (➲K206)
	HDS10031	M10×1.0	M10×1.5	31	14	12	5	9.0	**PMF** (➲K250)

LARGE ADJUSTMENT SCREW

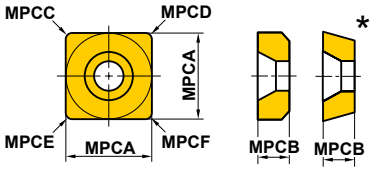
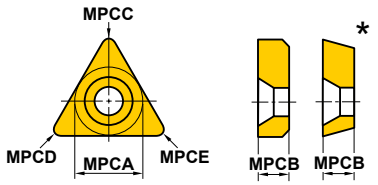
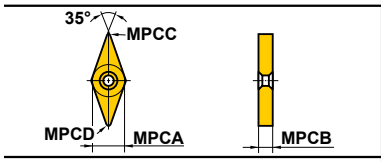
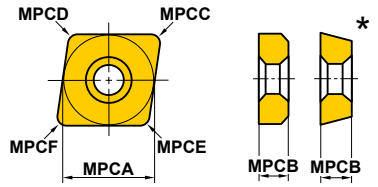
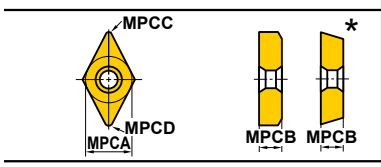
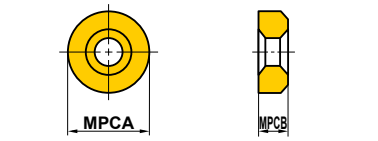
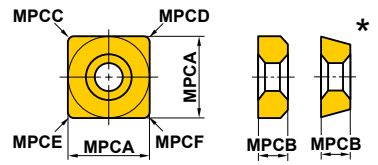
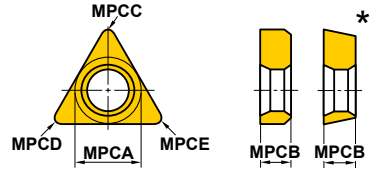
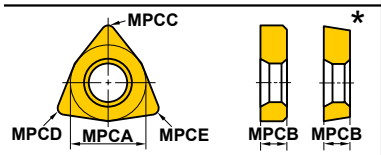
Geometry	Order Number	Dimensions (mm)					Angle	MPCDS	TQ (N•m)	Tool Holder
		MPCA	MPCB	MPCC	MPCD	MPCE	B1			
	**KSS2**	6.6	M5×0.8	17.5	9	—	—	—	—	**FMAX** (➲K056)

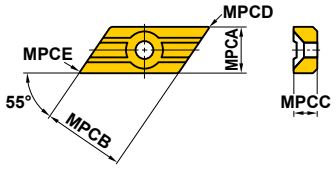
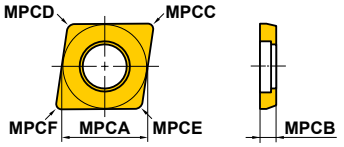
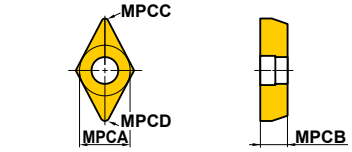
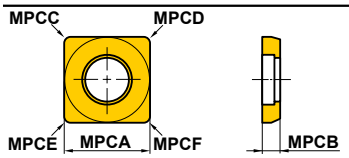
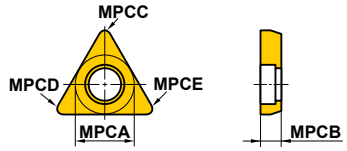
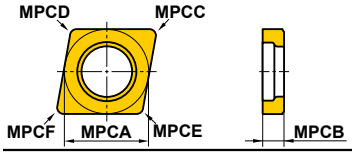
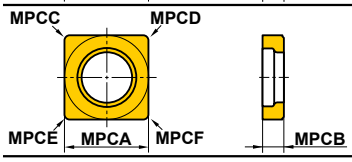
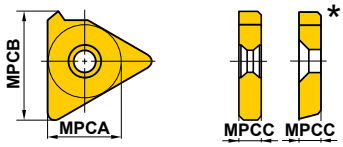
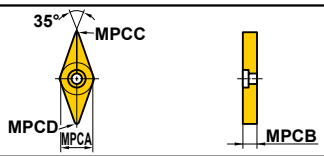
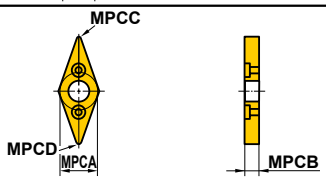
MICRO ADJUSTMENT NUT

Geometry	Order Number	Dimensions (mm)					Angle	MPCDS	TQ (N•m)	Tool Holder
		MPCA	MPCB	MPCC	MPCD	MPCE	B1			
	**KSN3**	8.6	M3×0.35	4.3	—	—	—	—	—	**FMAX** (➲K056)

SPARE PARTS

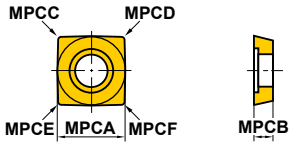
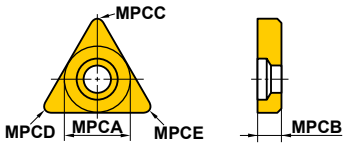
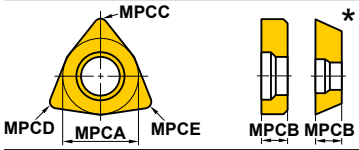
SHIM

Geometry	Order Number	Dimensions (mm)						Tool Holder
		MPCA	MPCB	MPCC	MPCD	MPCE	MPCF	
	* **PS42**	11.46	3.18	0.2	0.2	0.6	1.0	
	* **PT21**	5.11	2.38	0.2	0.2	0.6	—	**F** Type Boring Bar (➲E029)
	* **PT32**	8.28	3.18	0.2	0.2	0.6	—	
	* **PT42**	10.85	3.18	0.3	0.3	0.7	—	
	**DCSVN32**	9.52	3.18	0.8	1.2	—	—	**DOUBLE CLAMP** Holder (➲C019) **DOUBLE CLAMP DIMPLE BAR** (➲E017)
	**LLSCN3T3**	9.52	3.97	0.4	0.4	0.8	0.8	**LL** Type Holder (➲C008)
	LLSCN33	9.52	4.76	0.4	0.4	0.8	0.8	**LL** Type Holder (➲C008)
	LLSCN42	12.70	3.18	0.8	0.8	1.2	1.2	**DOUBLE CLAMP DIMPLE BAR** (➲E015)
	LLSCN53	15.87	4.76	1.2	1.2	1.6	1.6	**P** Type Boring Bar (➲E039)
	LLSCN63	19.05	4.76	1.2	1.2	1.6	1.6	**HSK** Tool Holder (➲H001)
	* **LLSCP42**	12.70	3.18	0.8	0.8	1.2	1.2	**DOUBLE CLAMP DIMPLE BAR** (➲E015)
	* **LLSCP63**	19.05	4.76	1.2	1.2	1.6	1.6	**P** Type Boring Bar (➲E039) **HSK** Tool Holder (➲H001)
	**LLSDN32**	9.52	3.18	0.8	1.2	—	—	**DOUBLE CLAMP** Holder (➲C010)
	LLSDN42	12.70	3.18	0.8	1.2	—	—	**LL** Type Holder (➲C010) **DOUBLE CLAMP DIMPLE BAR** (➲E015)
	LLSDN43	12.70	4.76	0.8	1.2	—	—	**P** Type Boring Bar (➲E039)
	LLSDN53	15.87	4.76	1.2	1.6	—	—	**HSK** Tool Holder (➲H001)
	* **LLSDP42**	12.70	3.18	0.8	1.2	—	—	**DOUBLE CLAMP DIMPLE BAR** (➲E015)
	**LLSRN103**	8.3	3.18	—	—	—	—	**LL** Type Holder (➲C026)
	LLSRN123	9.8	3.18	—	—	—	—	**HSK** Tool Holder (➲H001)
	LLSRN164	13.6	4.76	—	—	—	—	
	LLSRN204	17.3	4.76	—	—	—	—	
	LLSRN326	28.0	6.35	—	—	—	—	
	**LLSSN33**	9.52	4.76	0.8	0.8	1.2	1.2	**DOUBLE CLAMP DIMPLE BAR** (➲C014)
	LLSSN42	12.70	3.18	0.8	0.8	1.2	1.6	**P** Type Boring Bar (➲E038)
	LLSSN53	15.87	4.76	1.2	1.2	1.6	1.6	
	LLSSN63	19.05	4.76	1.2	1.2	1.6	2.0	
	LLSSN84	25.40	6.35	1.6	1.6	2.4	2.4	
	* **LLSSP42**	12.70	3.18	0.8	0.8	1.2	1.6	**DOUBLE CLAMP DIMPLE BAR** (➲E016)
	**LLSTE32**	7.6	3.18	0.4	0.4	0.4	—	
	LLSTN32	9.52	3.18	0.4	0.8	1.2	—	**LL** Type Holder (➲C016)
	LLSTN33	9.52	4.76	0.4	0.8	1.2	—	**DOUBLE CLAMP DIMPLE BAR** (➲E016)
	LLSTN42	12.70	3.18	0.4	0.8	1.2	—	**P** Type Boring Bar (➲E038)
	LLSTN53	15.87	4.76	0.8	1.2	1.6	—	
	* **LLSTP32**	9.52	3.18	0.4	0.8	1.2	—	
	**LLSWN32**	9.52	3.18	0.4	0.8	1.2	—	**LL** Type Holder (➲C022)
	LLSWN3T3	9.52	3.97	0.4	0.8	1.2	—	**DOUBLE CLAMP** Holder (➲C022)
	LLSWN42	12.70	3.18	0.4	0.8	1.2	—	**DOUBLE CLAMP DIMPLE BAR** (➲E017)
	* **LLSWP32**	9.52	3.18	0.4	0.8	1.2	—	
	* **LLSWP42**	12.70	3.18	0.4	0.8	1.2	—	

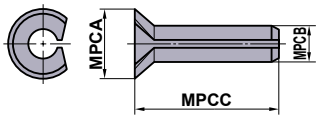
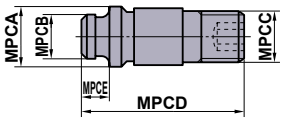
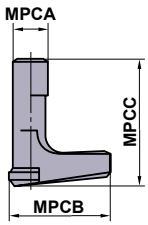
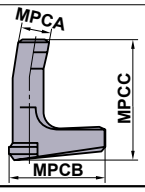
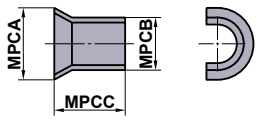
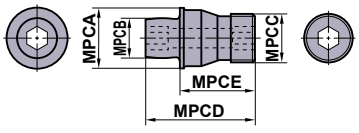
Geometry	Order Number	Dimensions (mm)						Tool Holder
		MPCA	MPCB	MPCC	MPCD	MPCE	MPCF	
	**MHS532R**	9.4	15.7	4.5	0.8	0.8	—	
 Hole position of this item is offset from centre.	**MLCP42**	12.58	3.18	1.2	1.2	1.2	1.2	**P** Type Boring Bar (➲E039)
 Hole position of this item is offset from centre.	**MLDP42**	12.56	3.18	1.2	1.2	—	—	**P** Type Boring Bar (➲E039)
 Hole position of this item is offset from centre.	**MLSP42**	12.63	3.18	1.2	1.2	1.2	1.2	**P** Type Boring Bar (➲E038)
 Hole position of this item is offset from centre.	**MLTP32**	9.50	3.18	1.2	1.2	1.2	—	**P** Type Boring Bar (➲E038)
	**MSCN63**	18.8	4.76	1.6	1.6	1.6	1.6	**DOUBLE CLAMP** Holder (➲C009) (For Heavy Cutting)
	**MSSN63**	18.8	4.76	1.6	1.6	1.6	1.6	**DOUBLE CLAMP** Holder (➲C012) (For Heavy Cutting)
	* **PT32T1R** * **PT32T2R**	8.28 8.28	13.34 13.19	3.18 3.18	— —	— —	— —	
	**PV321** **PV322** **PV323**	9.52 9.52 9.52	3.18 3.18 3.18	0.4 0.8 1.2	0.4 0.8 1.2	— — —	— — —	**MP** Type Holder (➲C019)
	**SPSVN32**	8.06	3.18	0.3	0.3	—	—	**SP** Type Holder (➲C030) **HSK** Tool Holder (➲H001)

SPARE PARTS

SHIM

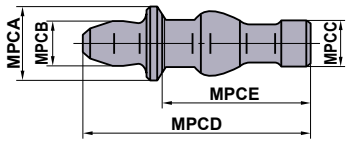
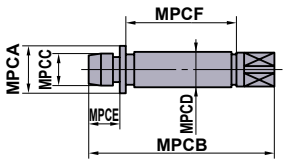
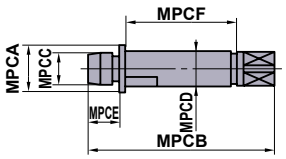
Geometry	Order Number	Dimensions (mm)						Tool Holder
		MPCA	MPCB	MPCC	MPCD	MPCE	MPCF	
	**STASX400N**	11.00	3.00	0.4	0.4	0.4	0.4	**ASX400** (➲K080)
	STASX445N	10.76	3.00	—	—	—	—	**ASX445** (➲K026)
	**WPSTN33**	9.3	4.76	0.8	0.4	1.2	—	**WP** Type Holder (➲C017)
	WPSTN43	12.50	4.76	0.8	0.4	1.2	—	
	* **WPSWC43**	12.50	4.76	0.4	0.8	1.2	—	
	WPSWN43	12.50	4.76	0.4	0.8	1.2	—	**WP** Type Holder (➲C023)

SHIM PIN AND CLAMP LEVER

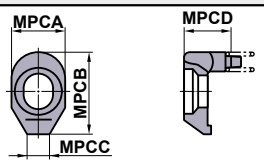
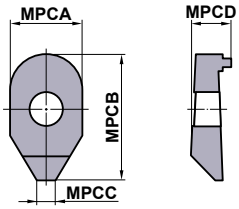
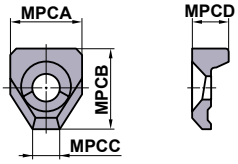
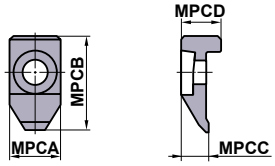
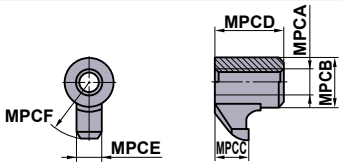
Geometry	Order Number	Dimensions (mm)					Tool Holder
		MPCA	MPCB	MPCC	MPCD	MPCE	
	**BCP141**	3.0	1.4	5.6	—	—	**SP** Type Holder (➲C030)
	BCP201	4.3	2	7.4	—	—	**F** Type Boring Bar (➲E029)
	BCP202	4.3	2	6.4	—	—	**HSK** Tool Holder (➲H013)
	**CCP33**	6.5	3.66	M5×0.8	18.5	3	**WP** Holder (➲C017)
	CCP34	7.5	5.0	M6×1.0	18.5	3	
	CCP44	7.5	5.0	M5×0.8	14.2	3	
	**LLCL12S**	2.1	9.3	5.6	—	—	**LL** Type Holder (➲C016)
	LLCL13	3.6	10	12.5	—	—	**P** Type Boring Bar (➲E039)
	LLCL13S	3.6	10	7.8	—	—	**HSK** Tool Holder (➲H001)
	LLCL14	4.7	13.4	13.2	—	—	
	LLCL14S	4.7	13.6	12.2	—	—	
	LLCL15	6.0	19	17	—	—	
	LLCL16	7.5	20.8	21	—	—	
	LLCL18	8.6	25.4	25.2	—	—	
	LLCL23	3.6	12.0	11.5	—	—	
	LLCL23S	3.6	11.6	9.5	—	—	
	LLCL24	4.7	16.2	14.8	—	—	
	LLCL25	6.0	17.1	17	—	—	
	**LLCL110**	3.0	10.7	11.6	—	—	
	LLCL112	3.5	13	13.5	—	—	
	LLCL116	4.5	18.5	18	—	—	
	LLCL120	5.6	20.3	19	—	—	
	LLCL125	6	24	24	—	—	
	LLCL132	8	30	27	—	—	
	**LLP13**	5.55	4.85	5.3	—	—	**LL** Type Holder (➲C008)
	LLP14	7.25	6.55	5.8	—	—	**DOUBLE CLAMP** Holder (➲C008)
	LLP15	8.8	8.05	8.6	—	—	**DOUBLE CLAMP DIMPLE BAR** (➲E015)
	LLP16	10.85	9.85	11.1	—	—	**P** Type Boring Bar (➲E038)
	LLP18	15.35	13.05	12.0	—	—	**HSK** Tool Holder (➲H001)
	LLP23	5.55	4.85	6.8	—	—	
	LLP24	7.25	6.55	9.1	—	—	
	**MP6**	11.9	7.8	M10×1	22.1	15	**DOUBLE CLAMP** Holder (➲C009) (For Heavy Cutting)

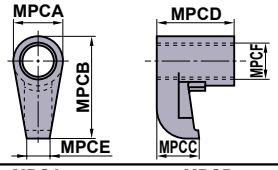
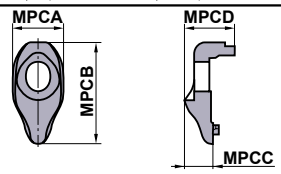
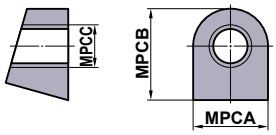
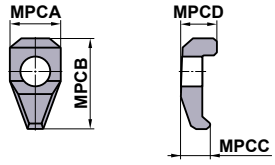
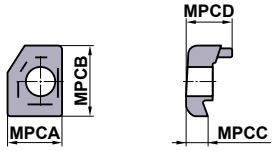
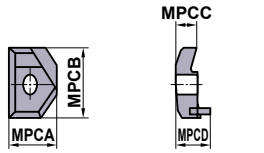
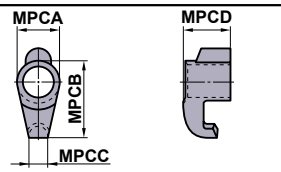
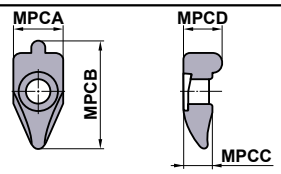
SPARE PARTS

LOCK PIN

Geometry	Order Number	Dimensions (mm)						Tool Holder
		MPCA	MPCB	MPCC	MPCD	MPCE	MPCF	
	**P11S**	6	3.7	4	17	11.1	—	**MP** Type Holder (➲C019)
	P21S	7.5	4.9	4.5	17.2	11.5	—	
	**P221US**	4	18	2.11	3.5	3.3	7.7	
	**P333WS**	5.75	24	3.64	5.0	4.9	11.3	
	P434W	7.75	30	5.03	7.0	4.9	16.8	

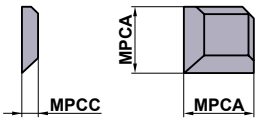
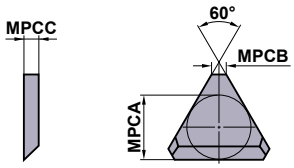
CLAMP BRIDGE

Geometry	Order Number	Dimensions (mm)						Tool Holder
		MPCA	MPCB	MPCC	MPCD	MPCE	MPCF	
	**AMS3**	7	12	3	3.3	—	—	**Profile** Holder (➲C032) **AJX** (➲K196)
	AMS4	9	13.5	3	3.8	—	—	
	AMS5	10	15	3.5	5	—	—	
	**CA161**	13	20	6	8	—	—	
	**CCK13**	15	18.5	6	9	—	—	**WP** Type Holder (➲C017)
	CCK14	19	22	8	9.5	—	—	
	**CCTC1**	13	25	7	10.2	—	—	
	**CK231**	M6×1	8	4	7.5	4.5	9.5	
	CK232	M6×1	8	4.5	8	4.5	11.5	
	CK341	M8×1	11	5.5	13.5	6	13.5	
	CK342	M8×1	11	6	14	6	16.5	

Geometry	Order Number	Dimensions (mm)						Tool Holder
		MPCA	MPCB	MPCC	MPCD	MPCE	MPCF	
	**CKW6**	10.9	22.5	9.2	16.8	5	M8×1	**DOUBLE CLAMP** Holder (➲C009) (For Heavy Cutting)
	**DCK2211**	11	22	6.57	11.1	—	—	**DOUBLE CLAMP** Holder (➲C008) **DOUBLE CLAMP DIMPLE BAR** (➲E015) **HSK** Tool Holder (➲H001)
	DCK2613	13	26.5	7.35	12.9	—	—	
	DCK3113	13	31	9	14.5	—	—	
	**KGC1**	12.0	15.0	M7×0.75	—	—	—	
	**LK1**	8	14.3	4.5	5.9	—	—	
	**MTK1R/L**	13	17.5	5	12	—	—	**MG** Type Holder (➲F132) **MT** Type Holder (➲G024) **HSK** Tool Holder (➲H001)
	**MTK2R/L**	18	28	7	14	—	—	
	**SETK51**	6.8	14.5	2.9	8	—	—	**MMTE** Type Holder (➲G019) **MMTI** Type Holder (➲G026) **HSK** Tool Holder (➲H001)
	SETK61	8.9	18.1	4.1	8.6	—	—	
	**SRK1R**	9.4	21	5.5	7.5	—	—	

SPARE PARTS

BREAKER PIECE

Geometry	Order Number	Dimensions (mm)					Tool Holder
		MPCA	MPCB	MPCC	IC	LBB	
	**CBS3D**	8.0	–	1.5	9.525	1.5	
	CBS4D	10.2	–	2.5	12.70	2.5	
	**CBT2N**	5.67	1.4	1.5	6.35	1.0	**F** Type Boring Bar (➲E029) *For positive inserts, the breaker width is 0.5mm larger than the figures in the list.
	CBT3F	8.53	1.4	2.5	9.525	1.5	
	CBT4N	11.07	1.4	2.5	12.70	2.5	

ANTI SEIZE LUBRICANT

ANTI SEIZE LUBRICANT

Shape	Order Number	Stock	Volume (g)
	MK1K	★	20
	MK1KS	★	3

★ : **Inventory maintained in Japan.**

Memo

TECHNICAL DATA

ISO13399 COMPLIANCE P002
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CHIP CONTROL FOR TURNING P008
EFFECTS OF CUTTING CONDITIONS FOR TURNING P009
FUNCTION OF THE TOOL FEATURES FOR TURNING P011
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FIT TOLERANCE TABLE (SHAFT) P028
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TOOL WEAR AND DAMAGE P031
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INSERT CHIPBREAKER COMPARISON TABLE P040

ISO13399 COMPLIANCE

List of Property Symbols Complying with ISO13399

Alphabetical

Source: ISO13399 standard
URL : https://www.iso.org/search/x/query/13399

ISO13399 Property Symbols	Content
ADJLX	Adjustment limit maximum
ADJRG	Adjustment range
ALF	Clearance angle radial
ALP	Clearance angle axial
AN	Clearance angle major
ANN	Clearance angle minor
APMX	Depth of cut maximum
AS	Clearance angle wiper edge
ASP	Adjusting screw protrusion
AZ	Plunge depth maximum
B	Shank width
BBD	Balanced by design
BCH	Corner chamfer length
BD	Body diameter
BDX	Body diameter maximum
BHCC	Bolt hole circle count
BHTA	Body half taper angle
BMC	Body material code
BS	Wiper edge length
BSR	Wiper edge radius
CASC	Cartridge size code
CB	Chipbreaker face count
CBDP	Connection bore depth
CBMD	Chipbreaker manufacturers designation
CBP	Chipbreaker property
CCMS	Connection code machine side
CCWS	Connection code workpiece side
CCP	Chamfer corner property
CDI	Insert cutting diameter
CDX	Cutting depth maximum
CEATC	Tool cutting edge angle type code
CECC	Cutting edge condition code
CEDC	Cutting edge count
CF	Spot chamfer
CHW	Corner chamfer width
CICT	Cutting item count
CNC	Corner count
CND	Coolant entry diameter
CNSC	Coolant entry style code
CNT	Coolant entry thread size
CP	Coolant pressure
CRE	Spot radius
CRKS	Connection retention knob thread size
CSP	Coolant supply property
CTP	Coating property
CTX	Cutting point translation X-direction
CTY	Cutting point translation Y-direction
CUTDIA	Work piece parting diameter maximum
CUB	Connection unit basis
CW	Cutting width
CWX	Cutting width maximum
CXD	Coolant exit diameter

ISO13399 Property Symbols	Content
CXSC	Coolant exit style code
CZC	Connection size code
D1	Fixing hole diameter
DAH	Diameter access hole
DAXN	Axial groove outside diameter minimum
DAXX	Axial groove outside diameter maximum
DBC	Diameter bolt circle
DC	Cutting diameter
DCB	Connection bore diameter
DCBN	Connection bore diameter minimum
DCBX	Connection bore diameter maximum
DCC	Design configuration style code
DCCB	Counterbore diameter connection bore
DCIN	Cutting diameter internal
DCINN	Cutting diameter internal minimum
DCINX	Cutting diameter internal maximum
DCN	Cutting diameter minimum
DCON	Connection diameter
DCONMS	Connection diameter machine side
DCONWS	Connection diameter workpiece side
DCSC	Cutting diameter size code
DCSFMS	Contact surface diameter machine side
DCX	Cutting diameter maximum
DF	Flange diameter
DHUB	Hub diameter
DMIN	Minimum bore diameter
DMM	Shank diameter
DN	Neck diameter
DRVA	Drive angle
EPSR	Insert included angle
FHA	Flute helix angle
FHCSA	Fixing hole countersunk angle
FHCSD	Fixing hole countersunk diameter
FLGT	Flange thickness
FMT	Form type
FXHLP	Fixing hole property
GAMF	Rake angle radial
GAMN	Rake angle normal
GAMO	Rake angle orthogonal
GAMP	Rake angle axial
GAN	Insert rake angle
H	Shank height
HA	Thread height theoretical
HAND	Hand
HBH	Head bottom offset height
HBKL	Head back offset length
HBKW	Head back offset width
HBL	Head bottom offset length
HC	Thread height actual
HF	Functional height
HHUB	Hub height
HTB	Body height
IC	Inscribed circle diameter
IFS	Insert mounting style code
IIC	Insert interface code
INSL	Insert length
KAPR	Tool cutting edge angle
KCH	Corner chamfer angle

ISO13399 Property Symbols	Content
KRINS	Cutting edge angle major
KWW	Keyway width
KYP	Keyway property
L	Cutting edge length
LAMS	Inclination angle
LB	Body length
LBB	Chipbreaker width
LBX	Body length maximum
LCCB	Counterbore depth connection bore
LCF	Length chip flute
LDRED	Reduced body diameter length
LE	Cutting edge effective length
LF	Functional length
LFA	a dimension on lf
LH	Head length
LPR	Protruding length
LS	Shank length
LSC	Clamping length
LSCN	Clamping length minimum
LSCX	Clamping length maximum
LTA	LTA length (length from MCS to CRP)
LU	Usable length
LUX	Usable length maximum
M	m-dimension
M2	Distance between the nominal inscribed circle and the corner of an insert that has the secondary included angle
MHA	Mounting hole angle
MHD	Mounting hole distance
MHH	Mounting hole height
MIID	Master insert identification
MTP	Clamping type code
NCE	Cutting end count
NOF	Flute count
NOI	Insert index count
NT	Tooth count
OAH	Overall height
OAL	Overall length
OAW	Overall width
PDPT	Profile depth insert
PDX	Profile distance ex
PDY	Profile distance ey
PFS	Profile style code
PL	Point length
PNA	Profile included angle
PRFRAD	Profile radius
PSIR	Tool lead angle
PSIRL	Cutting edge angle major left hand
PSIRR	Cutting edge angle major right hand
RAL	Relief angle left hand
RAR	Relief angle right hand
RCP	Rounded corner property
RE	Corner radius
REL	Corner radius left hand
RER	Corner radius right hand
RMPX	Ramping angle maximum
RPMX	Rotational speed maximum
S	Insert thickness
S1	Insert thickness total
SC	Insert shape code
SDL	Step diameter length
SIG	Point angle

ISO13399 Property Symbols	Content
SSC	Insert seat size code
SX	Shank cross section shape code
TC	Tolerance class insert
TCE	Tipped cutting edge code
TCTR	Thread tolerance class
TD	Thread diameter
THFT	Thread form type
THL	Threading length
THLGTH	Thread length
THSC	Tool holder shape code
THUB	Hub thickness
TP	Thread pitch
TPI	Threads per inch
TPIN	Threads per inch minimum
TPIX	Threads per inch maximum
TPN	Thread pitch minimum
TPT	Thread profile type
TPX	Thread pitch maximum
TQ	Torque
TSYC	Tool style code
TTP	Thread type
ULDR	Usable length diameter ratio
UST	Unit system
W1	Insert width
WEP	Wiper edge property
WF	Functional width
WF2	Distance between the cutting reference point and the front seating surface of a turning tool
WFS	Functional width secondary
WT	Weight of item
ZEFF	Face effective cutting edge count
ZEFP	Peripheral effective cutting edge count
ZNC	Cutting edge center count
ZNF	Face mounted insert count
ZNP	Peripheral mounted insert count

List of Reference Symbols Complying with ISO13399

ISO13399 Reference Symbols	Content
CIP	Coordinate system In Process
CRP	Cutting Reference Point
CSW	Coordinate System Workpiece side
MCS	Mounting Coordinate System
PCS	Primary Coordinate System

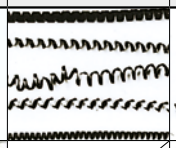
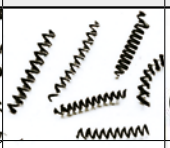
TROUBLE SHOOTING FOR TURNING

Trouble		Factors	Insert Grade Selection: Select a harder grade	Insert Grade Selection: Select a tougher grade	Insert Grade Selection: Select a grade with better thermal shock resistance	Insert Grade Selection: Select a grade with better adhesion resistance	Cutting Conditions: Cutting speed (Up ↗ / Down ↘)	Cutting Conditions: Feed (Up ↗ / Down ↘)	Cutting Conditions: Depth of cut (Up ↗ / Down ↘)	Cutting Conditions: Coolant: Do not use water-soluble cutting fluid	Cutting Conditions: Coolant: Determine dry or wet cutting	Style and Design of the Tool: Select chipbreaker	Style and Design of the Tool: Rake (Up ↗ / Down ↘)	Style and Design of the Tool: Corner radius (Up ↗ / Down ↘)	Style and Design of the Tool: Lead angle (Up ↗ / Down ↘)	Style and Design of the Tool: Honing strengthens the cutting edge (Up ↗ / Down ↘)	Style and Design of the Tool: Class of insert	Style and Design of the Tool: Improve tool holder rigidity	Machine, Installation of Tool: Increase clamping rigidity of the tool and workpiece	Machine, Installation of Tool: Decrease holder overhang	Machine, Installation of Tool: Decrease power and machine backlash
Deterioration of Tool Life	Insert wear quickly generated	Improper tool grade	●																		
		Improper cutting edge geometry										●	↗ ●	↗ ●	↗ ●	● ↘					
		Improper cutting speed					● ↘	↗ ●			● Wet										
	Chipping or fracturing of cutting edge	Improper tool grade		●																	
		Improper cutting conditions						● ↘	● ↘												
		Lack of cutting edge strength.										●		↗ ●		↗ ●					
		Thermal crack occurs			●		● ↘	● ↘	● ↘	●	● Dry										
		Build-up edge occurs				●	↗ ●	↗ ●		●	● Wet										
		Lack of rigidity																●	●	●	●
Out of Tolerance	Dimensions are not constant	Poor insert accuracy															●				
		Large cutting resistance and cutting edge flank										●	●	● ↘	● ↘	● ↘		●	●	●	●
	Necessary to adjust often because of over-size	Improper tool grade	●																		
		Improper cutting conditions					● ↘	↗ ●													
Deterioration of Surface Finish	Poor finished surface	Welding occurs					↗ ●			●	● Wet										
		Improper cutting edge geometry										●		↗ ●							
		Chattering					● ↘	● ↘	● ↘									●	●	●	●
Generation of Heat	Workpiece over heating can cause poor accuracy and short life of insert	Improper cutting conditions					● ↘	● ↘	● ↘												
		Improper cutting edge geometry										●	↗ ●			● ↘					

Trouble		Solution / Factors	Insert Grade Selection: Select a harder grade	Insert Grade Selection: Select a tougher grade	Insert Grade Selection: Select a grade with better thermal shock resistance	Insert Grade Selection: Select a grade with better adhesion resistance	Cutting Conditions: Cutting speed (Up ↗ / Down ↘)	Cutting Conditions: Feed (Up ↗ / Down ↘)	Cutting Conditions: Depth of cut (Up ↗ / Down ↘)	Cutting Conditions: Coolant: Do not use water-soluble cutting fluid	Cutting Conditions: Coolant: Determine dry or wet cutting	Style and Design of the Tool: Select chipbreaker	Style and Design of the Tool: Rake (Up ↗ / Down ↘)	Style and Design of the Tool: Corner radius (Up ↗ / Down ↘)	Style and Design of the Tool: Lead angle (Up ↗ / Down ↘)	Style and Design of the Tool: Honing strengthens the cutting edge (Up ↗ / Down ↘)	Style and Design of the Tool: Class of insert	Style and Design of the Tool: Improve tool holder rigidity	Machine, Installation of Tool: Increase clamping rigidity of the tool and workpiece	Machine, Installation of Tool: Decrease holder overhang	Machine, Installation of Tool: Decrease power and machine backlash
Burrs, Chipping etc.	Burrs (Steel, Aluminium)	Notch wear	●																		
		Improper cutting conditions					● ↘	↗ ●			● Wet										
		Improper cutting edge geometry										●	↗ ●	● ↘	● ↘	● ↘					
	Workpiece chipping (Cast iron)	Improper cutting conditions						● ↘	● ↘												
		Improper cutting edge geometry										●	↗ ●	↗ ●	↗ ●	● ↘					
		Vibration occurs																●	●	●	●
	Burrs (Mild steel)	Improper tool grade				●															
		Improper cutting conditions					↗ ●			●	● Wet										
		Improper cutting edge geometry										●	↗ ●			● ↘					
		Vibration occurs																●	●	●	●
Poor Chip Dispersal	Long chips	Improper cutting conditions					● ↘	↗ ●	↗ ●		● Wet										
		Large chip control range										●									
		Improper cutting edge geometry												● ↘	● ↘						
	Chips are short and scattered	Improper cutting conditions						● ↘	● ↘		● Dry										
		Small chip control range										●									
		Improper cutting edge geometry												↗ ●	↗ ●						

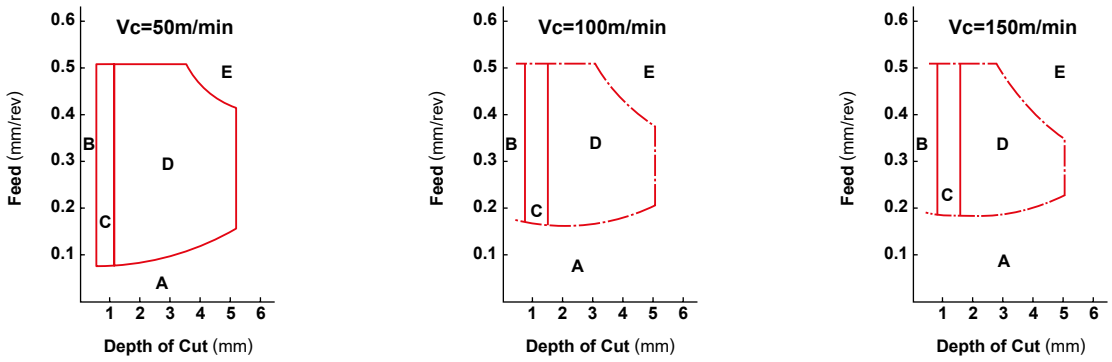
CHIP CONTROL FOR TURNING

■CHIP BREAKING CONDITIONS IN STEEL TURNING

Type	A Type	B Type	C Type	D Type	E Type
Small Depth of Cut d < 7mm					
Large Depth of Cut d=7−15mm					
Curl Length l	No curl	l ≥ 50mm	l ≤ 50mm 1−5 Curl	≒ 1 Curl	Less Than 1 Curl Half a Curl
Note	●Irregular continuous shape ●Tangle around tool and workpiece	●Regular continuous shape ●Long chips	Good	Good	●Chip scattering ●Chattering ●Poor finished surface ●Maximum

●Cutting speed and chip control range of chipbreaker

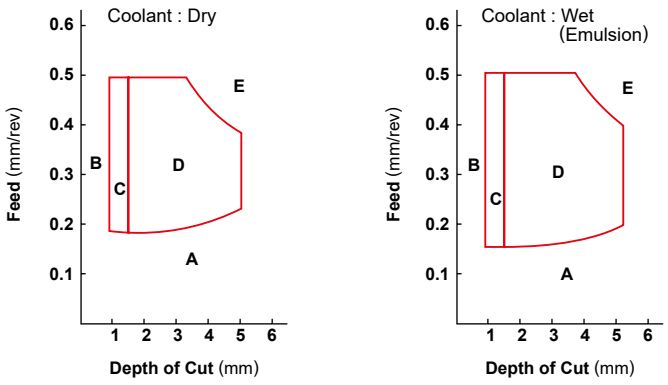
In general, when cutting speed increases, the chip control range tends to become narrower.



Workpiece : **DIN Ck45(180HB)**
Insert : **TNMG160408**
Grade : **P10**Cemented Carbide
Tool : **MTJNR2525M16N**
Dry Cutting

●Effects of coolant on the chip control range of a chipbreaker

If the cutting speed is the same, the range of chip control differs according to whether coolant is used or not.



Workpiece : **DIN Ck45**
Cutting Conditions : **Vc=100m/min**

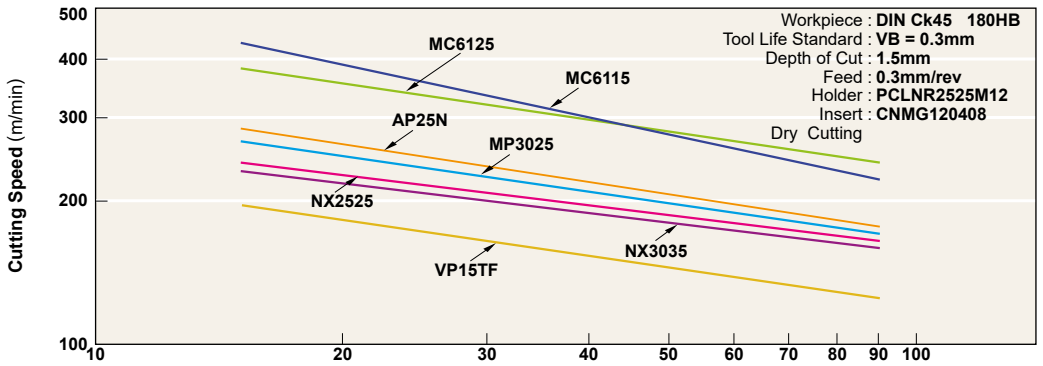
EFFECTS OF CUTTING CONDITIONS FOR TURNING

■EFFECTS OF CUTTING CONDITIONS

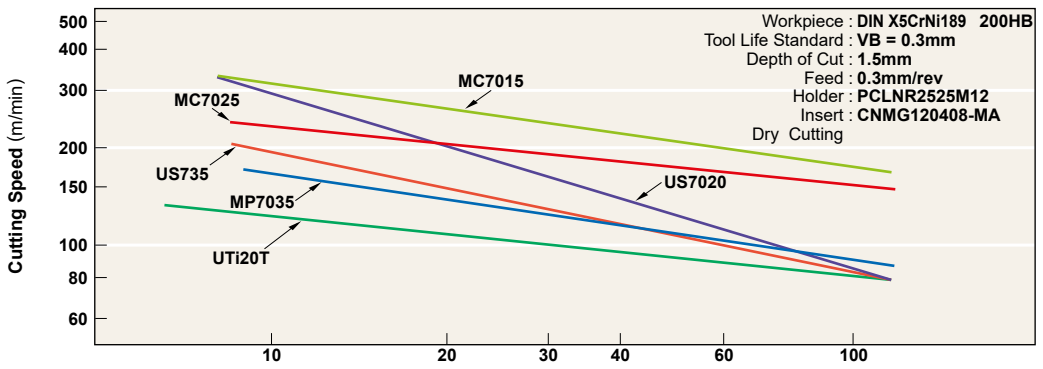
Ideal conditions for cutting are short cutting time, long tool life and high cutting accuracy. In order to obtain these conditions, a selection of efficient cutting conditions and tools, based on work material, hardness, shape and machine capability is necessary.

■CUTTING SPEED

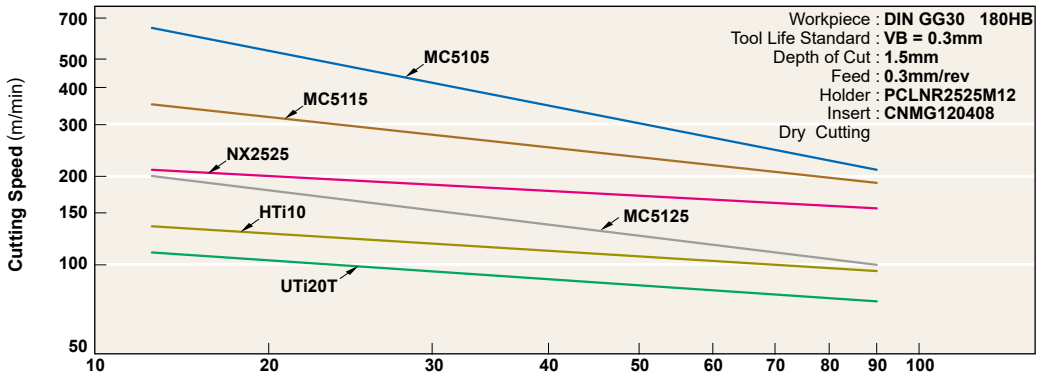
Cutting speed has severe impact on tool life. Increasing cutting speed increases cutting temperature and results in a shortened tool life. Cutting speed varies depending on the type and hardness of the material. Selecting a tool grade suitable for the cutting speed is necessary.



P Class Grade Tool Life



M Class Grade Tool Life



K Class Grade Tool Life

●Effects of Cutting Speed

1. Increasing cutting speed by 20% decreases tool life by 50%. Increasing cutting speed by 50% decreases tool life by 80%.
2. Cutting at low cutting speed (20−40m/min) tends to cause chattering. Thus, tool life is shortened.

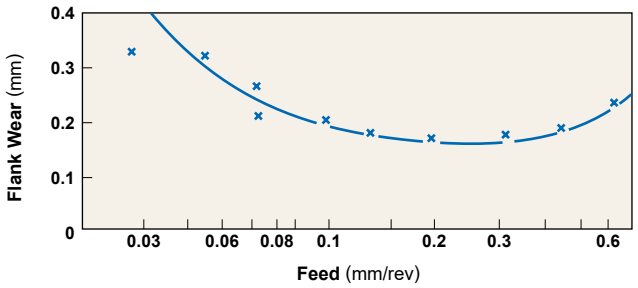
EFFECTS OF CUTTING CONDITIONS FOR TURNING

■FEED

When cutting with a general holder, feed is the distance a holder moves per workpiece revolution. In milling, feed is the distance a machine table moves per cutter revolution divided by the number of inserts. Thus, it is indicated as feed per tooth. Feed rate relates to finished surface roughness.

●Effects of Feed

1. Decreasing feed rate results in flank wear and shortens tool life.
2. Increasing feed rate increases cutting temperature and flank wear. However, effects on the tool life is minimal compared to cutting speed.
3. Increasing feed rate improves machining efficiency.



Cutting Conditions Workpiece : **Alloy steel** Grade : **P10**
Tool Shape : **0-0-5-5-35-35-0.3mm**
Depth of Cut **ap=1.0mm** Cutting Speed **Vc=200m/min**
Cutting Time **Tc=10min**

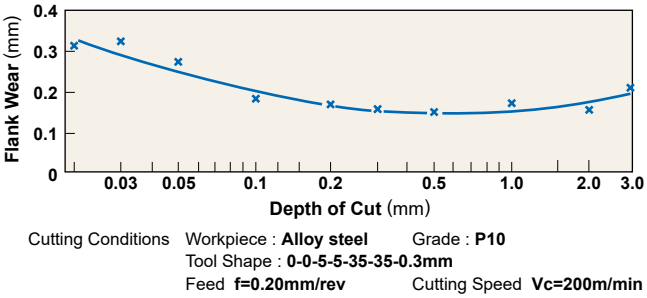
Feed and Flank Wear Relationship in Steel Turning

■DEPTH OF CUT

Depth of cut is determined according to the required stock removal, shape of workpiece, power and rigidity of the machine and tool rigidity.

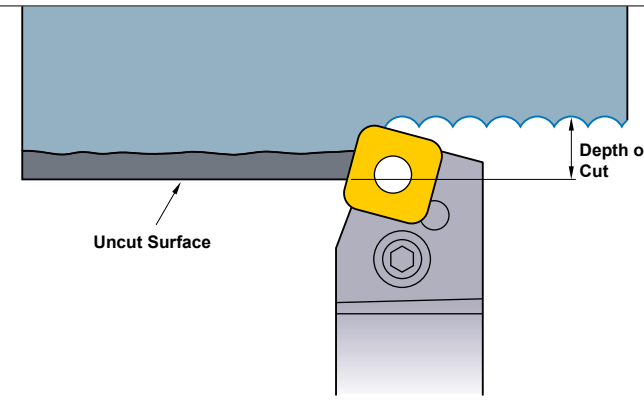
●Effects of Depth of Cut

1. Changing depth of cut doesn't effect tool life greatly.
2. Small depths of cut result in friction when cutting the hardened layer of a workpiece. Thus tool life is shortened.
3. When cutting uncut surfaces or cast iron surfaces, the depth of cut needs to be increased as much as the machine power allows in order to avoid cutting the impure hard surface layer with the tip of cutting edge and therefore prevent chipping and abnormal wear.



Cutting Conditions Workpiece : **Alloy steel** Grade : **P10**
Tool Shape : **0-0-5-5-35-35-0.3mm**
Feed **f=0.20mm/rev** Cutting Speed **Vc=200m/min**
Cutting Time **Tc=10min**

Depth of Cut and Flank Wear Relationship in Steel Turning

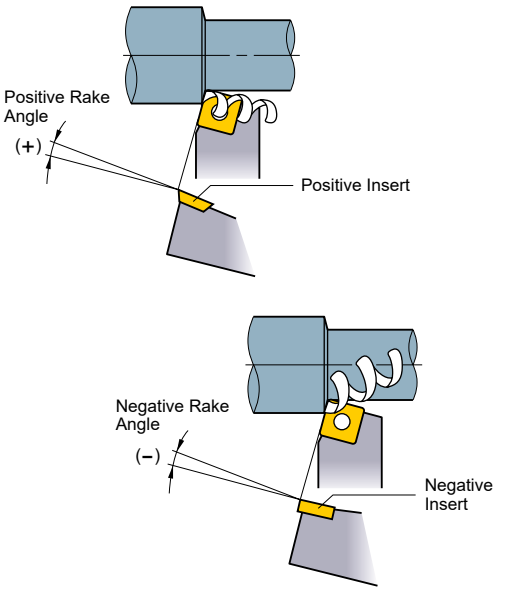


Roughing of Surface Layer that Includes Uncut Surface

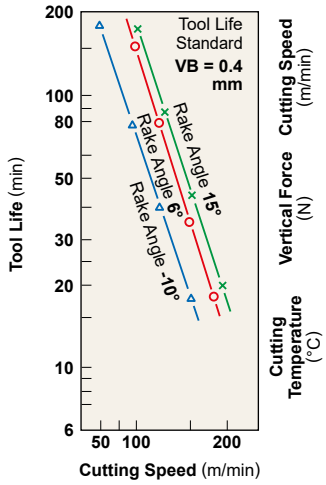
FUNCTION OF TOOL FEATURES FOR TURNING

■RAKE ANGLE

Rake angle is the cutting edge angle that has a large effect on cutting resistance, chip disposal, cutting temperature and tool life.

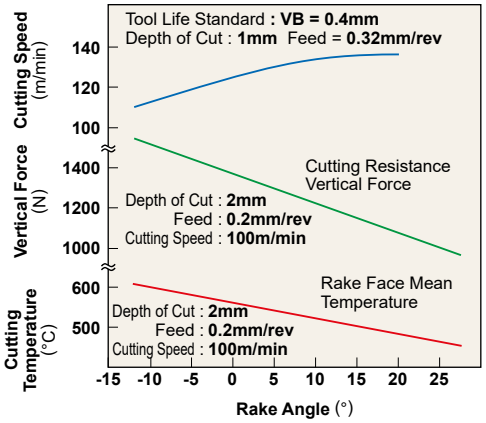


Chip Disposal and Rake Angle



Cutting Conditions
Grade : **P10**
Depth of Cut : **1mm** Feed : **0.32mm/rev**
Workpiece : **Alloy steel**

Rake Angle and Tool Life



Cutting Conditions
Workpiece : **Alloy steel** Grade : **P10**
Tool Shape : **0-Var-5-5-20-20-0.5mm**
Dry Cutting

Effects of Rake Angle on Cutting Speed, Vertical Force, and Cutting Temperature

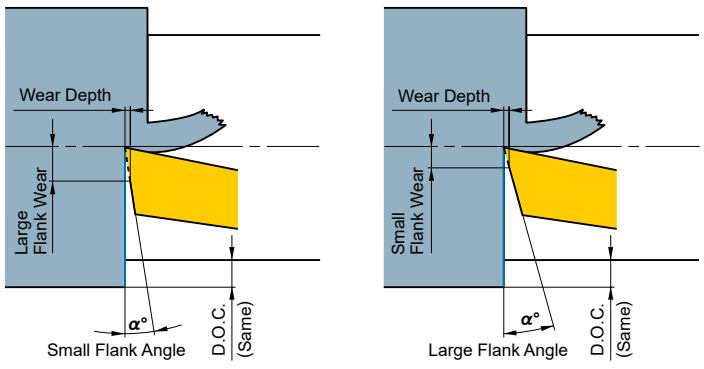
●Effects of Rake Angle

1. Increasing rake angle in the positive (+) direction improves sharpness.
2. Increasing rake angle by 1° in the positive (+) direction decreases cutting power by about 1%.
3. Increasing rake angle in the positive (+) direction lowers cutting edge strength and in the negative (-) direction increases cutting resistance.

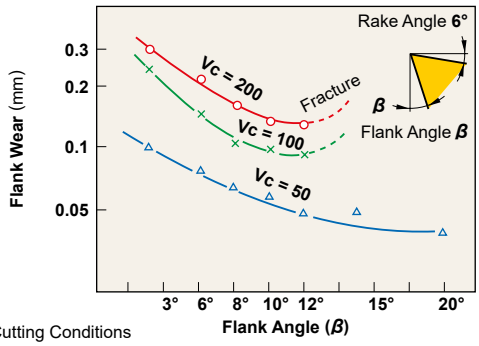
When to Increase Rake Angle in the Negative (-) Direction	When to Increase Rake Angle in the Positive (+) Direction
○ Hard workpiece. ○ When cutting edge strength is required such as in interrupted cutting and uncut surface cutting.	○ Soft workpiece. ○ Workpiece is easily machined. ○ When the workpiece or the machine have poor rigidity.

■FLANK ANGLE

Flank angle prevents friction between the flank face and workpiece resulting in a smooth feed.



Flank angle creates a space between tool and workpiece. Flank angle relates to flank wear.



Cutting Conditions
Workpiece : **Alloy steel (200HB)**
Grade : **P20** Tool Shape : **0-6-β-β-20-20-0.5mm**
Depth of Cut : **1mm** Feed : **0.32mm/rev** Cutting Time : **20min**

Flank Angle and Flank Wear Relationship

●Effects of Flank Angle

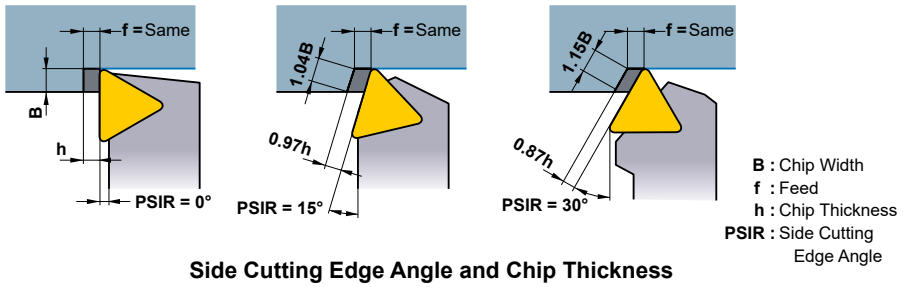
1. Increasing flank angle decreases flank wear occurrence.
2. Increasing flank angle lowers cutting edge strength.

When to Decrease Flank Angle	When to Increase Flank Angle
○ Hard workpieces. ○ When cutting edge strength is required.	○ Soft workpieces. ○ Workpieces suffer easily from work hardening.

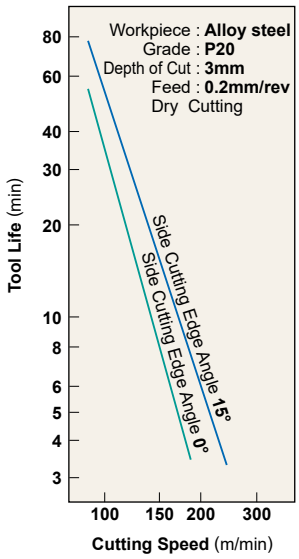
FUNCTION OF TOOL FEATURES FOR TURNING

■SIDE CUTTING EDGE ANGLE (LEAD ANGLE)

Side cutting edge angle and corner angle lower impact load and effect feed force, back force and chip thickness.



Side Cutting Edge Angle and Chip Thickness

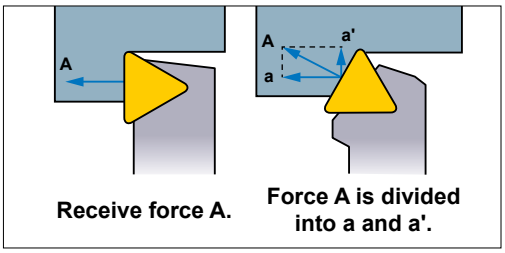


Side Cutting Edge and Tool Life

●Effects of Side Cutting Edge Angle (Lead Angle)

1. At the same feed rate, increasing the side cutting edge angle increases the chip contact length and decreases chip thickness. As a result, the cutting force is dispersed on a longer cutting edge and tool life is prolonged. (Refer to the chart.)
2. Increasing the side cutting edge angle increases force a'. Thus, thin, long workpieces can suffer from bending.
3. Increasing the side cutting edge angle decreases chip control.
4. Increasing the side cutting edge angle decreases the chip thickness and increases chip width. Thus, breaking the chips is difficult.

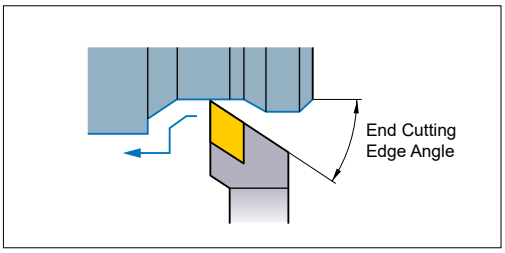
When to Decrease Lead Angle	When to Increase Lead Angle
○ Finishing with a small depth of cut. ○ Thin, long workpieces. ○ When the machine has poor rigidity.	○ Hard workpieces which produce high cutting temperature. ○ When roughing a large diameter workpiece. ○ When the machine has high rigidity.



Receive force A. Force A is divided into a and a'.

■END CUTTING EDGE ANGLE

The end cutting edge angle avoids interference between the machined surface and the tool (end cutting edge). Usually 5°–15°.

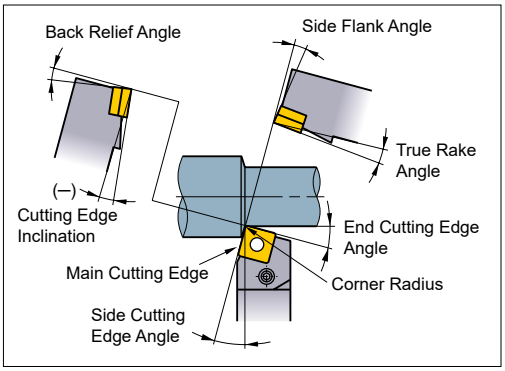


●Effects of End Cutting Edge Angle

1. Decreasing the end cutting edge angle increases cutting edge strength, but it also increases cutting edge temperature.
2. Decreasing the end cutting edge angle increases the back force and can result in chattering and vibration while machining.
3. Small end cutting edge angle for roughing and a large angle when finishing are recommended.

■CUTTING EDGE INCLINATION

Cutting edge inclination indicates inclination of the rake face. When heavy cutting, the cutting edge receives an extremely large shock at the beginning of cutting. Cutting edge inclination keeps the cutting edge from receiving this shock and prevents fracturing. 3°–5° in turning and 10°–15° in milling are recommended.

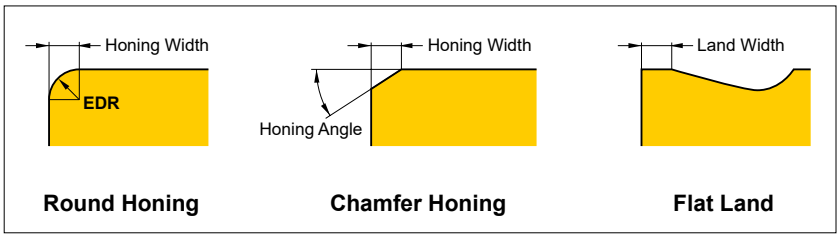


●Effects of Cutting Edge Inclination

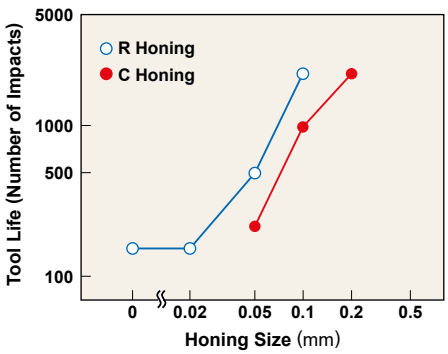
1. Negative (-) cutting edge inclination disposes chips in the workpiece direction, and positive (+) disposes chips in the opposite direction.
2. Negative (-) cutting edge inclination increases cutting edge strength, but it also increases back force of cutting resistance. Thus, chattering easily occurs.

■HONING AND LAND

Honing and land are cutting edge shapes that maintain cutting edge strength.
Honing can be round or chamfer type. The optimal honing width is approximately 1/2 of the feed.
Land is the narrow flat area on the rake or flank face.

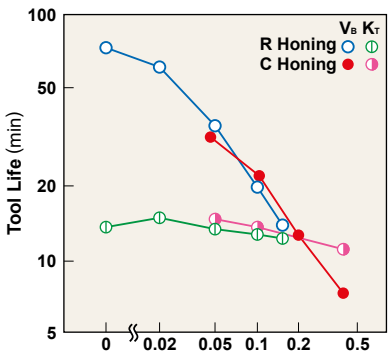


Round Honing **Chamfer Honing** **Flat Land**



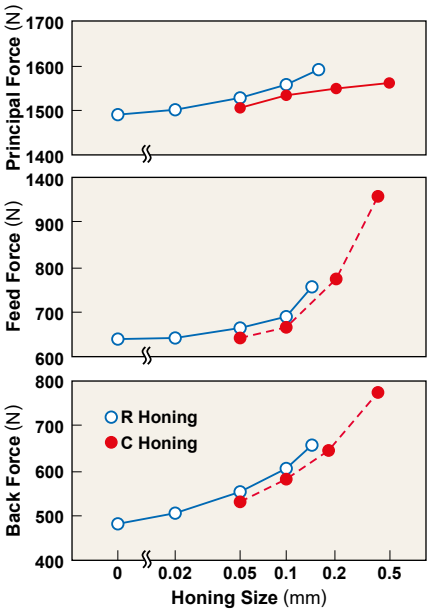
Workpiece : **Alloy steel (280HB)**
Grade : **P10**
Cutting Conditions : **Vc=200m/min ap=1.5mm f=0.335mm/rev**

Honing Size and Tool Life Due to Fracturing



Workpiece : **Alloy steel (220HB)**
Grade : **P10**
Cutting Conditions : **Vc=160m/min ap=1.5mm f=0.45mm/rev**

Honing Size and Tool Life Due to Wear



Workpiece : **Alloy steel (220HB)**
Grade : **P10**
Cutting Conditions : **Vc=100m/min ap=1.5mm f=0.425mm/rev**

Honing Size and Cutting Resistance

●Effects of Honing

1. Enlarging the honing increases cutting edge strength, tool life and reduces fracturing.
2. Enlarging the honing increases flank wear occurrence and shortens tool life. Honing size doesn't affect rake wear.
3. Enlarging the honing increases cutting resistance and chattering.

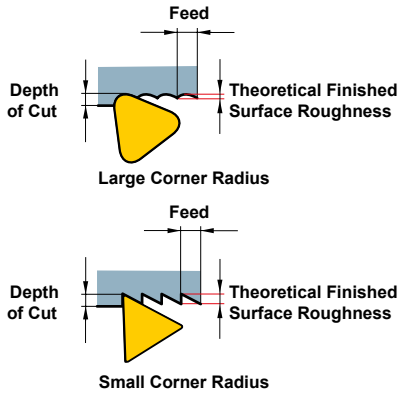
When to Decrease Honing Size	When to Increase Honing Size
○ When finishing with a small depth of cut and small feed. ○ Soft workpieces. ○ When the workpiece and the machine have poor rigidity.	○ Hard workpieces. ○ When cutting edge strength is required for uncut surfaces and interrupted cutting. ○ When the machine has high rigidity.

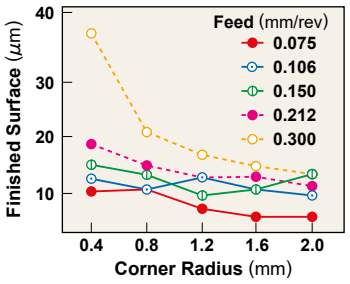
Note 1) Cemented carbide, UTi, coated diamond and indexable cermet inserts have round honing as standard already.

FUNCTION OF TOOL FEATURES FOR TURNING

■RADIUS

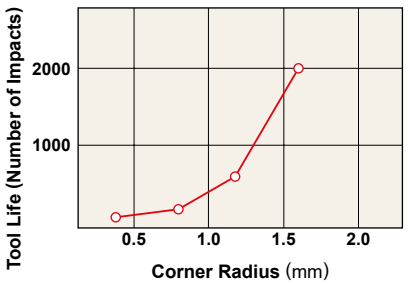
Radius effects the cutting edge strength and finished surface. In general, a corner radius 2−3 times the feed is recommended.





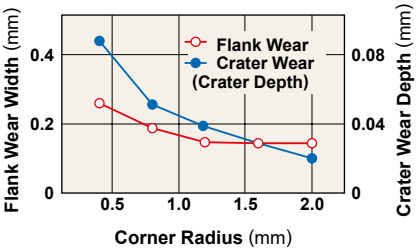
Workpiece : **Alloy steel (200HB)**
Grade : **P20**
Cutting Speed : **Vc=120m/min ap=0.5mm**

Corner Radius and Finished Surface



Workpiece : **Alloy steel (280HB)**
Grade : **P10**
Cutting Conditions : **Vc=100m/min ap=2mm f=0.335mm/rev**

Corner Radius Size and Tool Life Due to Fracturing



Workpiece : **Alloy steel (200HB)**
Grade : **P10**
Cutting Conditions : **Vc=140m/min ap=2mm f=0.212mm/rev Tc=10min**

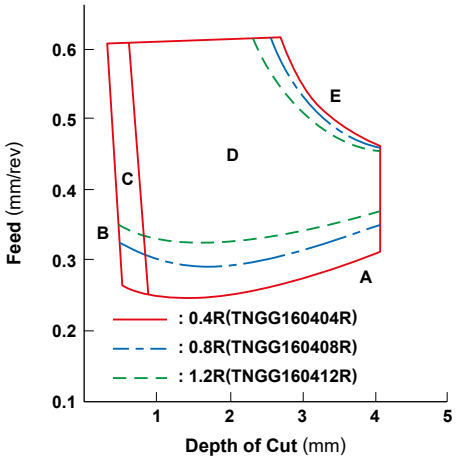
Corner Radius Size and Tool Wear

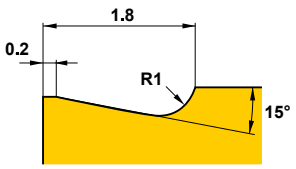
●Effects of Corner Radius

1. Increasing the corner radius improves the surface finish.
2. Increasing the corner radius improves cutting edge strength.
3. Increasing the corner radius too much increases the cutting resistance and causes chattering.
4. Increasing the corner radius decreases flank and rake wear.
5. Increasing the corner radius too much results in poor chip control.

When to Decrease Corner Radius	When to Increase Corner Radius
○Finishing with small depth of cut. ○Thin, long workpieces. ○When the machine has poor rigidity.	○When cutting edge strength is required for interrupted cutting and uncut surface cutting. ○When roughing a workpiece with a large diameter. ○When the machine has high rigidity.

●Corner Radius and Chip Control Range





Workpiece : **DIN Ck45 (180HB)**
Insert : **TNGG160404R TNGG160408R TNGG160412R (P10)**
Holder : **ETJNR33K16 (Side Cutting Edge angle 3°)**
Cutting Speed : **Vc=100m/min**
Dry Cutting

Note 1) Please refer to page P008 for chip shapes (A, B, C, D, E).

FORMULAE FOR CUTTING POWER

■CUTTING POWER (Pc)

$$Pc = \frac{ap \cdot f \cdot Vc \cdot Kc}{60 \times 10^3 \times \eta} \ (kW)$$

Pc (kW) : Actual Cutting Power
ap (mm) : Depth of Cut
f (mm/rev) : Feed per Revolution
Vc (m/min) : Cutting Speed
Kc (MPa) : Specific Cutting Force
η : (Machine Coefficient)

(Example) What is the cutting power required for machining mild steel at cutting speed 120m/min with depth of cut 3mm and feed 0.2mm/rev (Machine coefficient 80%) ?

(Answer) Substitute the specific cutting force Kc=3100MPa into the formula.

$$Pc = \frac{3 \times 0.2 \times 120 \times 3100}{60 \times 10^3 \times 0.8} = 4.65 (kW)$$

● Kc

Material	Tensile Strength(MPa) and Hardness	Specific Cutting Force Kc (MPa)				
		0.1 (mm/rev)	0.2 (mm/rev)	0.3 (mm/rev)	0.4 (mm/rev)	0.6 (mm/rev)
Mild Steel	**520**	3610	3100	2720	2500	2280
Medium Steel	**620**	3080	2700	2570	2450	2300
Hard Steel	**720**	4050	3600	3250	2950	2640
Tool Steel	**670**	3040	2800	2630	2500	2400
Tool Steel	**770**	3150	2850	2620	2450	2340
Chrome Manganese Steel	**770**	3830	3250	2900	2650	2400
Chrome Manganese Steel	**630**	4510	3900	3240	2900	2630
Chrome Molybdenum Steel	**730**	4500	3900	3400	3150	2850
Chrome Molybdenum Steel	**600**	3610	3200	2880	2700	2500
Nickel Chrome Molybdenum Steel	**900**	3070	2650	2350	2200	1980
Nickel Chrome Molybdenum Steel	**352HB**	3310	2900	2580	2400	2200
Hard Cast Iron	**46HRC**	3190	2800	2600	2450	2270
Meehanite Cast Iron	**360**	2300	1930	1730	1600	1450
Grey Cast Iron	**200HB**	2110	1800	1600	1400	1330

■CUTTING SPEED (Vc)

$$Vc = \frac{\pi \cdot Dm \cdot n}{1000} \ (m/min)$$

Vc (m/min) : Cutting Speed
Dm (mm) : Workpiece Diameter
π (3.14) : Pi
n (min^{-1}) : Main Axis Spindle Speed

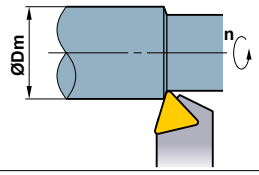
*Divide by 1000 to change to m from mm.

(Example) What is the cutting speed when main axis spindle speed is 700min^{-1} and external diameter is ϕ50 ?

(Answer) Substitute π=3.14, Dm=50, n=700 into the formula.

$$Vc = \frac{\pi \cdot Dm \cdot n}{1000} = \frac{3.14 \times 50 \times 700}{1000} = 110 m/min$$

Cutting speed is 110m/min.



■FEED (f)

$$f = \frac{l}{n} \ (mm/rev)$$

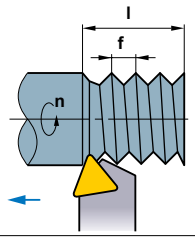
f (mm/rev) : Feed per Revolution
l (mm/min) : Cutting Length per Min.
n (min^{-1}) : Main Axis Spindle Speed

(Example) What is the feed per revolution when main axis spindle speed is 500min^{-1} and cutting length per minute is 120mm/min ?

(Answer) Substitute n=500, l=120 into the formula.

$$f = \frac{l}{n} = \frac{120}{500} = 0.24 mm/rev$$

The answer is 0.24mm/rev.



■CUTTING TIME (Tc)

$$Tc = \frac{lm}{l} \ (min)$$

Tc (min) : Cutting Time
lm (mm) : Workpiece Length
l (mm/min) : Cutting Length per Min.

(Example) What is the cutting time when 100mm workpiece is machined at 1000min^{-1} with feed = 0.2mm/rev ?

(Answer) First, calculate the cutting length per min. from the feed and spindle speed.

$$l = f \times n = 0.2 \times 1000 = 200 mm/min$$

Substitute the answer above into the formula.

$$Tc = \frac{lm}{l} = \frac{100}{200} = 0.5 min$$

0.5 x 60=30 (sec.) The answer is 30 sec.

■THEORETICAL FINISHED SURFACE ROUGHNESS (h)

$$h = \frac{f^2}{8RE} \times 1000 (\mu m)$$

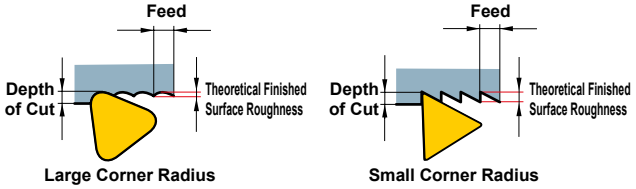
h (μm) : Finished Surface Roughness
f (mm/rev) : Feed per Revolution
RE (mm) : Insert Corner Radius

(Example) What is the theoretical finished surface roughness when the insert corner radius is 0.8mm and feed is 0.2mm/rev ?

(Answer) Substitute f=0.2mm/rev, RE=0.8 into the formula.

$$h = \frac{0.2^2}{8 \times 0.8} \times 1000 = 6.25 \mu m$$

The theoretical finished surface roughness is 6μm.

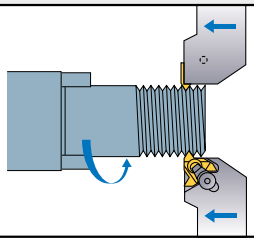
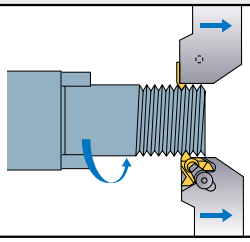
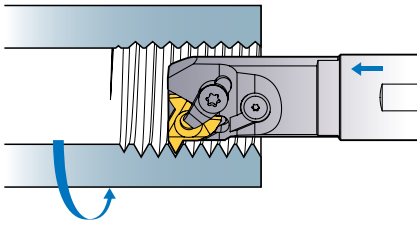
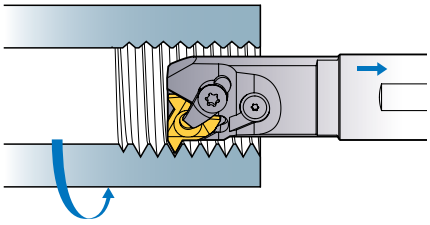


TROUBLE SHOOTING FOR THREADING

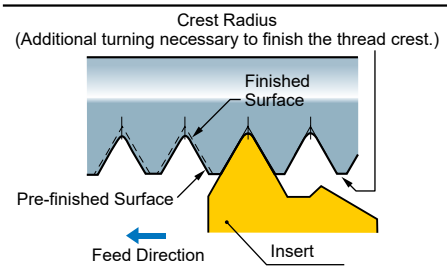
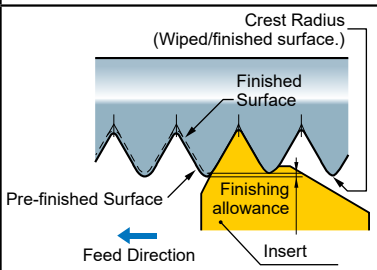
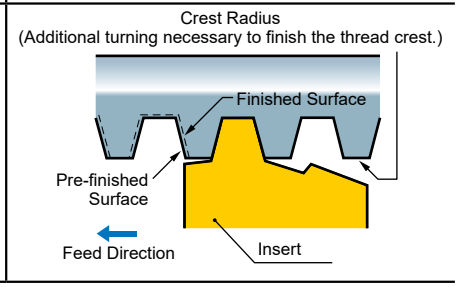
Problems	Observation	Causes	Solutions
Low thread precision.	Threads do not mesh with each other.	Incorrect tool installation.	Set the insert centre height at 0mm.
			Check holder inclination (Lateral).
	Shallow thread.	Incorrect depth of cut.	Modify the depth of cut.
		Lack of insert wear or plastic deformation resistance.	Refer to "Quickly generated flank wear." and "Large plastic deformation." below.
Poor surface finish.	Surface damage.	Chips wrap around or clog the work pieces.	Change to flank infeed and control the chip discharge direction.
			Change to an M-class insert with a 3-D chipbreaker.
		The side of the insert cutting edge interferes with the workpiece.	Check the lead angle and select an appropriate shim.
	Surface tears.	Built-up edge (Welding).	Increase cutting speed.
			Increase coolant pressure and volume.
		Cutting resistance too high.	Decrease depth of cut per pass.
	Surface vibrations.	Cutting speed too high.	Decrease the cutting speed.
		Insufficient work piece or tool clamping.	Re-check work piece and tool clamping. (Chuck pressure, clamping allowance)
		Incorrect tool installation.	Set the insert centre height at 0 mm.
Short tool life.	Flank wear quickly generated.	Cutting speed too high.	Decrease the cutting speed.
		Too many passes causes abrasive wear.	Reduce the number of passes.
		Small depth of cut for the finishing pass.	Do not re-cut at 0mm depth of cut, larger than 0.05mm depth of cut is recommended.
	Non-uniform wear of the right and left sides of the cutting edge.	The work piece lead angle and the tool lead angle do not match.	Check the work piece lead angle and select an appropriate shim.
	Chipping and fracture.	Cutting speed too low.	Increase cutting speed.
		Cutting resistance too high.	Increase the number of passes and decrease the cutting resistance per pass.
		Unstable clamping.	Check work piece deflection.
			Shorten tool overhang.
			Re-check work piece and tool clamping. (Chuck pressure, clamping allowance)
		Chip packing.	Increase coolant pressure to blow away chips.
			Change the tool pass to control chips. (Lengthen each pass to allow the coolant to clear the chips.)
			Change from standard internal cutting to back turning to prevent chip jamming.
		Non-chamfered work pieces causes high resistance at the start of each pass.	Chamfer the workpiece entry and exit faces.
	Large plastic deformation.	High cutting speed and large heat generation.	Decrease the cutting speed.
		Lack of coolant supply.	Check coolant supply is sufficient.
			Increase coolant pressure and volume.
		Cutting resistance too high.	Increase the number of passes and decrease the cutting resistance per pass.

THREADING METHODS

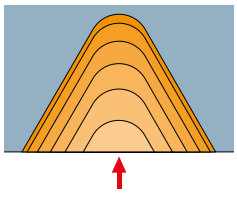
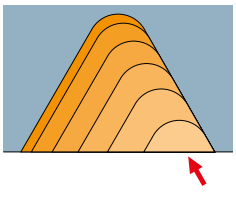
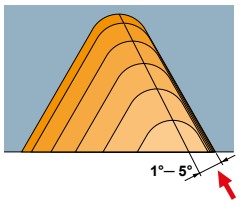
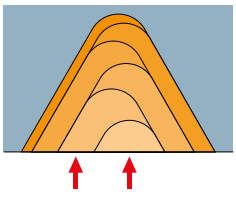
THREADING METHODS

	Right Hand Thread	Left Hand Thread
EXTERNAL	 Holder Reversed	 Holder Reversed
INTERNAL		

INSERT TYPES

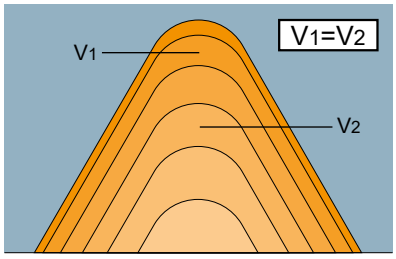
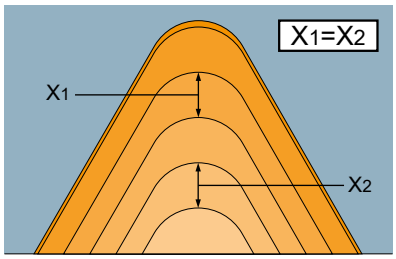
Partial Form	Full Form	Semi-Full Form (Trapezoidal threads only)
● The same insert can be used for a range of pitches. ● Shorter tool life because the nose radius of the insert is smaller than that of the full form insert. ● Finishing with another operation is necessary.	● No deburring needed after threading. ● Requires different threading inserts.	● No deburring needed after threading. ● Requires different threading inserts. ● Finishing with another operation is necessary.
		

INFEED METHODS

	Radial Infeed	Flank Infeed	Modified Flank Infeed	Incremental Infeed
				
Features – Advantages	● Easiest to use. (Standard programme for threading) ● Wide application. (Cutting conditions easy to change.) ● Uniform wear of the right and left sides of the cutting edge.	● Relatively easy to use. (Semi-standard programme for threading.) ● Reduced cutting force. ● Suitable for large pitch threads or materials that peel easily. ● Good chip discharge.	● Preventing flank wear on the right side of the cutting edge. ● Reduced cutting force. ● Suitable for large pitch threads or materials that peel easily. ● Good chip discharge.	● Uniform flank wear of the right and left sides of the cutting edge. ● Reduced cutting force. ● Suitable for large pitch threads or materials that peel easily.
Features – Disadvantages	● Difficult chip control. ● Subject to vibration in the later in stages of cutting. ● Ineffective for large pitch threading. ● Heavy load on the nose radius.	● Large flank wear on the right side of the cutting edge. ● Relatively difficult to change cutting depth. (Re-programming necessary)	● Complex machining programming. ● Difficult to change cutting depth. (Re-programming necessary)	● Complex machining programming. ● Difficult to change cutting depth. (Re-programming necessary) ● Difficult chip control.

THREADING METHODS

THREADING DEPTH

	Features	
	Advantages	Disadvantages
 Fixed cut area	● Easy to use. (Standard programme for threading.) ● Superior resistance to vibration. (Constant cutting force.)	● Long chips generated during the final pass. ● Complex calculation of cutting depth when changing the number of passes.
 Fixed cutting depth	● Reduced load on nose radius during the first half of the passes. ● Easy chip control. (Optional setting of chip thickness) ● Easy to calculate cutting depth when changing the number of passes. ● Good chip control.	● Subject to vibration in the later stages of cutting. (Increased cutting force) ● In some cases, changing the NC programme is necessary.

Note 1) It is recommended to set the depth of cut of the final pass to 0.05mm−0.025mm.
Large cutting depths can cause vibration, leading to a poor surface finish.

■ FORMULAE

● Formulae to calculate infeed for each pass in a reduced series.

$$\triangle ap_n = \frac{ap}{\sqrt{n_{ap}-1}} \times \sqrt{b}$$

$\triangle ap_n$: Depth of cut
n : Actual pass
ap : Total depth of cut
n_{ap} : Number of passes
b : 1st pass 0.3
2nd pass 2−1 = 1
3rd pass 3−1 = 2
•
•
nth pass n−1

(Example)
External threading (ISO Metric)
Pitch : 1.0mm
ap : 0.6mm
n_{ap} : 5 passes

1st Pass $\triangle ap_1 = \frac{0.60}{\sqrt{5-1}} \times \sqrt{0.3} = 0.16 \rightarrow$ **0.16** ($\triangle ap_1$)
2nd Pass $\triangle ap_2 = \frac{0.60}{\sqrt{5-1}} \times \sqrt{2-1} = 0.3 \rightarrow$ **0.14** ($\triangle ap_2 - \triangle ap_1$)
3rd Pass $\triangle ap_3 = \frac{0.60}{\sqrt{5-1}} \times \sqrt{3-1} = 0.42 \rightarrow$ **0.12** ($\triangle ap_3 - \triangle ap_2$)
4th Pass $\triangle ap_4 = \frac{0.60}{\sqrt{5-1}} \times \sqrt{4-1} = 0.52 \rightarrow$ **0.1** ($\triangle ap_4 - \triangle ap_3$)
5th Pass $\triangle ap_5 = \frac{0.60}{\sqrt{5-1}} \times \sqrt{5-1} = 0.6 \rightarrow$ **0.08** ($\triangle ap_5 - \triangle ap_4$)

■ NC PROGRAMME FOR MODIFIED FLANK INFEED

● Example: M12×1.0 5 passes modified 5°

External Threading	Internal Threading
G00 Z = 5.0 X = 14.0 G92 U−4.34 Z−13.0 F1.0 G00 W−0.07 G92 U−4.64 Z−13.0 F1.0 G00 W−0.06 G92 U−4.88 Z−13.0 F1.0 G00 W−0.05 G92 U−5.08 Z−13.0 F1.0 G00 W−0.03 G92 U−5.20 Z−13.0 F1.0 G00	G00 Z = 5.0 X = 10.0 G92 U4.34 Z−13.0 F1.0 G00 W−0.07 G92 U4.64 Z−13.0 F1.0 G00 W−0.05 G92 U4.84 Z−13.0 F1.0 G00 W−0.04 G92 U5.02 Z−13.0 F1.0 G00 W−0.03 G92 U5.14 Z−13.0 F1.0 G00

SELECTING CUTTING CONDITIONS

		Priority					
		Tool Life	Cutting Force	Surface Finish	Precision of Thread	Chips Discharge	Efficiency (Reduced Passes)
Threading Methods	Radial	○		○	○		○
	Flank	(△ : Modified)	○	(△ : Modified)		○	
Cutting Depth	Fixed Cutting Depth					○	
	Fixed Cut Area	○	○	○	○		○

Note 1) Tool life and surface finish accuracy can be increased by changing the threading method from flank infeed to modified flank infeed.
Chip control can be improved by increasing the cutting depth in the later half of passes.

CUTTING DEPTH AND THE NUMBER OF PASSES

● Selection of the appropriate cutting depth and the right number of passes is vital for threading.

- For most threading, use a "threading cycle program," which has originally been installed on machines, and specify "total cutting depth" and "cutting depth in the first or final pass."
- Cutting depth and the number of passes are easy to change for the radial infeed method, thus making it easy to determine the appropriate cutting conditions.

FEATURES AND BENEFITS OF MITSUBISHI MATERIALS PRODUCTS

- Insert grades with high wear and plastic deformation resistance, specially produced for threading tools, ensure highly efficient cutting by enabling high-speed machining and a reduced number of passes.

Machining Cost Reduction

ADVICE ON IMPROVED THREADING

● Increasing tool life

- To prevent damage to the nose radius - Recommended method - Modified flank infeed
- To have uniform flank wear on both sides of a cutting edge - Recommended method - Radial infeed
- To prevent crater wear - Recommended method - Flank infeed

● Preventing chip problems

- Change to flank or modified infeed.
- During radial infeed cutting, use an inverted holder and change the coolant supply to a downward direction.
- When using the radial infeed method, set the minimum cutting depth at around 0.2mm to make the chips thicker.

● To achieve highly efficient machining

- Increase cutting speed. (Dependant on the maximum revolution and rigidity of the machine.)
- Reduce the number of passes. (Reduce by 30-40%.)
- A reduced number of passes can improve chip discharge because of the thicker chips generated.

● Preventing vibration

- Change to flank or modified infeed.
- When using radial infeed, reduce cutting depth in the later half of passes and lower the cutting speed.

● Increased surface finish accuracy

- A final wiping pass should be performed at the same depth of cut as the last regular pass.
- When using the flank infeed method, change to radial infeed only during the final pass.

METALLIC MATERIALS CROSS REFERENCE LIST

■CARBON STEEL

Germany		U.K.		France	Italy	Spain	Sweden	Japan	USA	China
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.0038	RSt.37-2	4360 40 C	–	E 24-2 Ne	–	–	1311	STKM 12A STKM 12C	A570.36	15
1.0401	C15	080M15	–	CC12	C15, C16	F.111	1350	–	1015	15
1.0402	C22	050A20	2C	CC20	C20, C21	F.112	1450	–	1020	20
1.0715	9SMn28	230M07	1A	S250	CF9SMn28	F.2111 11SMn28	1912	SUM22	1213	Y15
1.0718	9SMnPb28	–	–	S250Pb	CF9SMnPb28	11SMnPb28	1914	SUM22L	12L13	–
1.0722	10SPb20	–	–	10PbF2	CF10Pb20	10SPb20	–	–	–	–
1.0736	9SMn36	240M07	1B	S300	CF9SMn36	12SMn35	–	–	1215	Y13
1.0737	9SMnPb36	–	–	S300Pb	CF9SMnPb36	12SMnP35	1926	–	12L14	–
1.1141	Ck15	080M15	32C	XC12	C16	C15K	1370	S15C	1015	15
1.1158	Ck25	–	–	–	–	–	–	S25C	1025	25
1.8900	StE380	4360 55 E	–	–	FeE390KG	–	2145	–	A572-60	–
1.0501	C35	060A35	–	CC35	C35	F.113	1550	–	1035	35
1.0503	C45	080M46	–	CC45	C45	F.114	1650	–	1045	45
1.0726	35S20	212M36	8M	35MF4	–	F210G	1957	–	1140	–
1.1157	40Mn4	150M36	15	35M5	–	–	–	–	1039	40Mn
1.1167	36Mn5	–	–	40M5	–	36Mn5	2120	SMn438(H)	1335	35Mn2
1.1170	28Mn6	150M28	14A	20M5	C28Mn	–	–	SCMn1	1330	30Mn
1.1183	Cf35	060A35	–	XC38TS	C36	–	1572	S35C	1035	35Mn
1.1191	Ck45	080M46	–	XC42	C45	C45K	1672	S45C	1045	Ck45
1.1213	C50	060A52	–	XC48TS	C53	–	1674	S50C	1050	50
1.0535	C55	070M55	9	–	C55	–	1655	–	1055	55
1.0601	C60	080A62	43D	CC55	C60	–	–	–	1060	60
1.1203	Ck55	070M55	–	XC55	C50	C55K	–	S55C	1055	55
1.1221	Ck60	080A62	43D	XC60	C60	–	1678	S58C	1060	60Mn
1.1274	Ck101	060A96	–	XC100	–	F.5117	1870	–	1095	–
1.1545	C105W1	BW1A	–	Y105	C36KU	F.5118	1880	SK3	W1	–
1.1545	C105W1	BW2	–	Y120	C120KU	F.515	2900	SUP4	W210	–

■ALLOY STEEL

Germany		U.K.		France	Italy	Spain	Sweden	Japan	USA	China
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.0144	St.44.2	4360 43 C	–	E28-3	–	–	1412	SM400A, SM400B SM400C	A573-81	–
1.0570	St52-3	4360 50 B	–	E36-3	Fe52BFN Fe52CFN	–	2132	SM490A, SM490B SM490C	–	–
1.0841	St52-3	150M19	–	20MC5	Fe52	F.431	2172	–	5120	–
1.0904	55Si7	250A53	45	55S7	55Si8	56Si7	2085	–	9255	55Si2Mn
1.0961	60SiCr7	–	–	60SC7	60SiCr8	60SiCr8	–	–	9262	–
1.3505	100Cr6	534A99	31	100C6	100Cr6	F.131	2258	SUJ2	ASTM 52100	Gr15, 45G
1.5415	15Mo3	1501-240	–	15D3	16Mo3KW	16Mo3	2912	–	ASTM A204Gr.A	–
1.5423	16Mo5	1503-245-420	–	–	16Mo5	16Mo5	–	–	4520	–
1.5622	14Ni6	–	–	16N6	14Ni6	15Ni6	–	–	ASTM A350LF5	–
1.5662	X8Ni9	1501-509-510	–	–	X10Ni9	XBNi09	–	–	ASTM A353	–
1.5710	36NiCr6	640A35	111A	35NC6	–	–	–	SNC236	3135	–
1.5732	14NiCr10	–	–	14NC11	16NiCr11	15NiCr11	–	SNC415(H)	3415	–
1.5752	14NiCr14	655M13	36A	12NC15	–	–	–	SNC815(H)	3415, 3310	–
1.6523	21NiCrMo2	805M20	362	20NCD2	20NiCrMo2	20NiCrMo2	2506	SNCM220(H)	8620	–
1.6546	40NiCrMo22	311-Type 7	–	–	40NiCrMo2(KB)	40NiCrMo2	–	SNCM240	8740	–
1.6587	17CrNiMo6	820A16	–	18NCD6	–	14NiCrMo13	–	–	–	–
1.7015	15Cr3	523M15	–	12C3	–	–	–	SCr415(H)	5015	15Cr

Germany		U.K.		France	Italy	Spain	Sweden	Japan	USA	China
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.7045	42Cr4	–	–	–	–	42Cr4	2245	SCr440	5140	40Cr
1.7176	55Cr3	527A60	48	55C3	–	–	–	SUP9(A)	5155	20CrMn
1.7262	15CrMo5	–	–	12CD4	–	12CrMo4	2216	SCM415(H)	–	–
1.7335	13CrMo4 4	1501-620Gr27	–	15CD3.5 15CD4.5	14CrMo45	14CrMo45	–	–	ASTM A182 F11, F12	–
1.7380	10CrMo910	1501-622 Gr31, 45	–	12CD9 12CD10	12CrMo9 12CrMo10	TU.H	2218	–	ASTM A182 F.22	–
1.7715	14MoV63	1503-660-440	–	–	–	13MoCrV6	–	–	–	–
1.8523	39CrMoV13 9	897M39	40C	–	36CrMoV12	–	–	–	–	–
1.6511	36CrNiMo4	816M40	110	40NCD3	38NiCrMo4(KB)	35NiCrMo4	–	–	9840	–
1.6582	34CrNiMo6	817M40	24	35NCD6	35NiCrMo6(KB)	–	2541	–	4340	40CrNiMoA
1.7033	34Cr4	530A32	18B	32C4	34Cr4(KB)	35Cr4	–	SCr430(H)	5132	35Cr
1.7035	41Cr4	530M40	18	42C4	41Cr4	42Cr4	–	SCr440(H)	5140	40Cr
1.7131	16MnCr5	(527M20)	–	16MC5	16MnCr5	16MnCr5	2511	–	5115	18CrMn
1.7218	25CrMo4	1717CDS110 708M20	–	25CD4	25CrMo4(KB)	55Cr3	2225	SCM420 SCM430	4130	30CrMn
1.7220	34CrMo4	708A37	19B	35CD4	35CrMo4	34CrMo4	2234	SCM432 SCCRM3	4137 4135	35CrMo
1.7223	41CrMo4	708M40	19A	42CD4TS	41CrMo4	42CrMo4	2244	SCM 440	4140 4142	40CrMoA
1.7225	42CrMo4	708M40	19A	42CD4	42CrMo4	42CrMo4	2244	SCM440(H)	4140	42CrMo 42CrMnMo
1.7361	32CrMo12	722M24	40B	30CD12	32CrMo12	F.124.A	2240	–	–	–
1.8159	50CrV4	735A50	47	50CV4	50CrV4	51CrV4	2230	SUP10	6150	50CrVA
1.8509	41CrAlMo7	905M39	41B	40CAD6 40CAD2	41CrAlMo7	41CrAlMo7	2940	–	–	–
1.2067	100Cr6	BL3	–	Y100C6	–	100Cr6	–	–	L3	CrV, 9SiCr
1.2419	105WCr6	–	–	105WC13	100WCr6 107WCr5KU	105WCr5	2140	SKS31 SKS2, SKS3	–	CrWMo
1.2713	55NiCrMoV6	BH224/5	–	55NCDV7	–	F.520.S	–	SKT4	L6	5CrNiMo
1.5662	X8Ni9	1501-509	–	–	X10Ni9	XBNi09	–	–	ASTM A353	–
1.5680	12Ni19	–	–	Z18N5	–	–	–	–	2515	–
1.6657	14NiCrMo134	832M13	36C	–	15NiCrMo13	14NiCrMo131	–	–	–	–
1.2080	X210Cr12	BD3	–	Z200C12	X210Cr13KU X250Cr12KU	X210Cr12	–	SKD1	D3 ASTM D3	Cr12
1.2601	X153CrMoV12	BD2	–	–	X160CrMoV12	–	–	SKD11	D2	Cr12MoV
1.2363	X100CrMoV5	BA2	–	Z100CDV5	X100CrMoV5	F.5227	2260	SKD12	A2	Cr5Mo1V
1.2344	X40CrMoV51 X40CrMoV51	BH13	–	Z40CDV5	X35CrMoV05KU X40CrMoV51KU	X40CrMoV5	2242	SKD61	H13 ASTM H13	40CrMoV5
1.2436	X210CrW12	–	–	–	X215CrW121KU	X210CrW12	2312	SKD2	–	–
1.2542	45WCrV7	BS1	–	–	45WCrV8KU	45WCrSi8	2710	–	S1	–
1.2581	X30WCrV93	BH21	–	Z30WCV9	X28W09KU	X30WCrV9	–	SKD5	H21	30WCrV9
1.2601	X165CrMoV12	–	–	–	X165CrMoW12KU	X160CrMoV12	2310	–	–	–
1.2833	100V1	BW2	–	Y1105V	–	–	–	SKS43	W210	V
1.3255	S 18-1-2-5	BT4	–	Z80WKCV	X78WCo1805KU	HS18-1-1-5	–	SKH3	T4	W18Cr4VCo5
1.3355	S 18-0-1	BT1	–	Z80WCV	X75W18KU	HS18-0-1	–	SKH2	T1	–
1.3401	G-X120Mn12	Z120M12	–	Z120M12	XG120Mn12	X120MN12	–	SCMnH/1	–	–
1.4718	X45CrSi93	401S45	52	Z45CS9	X45CrSi8	F.322	–	SUH1	HW3	X45CrSi93
1.3343	S6-5-2	4959BA2	–	Z40CSD10	15NiCrMo13	–	2715	SUH3	D3	–
1.3343	S6/5/2	BM2	–	Z85WDCV	HS6-5-2-2	F.5603	2722	SKH9, SKH51	M2	–
1.3348	S 2-9-2	–	–	–	HS2-9-2	HS2-9-2	2782	–	M7	–
1.3243	S6/5/2/5	BM35	–	6-5-2-5	HS6-5-2-5	F.5613	2723	SKH55	M35	–

METALLIC MATERIALS CROSS REFERENCE LIST

■STAINLESS STEEL (FERRITIC, MARTENSITIC)

Germany		U.K.		France	Italy	Spain	Sweden	Japan	USA	China
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.4000	X7Cr13	403S17	–	Z6C13	X6Cr13	F.3110	2301	SUS403	403	OCr13 1Cr12
1.4001	X7Cr14	–	–	–	–	F.8401	–	–	–	–
1.4005	X12CrS13	416S21	–	Z11CF13	X12CrS13	F.3411	2380	SUS416	416	–
1.4006	X10Cr13	410S21	56A	Z10C14	X12Cr13	F.3401	2302	SUS410	410	1Cr13
1.4016	X8Cr17	430S15	60	Z8C17	X8Cr17	F.3113	2320	SUS430	430	1Cr17
1.4027	G-X20Cr14	420C29	56B	Z20C13M	–	–	–	SCS2	–	–
1.4034	X46Cr13	420S45	56D	Z40CM Z38C13M	X40Cr14	F.3405	2304	SUS420J2	–	4Cr13
1.4003	–	405S17	–	Z8CA12	X6CrAl13	–	–	–	405	–
1.4021	–	420S37	–	Z8CA12	X20Cr13	–	2303	–	420	–
1.4057	X22CrNi17	431S29	57	Z15CNi6.02	X16CrNi16	F.3427	2321	SUS431	431	1Cr17Ni2
1.4104	X12CrMoS17	–	–	Z10CF17	X10CrS17	F.3117	2383	SUS430F	430F	Y1Cr17
1.4113	X6CrMo17	434S17	–	Z8CD17.01	X8CrMo17	–	2325	SUS434	434	1Cr17Mo
1.4313	X5CrNi134	425C11	–	Z4CND13.4M	(G)X6CrNi304	–	2385	SCS5	CA6-NM	–
1.4724	X10CrA113	403S17	–	Z10C13	X10CrA112	F.311	–	SUS405	405	OCr13Al
1.4742	X10CrA118	430S15	60	Z10CAS18	X8Cr17	F.3113	–	SUS430	430	Cr17
1.4747	X80CrNiSi20	443S65	59	Z80CSN20.02	X80CrSiNi20	F.320B	–	SUH4	HNV6	–
1.4762	X10CrA124	–	–	Z10CAS24	X16Cr26	–	2322	SUH446	446	2Cr25N
1.4871	X53CrMnNiN219	349S54	–	Z52CMN21.09	X53CrMnNiN219	–	–	SUH35	EV8	5Cr2Mn9Ni4N
1.4521	X1CrMoTi182	–	–	–	–	–	2326	–	S44400	–
1.4922	X20CrMoV12-1	–	–	–	X20CrMoNi1201	–	2317	–	–	–
1.4542	–	–	–	Z7CNU17-04	–	–	–	–	630	–

■STAINLESS STEEL (AUSTENITIC)

Germany		U.K.		France	Italy	Spain	Sweden	Japan	USA	China
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.4306	X2CrNi1911	304S11	–	Z2CN18.10	X2CrNi18.11	–	2352	SUS304L	304L	OCr19Ni10
1.4350	X5CrNi189	304S11	58E	Z6CN18.09	X5CrNi1810	F.3551 F.3541 F.3504	2332	SUS304	304	OCr18Ni9
1.4305	X12CrNiS188	303S21	58M	Z10CNF18.09	X10CrNiS18.09	F.3508	2346	SUS303	303	1Cr18Ni9MoZr
–	–	304C12	–	Z3CN19.10	–	–	2333	SUS304L	–	–
1.4306	X2CrNi189	304S12	–	Z2CrNi1810	X2CrNi18.11	F.3503	2352	SCS19	304L	–
1.4310	X12CrNi177	–	–	Z12CN17.07	X12CrNi1707	F.3517	2331	SUS301	301	Cr17Ni7
1.4311	X2CrNiN1810	304S62	–	Z2CN18.10	–	–	2371	SUS304LN	304LN	–
1.4401	X5CrNiMo1810	316S16	58J	Z6CND17.11	X5CrNiMo1712	F.3543	2347	SUS316	316	0Cr17Ni11Mo2
1.4308	G-X6CrNi189	304C15	–	Z6CN18.10M	–	–	–	SCS13	–	–
1.4408	G-X6CrNiMo1810	316C16	–	–	–	F.8414	–	SCS14	–	–
1.4581	G-X5CrNiMoNb1810	318C17	–	Z4CNDNb1812M	XG8CrNiMo1811	–	–	SCS22	–	–
1.4429	X2CrNiMoN1813	–	–	Z2CND17.13	–	–	2375	SUS316LN	316LN	OCr17Ni13Mo
1.4404	–	316S13	–	Z2CND17.12	X2CrNiMo1712	–	2348	–	316L	–
1.4435	X2CrNiMo1812	316S13	–	Z2CND17.12	X2CrNiMo1712	–	2353	SCS16 SUS316L	316L	0Cr27Ni12Mo3
1.4436	–	316S13	–	Z6CND18-12-03	X8CrNiMo1713	–	2343, 2347	–	316	–
1.4438	X2CrNiMo1816	317S12	–	Z2CND19.15	X2CrNiMo1816	–	2367	SUS317L	317L	00Cr19Ni13Mo
1.4539	X1NiCrMo	–	–	Z6CNT18.10	–	–	2562	–	UNS V 0890A	–
1.4541	X10CrNiTi189	321S12	58B	Z6CNT18.10	X6CrNiTi1811	F.3553 F.3523	2337	SUS321	321	1Cr18NI9Ti
1.4550	X10CrNiNb189	347S17	58F	Z6CNNb18.10	X6CrNiNb1811	F.3552 F.3524	2338	SUS347	347	1Cr18Ni11Nb
1.4571	X10CrNiMoTi1810	320S17	58J	Z6CNDT17.12	X6CrNiMoTi1712	F.3535	2350	–	316Ti	Cr18Ni12Mo2T
1.4583	X10CrNiMoNb1812	–	–	Z6CNDNb1713B	X6CrNiMoNb1713	–	–	–	318	Cr17Ni12Mo3Mb

Germany		U.K.		France	Italy	Spain	Sweden	Japan	USA	China
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.4828	X15CrNiSi2012	309S24	–	Z15CNS20.12	X6CrNi2520	–	–	SUH309	309	1Cr23Ni13
1.4845	X12CrNi2521	310S24	–	Z12CN2520	X6CrNi2520	F.331	2361	SUH310	310S	OCr25Ni20
1.4406	X10CrNi18.08	–	58C	Z1NCDU25.20	–	F.8414	2370	SCS17	308	–
1.4418	X4CrNiMo165	–	–	Z6CND16-04-01	–	–	–	–	–	–
1.4568 1.4504	–	316S111	–	Z8CNA17-07	X2CrNiMo1712	–	–	–	17-7PH	–
1.4563	–	–	–	Z1NCDU31-27-03 Z1CNDU20-18-06AZ	–	–	2584 2378	–	NO8028 S31254	–
1.4878	X12CrNiTi189	321S32	58B, 58C	Z6CNT18.12B	X6CrNiTi18 11	F.3523	–	SUS321	321	1Cr18Ni9Ti

■HEAT RESISTANT STEELS

Germany		U.K.		France	Italy	Spain	Sweden	Japan	USA	China
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.4864	X12NiCrSi3616	–	–	Z12NCS35.16	–	–	–	SUH330	330	–
1.4865	G-X40NiCrSi3818	330C11	–	–	XG50NiCr3919	–	–	SCH15	HT, HT 50	–

■GRAY CAST IRON

Germany		U.K.		France	Italy	Spain	Sweden	Japan	USA	China
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
–	–	–	–	–	–	–	0100	–	–	–
–	GG 10	–	–	Ft 10 D	–	–	0110	FC100	No 20 B	–
0.6015	GG 15	Grade 150	–	Ft 15 D	G15	FG15	0115	FC150	No 25 B	HT150
0.6020	GG 20	Grade 220	–	Ft 20 D	G20	–	0120	FC200	No 30 B	HT200
0.6025	GG 25	Grade 260	–	Ft 25 D	G25	FG25	0125	FC250	No 35 B	HT250
–	–	–	–	–	–	–	–	–	No 40 B	–
0.6030	GG 30	Grade 300	–	Ft 30 D	G30	FG30	0130	FC300	No 45 B	HT300
0.6035	GG 35	Grade 350	–	Ft 35 D	G35	FG35	0135	FC350	No 50 B	HT350
0.6040	GG 40	Grade 400	–	Ft 40 D	–	–	0140	–	No 55 B	HT400
0.6660	GGL NiCr202	L-NiCuCr202	–	L-NC 202	–	–	0523	–	A436 Type 2	–

■DUCTILE CAST IRON

Germany		U.K.		France	Italy	Spain	Sweden	Japan	USA	China
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
0.7040	GGG 40	SNG 420/12	–	FCS 400-12	GS 370-17	FGE 38-17	07 17-02	FCD400	60-40-18	QT400-18
–	GGG 40.3	SNG 370/17	–	FGS 370-17	–	–	07 17-12	–	–	–
0.7033	GGG 35.3	–	–	–	–	–	07 17-15	–	–	–
0.7050	GGG 50	SNG 500/7	–	FGS 500-7	GS 500	FGE 50-7	07 27-02	FCD500	80-55-06	QT500-7
0.7660	GGG NiCr202	Grade S6	–	S-NC202	–	–	07 76	–	A43D2	–
–	GGG NiMn137	L-NiMn 137	–	L-MN 137	–	–	07 72	–	–	–
–	GGG 60	SNG 600/3	–	FGS 600-3	–	–	07 32-03	FCD600	–	QT600-3
0.7070	GGG 70	SNG 700/2	–	FGS 700-2	GS 700-2	FGS 70-2	07 37-01	FCD700	100-70-03	QT700-18

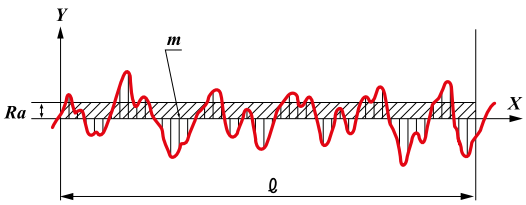
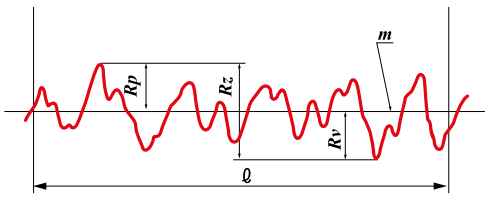
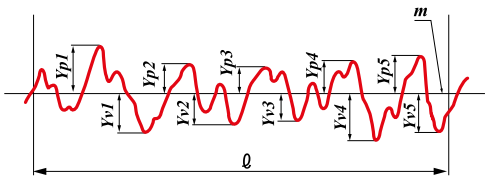
■MALLEABLE CAST IRON

Germany		U.K.		France	Italy	Spain	Sweden	Japan	USA	China
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
–	–	8 290/6	–	MN 32-8	–	–	08 14	FCMB310	–	–
–	GTS-35	B 340/12	–	MN 35-10	–	–	08 15	FCMW330	32510	–
0.8145	GTS-45	P 440/7	–	Mn 450	GMN45	–	08 52	FCMW370	40010	–
0.8155	GTS-55	P 510/4	–	MP 50-5	GMN55	–	08 54	FCMP490	50005	–
–	GTS-65	P 570/3	–	MP 60-3	–	–	08 58	FCMP540	70003	–
0.8165	GTS-65-02	P 570/3	–	Mn 650-3	GMN 65	–	08 56	FCMP590	A220-70003	–
–	GTS-70-02	P 690/2	–	Mn 700-2	GMN 70	–	08 62	FCMP690	A220-80002	–

SURFACE ROUGHNESS

SURFACE ROUGHNESS

(From JIS B 0601-1994)

Type	Code	Determination	Determination Example (Figure)
Arithmetical Mean Roughness	Ra	**Ra means the value obtained by the following formula and expressed in micrometer (μm) when sampling only the reference length from the roughness curve in the direction of the mean line, taking X-axis in the direction of mean line and Y-axis in the direction of longitudinal magnification of this sampled part and the roughness curve is expressed by y=f(x):** $Ra=\frac{1}{\ell}\int_0^{\ell}\lvert f(x)\rvert dx$	
Maximum Height	Rz	**Rz shall be that only when the reference length is sampled from the roughness curve in the direction of the mean line, the distance between the top profile peak line and the bottom profile valley line on this sampled portion is measured in the longitudinal magnification direction of roughness curve and the obtained value is expressed in micrometer (μm).** Note: **When finding Rz, a portion without an exceptionally high peak or low valley, which may be regarded as a flaw, is selected as the sampling length.** $Rz=R_P+Rv$	
Ten-Point Mean Roughness	RzJIS	**RzJIS shall be that only when the reference length is sampled from the roughness curve in the direction of its mean line, the sum of the average value of absolute values of the heights of five highest profile peaks (Yp) and the depths of five deepest profile valleys (Yv) measured in the vertical magnification direction from the mean line of this sampled portion and this sum is expressed in micrometer (μm).** $Rz_{JIS}=\frac{(Yp1+Yp2+Yp3+Yp4+Yp5)+(Yv1+Yv2+Yv3+Yv4+Yv5)}{5}$	 $Yp1, Yp2, Yp3, Yp4, Yp5$:altitudes of the five highest profile peaks of the sampled portion corresponding to the reference length l. $Yv1, Yv2, Yv3, Yv4, Yv5$:altitudes of the five deepest profile valleys of the sampled portion corresponding to the reference length l.

■RELATIONSHIP BETWEEN ARITHMETICAL MEAN (Ra) AND CONVENTIONAL DESIGNATION (REFERENCE DATA)

Arithmetical Mean Roughness **Ra**		Max. Height **Rz**	Ten-Point Mean Roughness **RzJIS**	Sampling Length for **Rz • RzJIS** l (mm)	Conventional Finish Mark
Standard Series	Cutoff Value λc (mm)	Standard Series			
0.012 a	0.08	0.05 s	0.05 z	0.08	▽▽▽▽
0.025 a	0.25	0.1 s	0.1 z		
0.05 a		0.2 s	0.2 z	0.25	
0.1 a	0.8	0.4 s	0.4 z		
0.2 a		0.8 s	0.8 z	0.8	
0.4 a		1.6 s	1.6 z		▽▽▽
0.8 a		3.2 s	3.2 z		
1.6 a		6.3 s	6.3 z		
3.2 a	2.5	12.5 s	12.5 z	2.5	▽▽
6.3 a		25 s	25 z		
12.5 a	8	50 s	50 z		▽
25 a		100 s	100 z	8	
50 a		200 s	200 z		–
100 a	–	400 s	400 z	–	

Note 1) The correlation among the three is shown for convenience and is not exact.
Note 2) Ra: The evaluation length of Rz and RzJIS is the cutoff value and sampling length multiplied by 5, respectively.

HARDNESS COMPARISON TABLE

HARDNESS CONVERSION NUMBERS OF STEEL

Brinell Hardness (**HB**), 10mm Ball,Load: 3000kgf		Vickers Hardness	Rockwell Hardness				Shore Hardness	Tensile Strength (Approx.)
Standard Ball	Tungsten Carbide Ball		A Scale, Load: 60kgf, Diamond Point	B Scale, Load: 100kgf, 1/16" Ball	C Scale, Load: 150kgf, Diamond Point	D Scale, Load: 100kgf, Diamond Point		MPa
		(HV)	(HRA)	(HRB)	(HRC)	(HRD)	(HS)	
—	—	940	85.6	—	68.0	76.9	97	—
—	—	920	85.3	—	67.5	76.5	96	—
—	—	900	85.0	—	67.0	76.1	95	—
—	(767)	880	84.7	—	66.4	75.7	93	—
—	(757)	860	84.4	—	65.9	75.3	92	—
—	(745)	840	84.1	—	65.3	74.8	91	—
—	(733)	820	83.8	—	64.7	74.3	90	—
—	(722)	800	83.4	—	64.0	73.8	88	—
—	(712)	—	—	—	—	—	—	—
—	(710)	780	83.0	—	63.3	73.3	87	—
—	(698)	760	82.6	—	62.5	72.6	86	—
—	(684)	740	82.2	—	61.8	72.1	—	—
—	(682)	737	82.2	—	61.7	72.0	84	—
—	(670)	720	81.8	—	61.0	71.5	83	—
—	(656)	700	81.3	—	60.1	70.8	—	—
—	(653)	697	81.2	—	60.0	70.7	81	—
—	(647)	690	81.1	—	59.7	70.5	—	—
—	(638)	680	80.8	—	59.2	70.1	80	—
—	630	670	80.6	—	58.8	69.8	—	—
—	627	667	80.5	—	58.7	69.7	79	—
—	—	677	80.7	—	59.1	70.0	—	—
—	601	640	79.8	—	57.3	68.7	77	—
—	—	640	79.8	—	57.3	68.7	—	—
—	578	615	79.1	—	56.0	67.7	75	—
—	—	607	78.8	—	55.6	67.4	—	—
—	555	591	78.4	—	54.7	66.7	73	2055
—	—	579	78.0	—	54.0	66.1	—	2015
—	534	569	77.8	—	53.5	65.8	71	1985
—	—	533	77.1	—	52.5	65.0	—	1915
—	514	547	76.9	—	52.1	64.7	70	1890
(495)	—	539	76.7	—	51.6	64.3	—	1855
—	—	530	76.4	—	51.1	63.9	—	1825
	495	528	76.3	—	51.0	63.8	68	1820
(477)	—	516	75.9	—	50.3	63.2	—	1780
—	—	508	75.6	—	49.6	62.7	—	1740
	477	508	75.6	—	49.6	62.7	66	1740
(461)	—	495	75.1	—	48.8	61.9	—	1680
—	—	491	74.9	—	48.5	61.7	—	1670
	461	491	74.9	—	48.5	61.7	65	1670
444	—	474	74.3	—	47.2	61.0	—	1595
—	—	472	74.2	—	47.1	60.8	—	1585
—	444	472	74.2	—	47.1	60.8	63	1585

Brinell Hardness (**HB**), 10mm Ball,Load: 3000kgf		Vickers Hardness	Rockwell Hardness				Shore Hardness	Tensile Strength (Approx.)
Standard Ball	Tungsten Carbide Ball		A Scale, Load: 60kgf, Diamond Point	B Scale, Load: 100kgf, 1/16" Ball	C Scale, Load: 150kgf, Diamond Point	D Scale, Load: 100kgf, Diamond Point		MPa
		(HV)	(HRA)	(HRB)	(HRC)	(HRD)	(HS)	
429	429	455	73.4	—	45.7	59.7	61	1510
415	415	440	72.8	—	44.5	58.8	59	1460
401	401	425	72.0	—	43.1	57.8	58	1390
388	388	410	71.4	—	41.8	56.8	56	1330
375	375	396	70.6	—	40.4	55.7	54	1270
363	363	383	70.0	—	39.1	54.6	52	1220
352	352	372	69.3	(110.0)	37.9	53.8	51	1180
341	341	360	68.7	(109.0)	36.6	52.8	50	1130
331	331	350	68.1	(108.5)	35.5	51.9	48	1095
321	321	339	67.5	(108.0)	34.3	51.0	47	1060
311	311	328	66.9	(107.5)	33.1	50.0	46	1025
302	302	319	66.3	(107.0)	32.1	49.3	45	1005
293	293	309	65.7	(106.0)	30.9	48.3	43	970
285	285	301	65.3	(105.5)	29.9	47.6	—	950
277	277	292	64.6	(104.5)	28.8	46.7	41	925
269	269	284	64.1	(104.0)	27.6	45.9	40	895
262	262	276	63.6	(103.0)	26.6	45.0	39	875
255	255	269	63.0	(102.0)	25.4	44.2	38	850
248	248	261	62.5	(101.0)	24.2	43.2	37	825
241	241	253	61.8	100	22.8	42.0	36	800
235	235	247	61.4	99.0	21.7	41.4	35	785
229	229	241	60.8	98.2	20.5	40.5	34	765
223	223	234	—	97.3	(18.8)	—	—	—
217	217	228	—	96.4	(17.5)	—	33	725
212	212	222	—	95.5	(16.0)	—	—	705
207	207	218	—	94.6	(15.2)	—	32	690
201	201	212	—	93.8	(13.8)	—	31	675
197	197	207	—	92.8	(12.7)	—	30	655
192	192	202	—	91.9	(11.5)	—	29	640
187	187	196	—	90.7	(10.0)	—	—	620
183	183	192	—	90.0	(9.0)	—	28	615
179	179	188	—	89.0	(8.0)	—	27	600
174	174	182	—	87.8	(6.4)	—	—	585
170	170	178	—	86.8	(5.4)	—	26	570
167	167	175	—	86.0	(4.4)	—	—	560
163	163	171	—	85.0	(3.3)	—	25	545
156	156	163	—	82.9	(0.9)	—	—	525
149	149	156	—	80.8	—	—	23	505
143	143	150	—	78.7	—	—	22	490
137	137	143	—	76.4	—	—	21	460
131	131	137	—	74.0	—	—	—	450
126	126	132	—	72.0	—	—	20	435
121	121	127	—	69.8	—	—	19	415
116	116	122	—	67.6	—	—	18	400
111	111	117	—	65.7	—	—	15	385

Note 1) The above list is the same as that of AMS Metals Hand book with tensile strength in approximate metric value and Brinell hardness over a recommended range.

Note 2) 1MPa=1N/mm^2

Note 3) Figures in ( ) are rarely used and are included for reference. This list has been taken from JIS Handbook Steel I.

FIT TOLERANCE TABLE (HOLE)

Classification of Standard Dimensions (mm)		Class of Geometrical Tolerance Zone of Holes															
>	≤	B10	C9	C10	D8	D9	D10	E7	E8	E9	F6	F7	F8	G6	G7	H6	H7
—	3	+180 +140	+85 +60	+100 +60	+34 +20	+45 +20	+60 +20	+24 +14	+28 +14	+39 +14	+12 +6	+16 +6	+20 +6	+8 +2	+12 +2	+6 0	+10 0
3	6	+188 +140	+100 +70	+118 +70	+48 +30	+60 +30	+78 +30	+32 +20	+38 +20	+50 +20	+18 +10	+22 +10	+28 +10	+12 +4	+16 +4	+8 0	+12 0
6	10	+208 +150	+116 +80	+138 +80	+62 +40	+76 +40	+98 +40	+40 +25	+47 +25	+61 +25	+22 +13	+28 +13	+35 +13	+14 +5	+20 +5	+9 0	+15 0
10	14	+220 +150	+138 +95	+165 +95	+77 +50	+93 +50	+120 +50	+50 +32	+59 +32	+75 +32	+27 +16	+34 +16	+43 +16	+17 +6	+24 +6	+11 0	+18 0
14	18																
18	24	+244 +160	+162 +110	+194 +110	+98 +65	+117 +65	+149 +65	+61 +40	+73 +40	+92 +40	+33 +20	+41 +20	+53 +20	+20 +7	+28 +7	+13 0	+21 0
24	30																
30	40	+270 +170	+182 +120	+220 +120	+119	+142	+180	+75	+89	+112	+41	+50	+64	+25	+34	+16	+25
40	50	+280 +180	+192 +130	+230 +130	+80	+80	+80	+50	+50	+50	+25	+25	+25	+9	+9	0	0
50	65	+310 +190	+214 +140	+260 +140	+146	+174	+220	+90	+106	+134	+49	+60	+76	+29	+40	+19	+30
65	80	+320 +200	+224 +150	+270 +150	+100	+100	+100	+60	+60	+60	+30	+30	+30	+10	+10	0	0
80	100	+360 +220	+257 +170	+310 +170	+174	+207	+260	+107	+126	+159	+58	+71	+90	+34	+47	+22	+35
100	120	+380 +240	+267 +180	+320 +180	+120	+120	+120	+72	+72	+72	+36	+36	+36	+12	+12	0	0
120	140	+420 +260	+300 +200	+360 +200													
140	160	+440 +280	+310 +210	+370 +210	+208 +145	+245 +145	+305 +145	+125 +85	+148 +85	+185 +85	+68 +43	+83 +43	+106 +43	+39 +14	+54 +14	+25 0	+40 0
160	180	+470 +310	+330 +230	+390 +230													
180	200	+525 +340	+355 +240	+425 +240													
200	225	+565 +380	+375 +260	+445 +260	+242 +170	+285 +170	+355 +170	+146 +100	+172 +100	+215 +100	+79 +50	+96 +50	+122 +50	+44 +15	+61 +15	+29 0	+46 0
225	250	+605 +420	+395 +280	+465 +280													
250	280	+690 +480	+430 +300	+510 +300	+271	+320	+400	+162	+191	+240	+88	+108	+137	+49	+69	+32	+52
280	315	+750 +540	+460 +330	+540 +330	+190	+190	+190	+110	+110	+110	+56	+56	+56	+17	+17	0	0
315	355	+830 +600	+500 +360	+590 +360	+299	+350	+440	+182	+214	+265	+98	+119	+151	+54	+75	+36	+57
355	400	+910 +680	+540 +400	+630 +400	+210	+210	+210	+125	+125	+125	+62	+62	+62	+18	+18	0	0
400	450	+1010 +760	+595 +440	+690 +440	+327	+385	+480	+198	+232	+290	+108	+131	+165	+60	+83	+40	+63
450	500	+1090 +840	+635 +480	+730 +480	+230	+230	+230	+135	+135	+135	+68	+68	+68	+20	+20	0	0

Note 1) Values shown in the upper portion of the respective boxes are the upper dimensional tolerance, while values shown in the lower portion are the lower dimensional tolerance.

Units : μm

Class of Geometrical Tolerance Zone of Holes

H8	H9	H10	JS6	JS7	K6	K7	M6	M7	N6	N7	P6	P7	R7	S7	T7	U7	X7
+14 0	+25 0	+40 0	±3	±5	0 −6	0 −10	−2 −8	−2 −12	−4 −10	−4 −14	−6 −12	−6 −16	−10 −20	−14 −24	—	−18 −28	−20 −30
+18 0	+30 0	+48 0	±4	±6	+2 −6	+3 −9	−1 −9	0 −12	−5 −13	−4 −16	−9 −17	−8 −20	−11 −23	−15 −27	—	−19 −31	−24 −36
+22 0	+36 0	+58 0	±4.5	±7	+2 −7	+5 −10	−3 −12	0 −15	−7 −16	−4 −19	−12 −21	−9 −24	−13 −28	−17 −32	—	−22 −37	−28 −43
+27 0	+43 0	+70 0	±5.5	±9	+2 −9	+6 −12	−4 −15	0 −18	−9 −20	−5 −23	−15 −26	−11 −29	−16 −34	−21 −39	— —	−26 −44	−33 −51 −38 −56
+33 0	+52 0	+84 0	±6.5	±10	+2 −11	+6 −15	−4 −17	0 −21	−11 −24	−7 −28	−18 −31	−14 −35	−20 −41	−27 −48	— −33 −54	−33 −54 −40 −61	−46 −67 −56 −77
+39 0	+62 0	+100 0	±8	±12	+3 −13	+7 −18	−4 −20	0 −25	−12 −28	−8 −33	−21 −37	−17 −42	−25 −50	−34 −59	−39 −64 −45 −70	−51 −76 −61 −86	—
+46 0	+74 0	+120 0	±9.5	±15	+4 −15	+9 −21	−5 −24	0 −30	−14 −33	−9 −39	−26 −45	−21 −51	−30 −60 −32 −62	−42 −72 −48 −78	−55 −85 −64 −94	−76 −106 −91 −121	—
+54 0	+87 0	+140 0	±11	±17	+4 −18	+10 −25	−6 −28	0 −35	−16 −38	−10 −45	−30 −52	−24 −59	−38 −73 −41 −76	−58 −93 −66 −101	−78 −113 −91 −126	−111 −146 −131 −166	—
+63 0	+100 0	+160 0	±12.5	±20	+4 −21	+12 −28	−8 −33	0 −40	−20 −45	−12 −52	−36 −61	−28 −68	−48 −88 −50 −90 −53 −93	−77 −117 −85 −125 −93 −133	−107 −147 −119 −159 −131 −171	—	—
+72 0	+115 0	+185 0	±14.5	±23	+5 −24	+13 −33	−8 −37	0 −46	−22 −51	−14 −60	−41 −70	−33 −79	−60 −106 −63 −109 −67 −113	−105 −151 −113 −159 −123 −169	—	—	—
+81 0	+130 0	+210 0	±16	±26	+5 −27	+16 −36	−9 −41	0 −52	−25 −57	−14 −66	−47 −79	−36 −88	−74 −126 −78 −130	—	—	—	—
+89 0	+140 0	+230 0	±18	±28	+7 −29	+17 −40	−10 −46	0 −57	−26 −62	−16 −73	−51 −87	−41 −98	−87 −144 −93 −150	—	—	—	—
+97 0	+155 0	+250 0	±20	±31	+8 −32	+18 −45	−10 −50	0 −63	−27 −67	−17 −80	−55 −95	−45 −108	−103 −166 −109 −172	—	—	—	—

FIT TOLERANCE TABLE (SHAFT)

Classification of Standard Dimensions (mm)		Class of Geometrical Tolerance Zone of Shafts														
>	≤	b9	c9	d8	d9	e7	e8	e9	f6	f7	f8	g5	g6	h5	h6	h7
—	3	−140 −165	−60 −85	−20 −34	−20 −45	−14 −24	−14 −28	−14 −39	−6 −12	−6 −16	−6 −20	−2 −6	−2 −8	0 −4	0 −6	0 −10
3	6	−140 −170	−70 −100	−30 −48	−30 −60	−20 −32	−20 −38	−20 −50	−10 −18	−10 −22	−10 −28	−4 −9	−4 −12	0 −5	0 −8	0 −12
6	10	−150 −186	−80 −116	−40 −62	−40 −76	−25 −40	−25 −47	−25 −61	−13 −22	−13 −28	−13 −35	−5 −11	−5 −14	0 −6	0 −9	0 −15
10	14	−150 −193	−95 −138	−50 −77	−50 −93	−32 −50	−32 −59	−32 −75	−16 −27	−16 −34	−16 −43	−6 −14	−6 −17	0 −8	0 −11	0 −18
14	18															
18	24	−160 −212	−110 −162	−65 −98	−65 −117	−40 −61	−40 −73	−40 −92	−20 −33	−20 −41	−20 −53	−7 −16	−7 −20	0 −9	0 −13	0 −21
24	30															
30	40	−170 −232	−120 −182	−80 −119	−80 −142	−50 −75	−50 −89	−50 −112	−25 −41	−25 −50	−25 −64	−9 −20	−9 −25	0 −11	0 −16	0 −25
40	50	−180 −242	−130 −192													
50	65	−190 −264	−140 −214	−100 −146	−100 −174	−60 −90	−60 −106	−60 −134	−30 −49	−30 −60	−30 −76	−10 −23	−10 −29	0 −13	0 −19	0 −30
65	80	−200 −274	−150 −224													
80	100	−220 −307	−170 −257	−120 −174	−120 −207	−72 −107	−72 −126	−72 −159	−36 −58	−36 −71	−36 −90	−12 −27	−12 −34	0 −15	0 −22	0 −35
100	120	−240 −327	−180 −267													
120	140	−260 −360	−200 −300	−145 −208	−145 −245	−85 −125	−85 −148	−85 −185	−43 −68	−43 −83	−43 −106	−14 −32	−14 −39	0 −18	0 −25	0 −40
140	160	−280 −380	−210 −310													
160	180	−310 −410	−230 −330													
180	200	−340 −455	−240 −355	−170 −242	−170 −285	−100 −146	−100 −172	−100 −215	−50 −79	−50 −96	−50 −122	−15 −35	−15 −44	0 −20	0 −29	0 −46
200	225	−380 −495	−260 −375													
225	250	−420 −535	−280 −395													
250	280	−480 −610	−300 −430	−190 −271	−190 −320	−110 −162	−110 −191	−110 −240	−56 −88	−56 −108	−56 −137	−17 −40	−17 −49	0 −23	0 −32	0 −52
280	315	−540 −670	−330 −460													
315	355	−600 −740	−360 −500	−210 −299	−210 −350	−125 −182	−125 −214	−125 −265	−62 −98	−62 −119	−62 −151	−18 −43	−18 −54	0 −25	0 −36	0 −57
355	400	−680 −820	−400 −540													
400	450	−760 −915	−440 −595	−230 −327	−230 −385	−135 −198	−135 −232	−135 −290	−68 −108	−68 −131	−68 −165	−20 −47	−20 −60	0 −27	0 −40	0 −63
450	500	−840 −995	−480 −635													

Note 1) Values shown in the upper portion of the respective boxes are the upper dimensional tolerance, while values shown in the lower portion are the lower dimensional tolerance.

Units : μm

Class of Geometrical Tolerance Zone of Shafts

h8	h9	js5	js6	js7	k5	k6	m5	m6	n6	p6	r6	s6	t6	u6	x6
0 −14	0 −25	±2	±3	±5	+4 0	+6 0	+6 +2	+8 +2	+10 +4	+12 +6	+16 +10	+20 +14	—	+24 +18	+26 +20
0 −18	0 −30	±2.5	±4	±6	+6 +1	+9 +1	+9 +4	+12 +4	+16 +8	+20 +12	+23 +15	+27 +19	—	+31 +23	+36 +28
0 −22	0 −36	±3	±4.5	±7	+7 +1	+10 +1	+12 +6	+15 +6	+19 +10	+24 +15	+28 +19	+32 +23	—	+37 +28	+43 +34
0 −27	0 −43	±4	±5.5	±9	+9 +1	+12 +1	+15 +7	+18 +7	+23 +12	+29 +18	+34 +23	+39 +28	—	+44 +33	+51 +40 +56 +45
0 −33	0 −52	±4.5	±6.5	±10	+11 +2	+15 +2	+17 +8	+21 +8	+28 +15	+35 +22	+41 +28	+48 +35	— +54 +41	+54 +41 +61 +48	+67 +54 +77 +64
0 −39	0 −62	±5.5	±8	±12	+13 +2	+18 +2	+20 +9	+25 +9	+33 +17	+42 +26	+50 +34	+59 +43	+64 +48 +70 +54	+76 +60 +86 +70	—
0 −46	0 −74	±6.5	±9.5	±15	+15 +2	+21 +2	+24 +11	+30 +11	+39 +20	+51 +32	+60 +41 +62 +43	+72 +53 +78 +59	+85 +66 +94 +75	+106 +87 +121 +102	—
0 −54	0 −87	±7.5	±11	±17	+18 +3	+25 +3	+28 +13	+35 +13	+45 +23	+59 +37	+73 +51 +76 +54	+93 +71 +101 +79	+113 +91 +126 +104	+146 +124 +166 +144	—
0 −63	0 −100	±9	±12.5	±20	+21 +3	+28 +3	+33 +15	+40 +15	+52 +27	+68 +43	+88 +63 +90 +65 +93 +68	+117 +92 +125 +100 +133 +108	+147 +122 +159 +134 +171 +146	—	—
0 −72	0 −115	±10	±14.5	±23	+24 +4	+33 +4	+37 +17	+46 +17	+60 +31	+79 +50	+106 +77 +109 +80 +113 +84	+151 +122 +159 +130 +169 +140	—	—	—
0 −81	0 −130	±11.5	±16	±26	+27 +4	+36 +4	+43 +20	+52 +20	+66 +34	+88 +56	+126 +94 +130 +98	—	—	—	—
0 −89	0 −140	±12.5	±18	±28	+29 +4	+40 +4	+46 +21	+57 +21	+73 +37	+98 +62	+144 +108 +150 +114	—	—	—	—
0 −97	0 −155	±13.5	±20	±31	+32 +5	+45 +5	+50 +23	+63 +23	+80 +40	+108 +68	+166 +126 +172 +132	—	—	—	—

INTERNATIONAL SYSTEM OF UNITS

■UNIT CONVERSION TABLE for EASIER CHANGE into SI UNITS (Bold type Indicates SI unit)

●Pressure

Pa	**kPa**	**MPa**	bar	kgf/cm^2	atm	mmH$_2$O	mmHg or Torr
1	1×10^{-3}	1×10^{-6}	1×10^{-5}	1.01972×10^{-5}	9.86923×10^{-6}	1.01972×10^{-1}	7.50062×10^{-3}
1×10^{3}	1	1×10^{-3}	1×10^{-2}	1.01972×10^{-2}	9.86923×10^{-3}	1.01972×10^{2}	7.50062
1×10^{6}	1×10^{3}	1	1×10	1.01972×10	9.86923	1.01972×10^{5}	7.50062×10^{3}
1×10^{5}	1×10^{2}	1×10^{-1}	1	1.01972	9.86923×10^{-1}	1.01972×10^{4}	7.50062×10^{2}
9.80665×10^{4}	9.80665×10	9.80665×10^{-2}	9.80665×10^{-1}	1	9.67841×10^{-1}	1×10^{4}	7.35559×10^{2}
1.01325×10^{5}	1.01325×10^{2}	1.01325×10^{-1}	1.01325	1.03323	1	1.03323×10^{4}	7.60000×10^{2}
9.80665	9.80665×10^{-3}	9.80665×10^{-6}	9.80665×10^{-5}	1×10^{-4}	9.67841×10^{-5}	1	7.35559×10^{-2}
1.33322×10^{2}	1.33322×10^{-1}	1.33322×10^{-4}	1.33322×10^{-3}	1.35951×10^{-3}	1.31579×10^{-3}	1.35951×10	1

Note 1) 1Pa=1N/m^2

●Force

N	dyn	kgf
1	1×10^{5}	1.01972×10^{-1}
1×10^{-5}	1	1.01972×10^{-6}
9.80665	9.80665×10^{5}	1

●Stress

Pa	**MPa** or **N/mm^2**	kgf/mm^2	kgf/cm^2
1	1×10^{-6}	1.01972×10^{-7}	1.01972×10^{-5}
1×10^{6}	1	1.01972×10^{-1}	1.01972×10
9.80665×10^{6}	9.80665	1	1×10^{2}
9.80665×10^{4}	9.80665×10^{-2}	1×10^{-2}	1

Note 1) 1Pa=1N/m^2

●Work / Energy / Quantity of Heat

J	kW•h	kgf•m	kcal
1	2.77778×10^{-7}	1.01972×10^{-1}	2.38889×10^{-4}
3.600×10^{6}	1	3.67098×10^{5}	8.6000×10^{2}
9.80665	2.72407×10^{-6}	1	2.34270×10^{-3}
4.18605×10^{3}	1.16279×10^{-3}	4.26858×10^{2}	1

Note 1) 1J=1W•s, 1J=1N•m
1cal=4.18605J
(By the law of weights and measures)

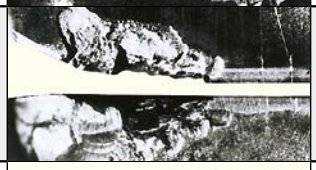
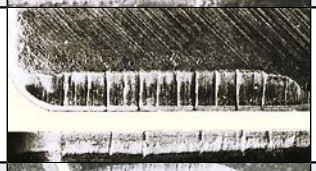
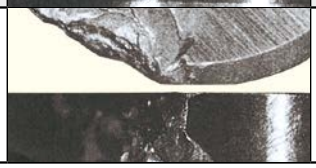
●Power (Rate of Production / Motive Power) /Heat Flow Rate

W	kgf•m/s	PS	kcal/h
1	1.01972×10^{-1}	1.35962×10^{-3}	8.6000×10^{-1}
9.80665	1	1.33333×10^{-2}	8.43371
7.355×10^{2}	7.5×10	1	6.32529×10^{2}
1.16279	1.18572×10^{-1}	1.58095×10^{-3}	1

Note 1) 1W=1J/s, PS:French horse power
1PS=0.7355kW
1cal=4.18605J
(By the law of weights and measures)

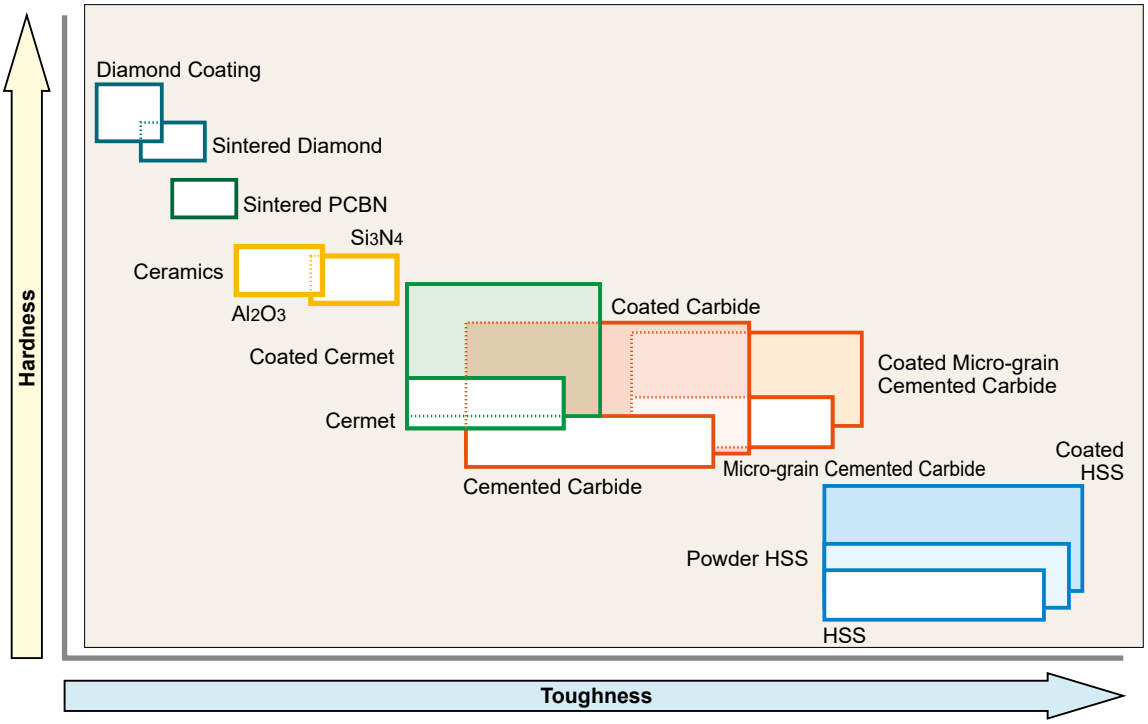
TOOL WEAR AND DAMAGE

CAUSES AND COUNTERMEASURES

Tool Damage Form		Cause	Countermeasure
Flank Wear		• Tool grade is too soft. • Cutting speed is too high. • Flank angle is too small. • Feed rate is extremely low.	• Tool grade with high wear resistance. • Lower cutting speed. • Increase flank angle. • Increase feed rate.
Crater Wear		• Tool grade is too soft. • Cutting speed is too high. • Feed rate is too high.	• Tool grade with high wear resistance. • Lower cutting speed. • Lower feed rate.
Chipping		• Tool grade is too hard. • Feed rate is too high. • Lack of cutting edge strength. • Lack of shank or holder rigidity.	• Tool grade with high toughness. • Lower feed rate. • Increase honing size. (Round honing is to be changed to chamfer honing.) • Use a large tool shank size.
Fracture		• Tool grade is too hard. • Feed rate is too high. • Lack of cutting edge strength. • Lack of shank or holder rigidity.	• Tool grade with high toughness. • Lower feed rate. • Increase honing. (Round honing is to be changed to chamfer honing.) • Use large shank size.
Plastic Deformation		• Tool grade is too soft. • Cutting speed is too high. • Depth of cut and feed rate are too large. • Cutting temperature is high.	• Tool grade with high wear resistance. • Lower cutting speed. • Decrease depth of cut and feed rate. • Tool grade with high thermal conductivity.
Welding		• Cutting speed is low. • Poor sharpness. • Unsuitable grade.	• Increase cutting speed. (For DIN Ck45, cutting speed 80m/min.) • Increase rake angle. • Tool grade with low affinity. (Coated grade, cermet grade)
Thermal Cracks		• Expansion or shrinkage due to cutting heat. • Tool grade is too hard. *Especially in milling.	• Dry cutting. (For wet cutting, flood workpiece with cutting fluid) • Tool grade with high toughness.
Notching		• Hard surfaces such as uncut surfaces, chilled parts and machining hardened layers. • Friction caused by jagged shape chips. (Caused by small vibration)	• Tool grade with high wear resistance. • Increase rake angle to improve sharpness.
Flaking		• Cutting edge welding and adhesion. • Poor chip disposal.	• Increase rake angle to improve sharpness. • Enlarge chip pocket.
Flank Wear Fracture *Damage for polycrystallines		• Damage due to the lack of strength of a curved cutting edge.	• Increase honing. • Tool grade with high toughness.
Crater Wear Fracture *Damage for polycrystallines		• Tool grade is too soft. • Cutting resistance is too high and causes high cutting heat.	• Decrease honing. • Tool grade with high wear resistance.

CUTTING TOOL MATERIALS

Cemented carbide (WC-Co) was developed in 1923 and was later improved by adding TiC and TaC. In 1969, CVD coating technology was developed and coated carbide has since been widley used. TiC-TiN based cermet was developed in 1974. Today, "Coated carbide grades for roughing and cermet for finishing" is a well established method.

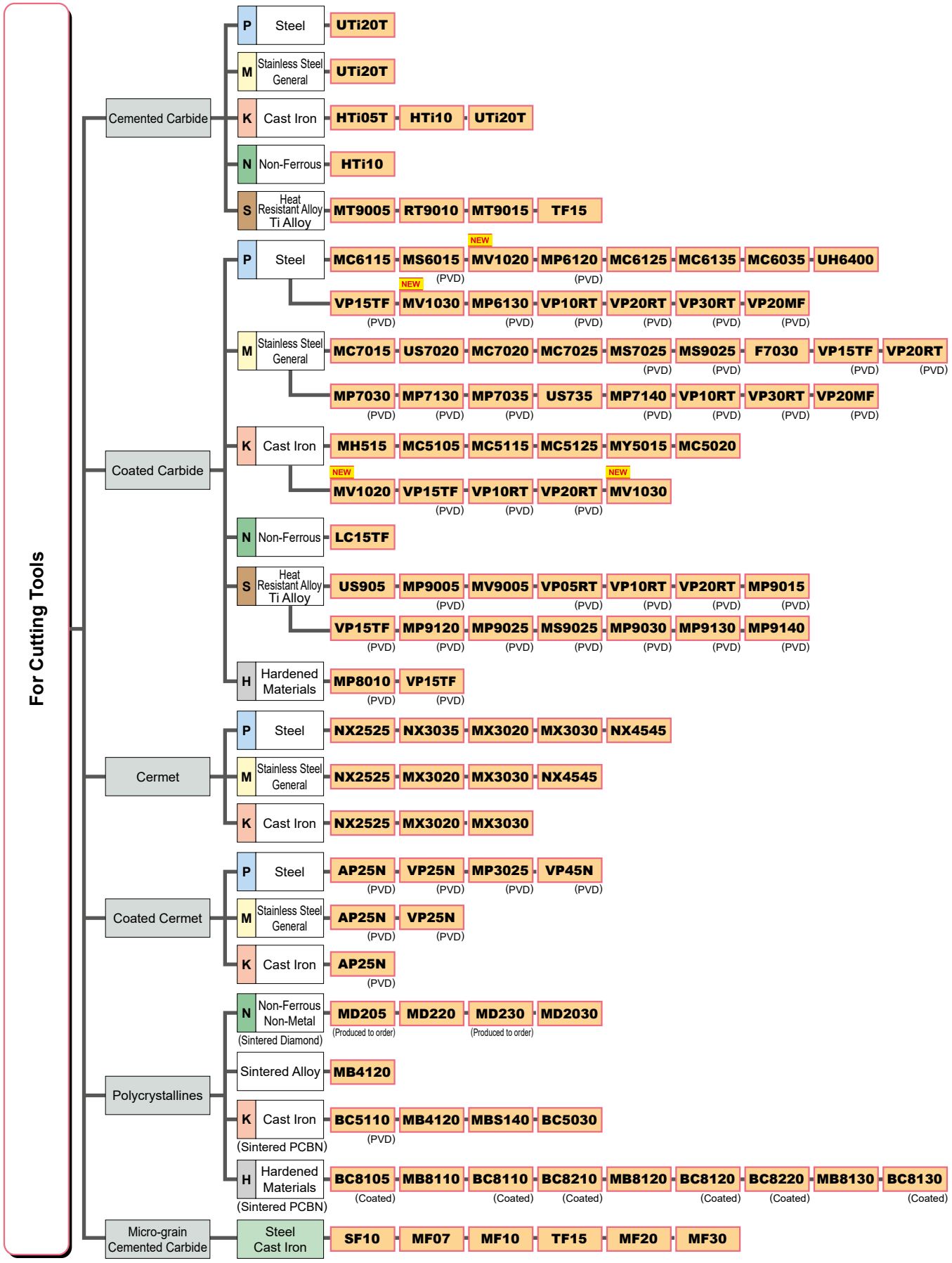


GRADE CHARACTERISTICS

Hard Materials	Hardness (HV)	Energy Formation (kcal/g·atom)	Solubility in Iron (%.1250℃)	Thermal Conductivity (W/m·k)	Thermal * Expansion (x 10^{-6}/k)	Tool Material
Diamond	>9000	–	Highly Soluble	2100	3.1	Sintered Diamond
PCBN	>4500	–	–	1300	4.7	Sintered PCBN
Si_3N_4	1600	–	–	100	3.4	Ceramics
Al_2O_3	2100	-100	≒0	29	7.8	Ceramics Cemented Carbide
TiC	3200	-35	< 0.5	21	7.4	Cermet Coated Carbide
TiN	2500	-50	–	29	9.4	Cermet Coated Carbide
TaC	1800	-40	0.5	21	6.3	Cemented Carbide
WC	2100	-10	7	121	5.2	Cemented Carbide

*1W/m•K=2.39×10^{-3}cal/cm•sec•℃

GRADE CHAIN


For Cutting Tools
Cemented Carbide
P Steel
UTi20T
M Stainless Steel General
UTi20T
K Cast Iron
HTi05T HTi10 UTi20T
N Non-Ferrous
HTi10
S Heat Resistant Alloy Ti Alloy
MT9005 RT9010 MT9015 TF15
Coated Carbide
P Steel
MC6115 MS6015 (PVD) MV1020 (PVD) MP6120 (PVD) MC6125 MC6135 MC6035 UH6400
VP15TF (PVD) MV1030 (PVD) MP6130 (PVD) VP10RT (PVD) VP20RT (PVD) VP30RT (PVD) VP20MF (PVD)
M Stainless Steel General
MC7015 US7020 MC7020 MC7025 MS7025 (PVD) MS9025 (PVD) F7030 VP15TF (PVD) VP20RT (PVD)
MP7030 (PVD) MP7130 (PVD) MP7035 (PVD) US735 MP7140 (PVD) VP10RT (PVD) VP30RT (PVD) VP20MF (PVD)
K Cast Iron
MH515 MC5105 MC5115 MC5125 MY5015 MC5020
MV1020 VP15TF (PVD) VP10RT (PVD) VP20RT (PVD) MV1030
N Non-Ferrous
LC15TF
S Heat Resistant Alloy Ti Alloy
US905 MP9005 (PVD) MV9005 VP05RT (PVD) VP10RT (PVD) VP20RT (PVD) MP9015 (PVD)
VP15TF (PVD) MP9120 (PVD) MP9025 (PVD) MS9025 (PVD) MP9030 (PVD) MP9130 (PVD) MP9140 (PVD)
H Hardened Materials
MP8010 (PVD) VP15TF (PVD)
Cermet
P Steel
NX2525 NX3035 MX3020 MX3030 NX4545
M Stainless Steel General
NX2525 MX3020 MX3030 NX4545
K Cast Iron
NX2525 MX3020 MX3030
Coated Cermet
P Steel
AP25N (PVD) VP25N (PVD) MP3025 (PVD) VP45N (PVD)
M Stainless Steel General
AP25N (PVD) VP25N (PVD)
K Cast Iron
AP25N (PVD)
Polycrystallines
N Non-Ferrous Non-Metal (Sintered Diamond)
MD205 (Produced to order) MD220 MD230 (Produced to order) MD2030
Sintered Alloy
MB4120
K Cast Iron (Sintered PCBN)
BC5110 (PVD) MB4120 MBS140 BC5030
H Hardened Materials (Sintered PCBN)
BC8105 (Coated) MB8110 BC8110 (Coated) BC8210 (Coated) MB8120 BC8120 (Coated) BC8220 (Coated) MB8130 BC8130 (Coated)
Micro-grain Cemented Carbide
Steel Cast Iron
SF10 MF07 MF10 TF15 MF20 MF30

GRADES COMPARISON TABLE

CEMENTED CARBIDE

	ISO		Mitsubishi Materials	Sandvik	Kennametal	Seco Tools	Iscar	Sumitomo Electric	Tungaloy	Kyocera	Dijet	MOLDINO
	Classification	Symbol										
Turning	P	P01										
		P10					IC70	ST10P	TH10			WS10
		P20	UTi20T				IC70 IC50M	ST20E	KS20			EX35
		P30	UTi20T				IC50M IC54	A30 A30N	UX30 KS15F			EX35
		P40					IC54	ST40E	TX40			EX35
	M	M10			KU10 K313 K68	890	IC07	EH510	TH10			WA10B
		M20	UTi20T		KU10 K313 K68	HX 883	IC07 IC08 IC20	EH520	KS20			EX35
		M30	UTi20T				IC08 IC20 IC28	A30 A30N	UX30			EX35
		M40					IC28		TU40			
	K	K01	HTi05T		KU10 K313 K68			H1 H2	KS05F			WH01 WH05
		K10	HTi10		KU10 K313 K68	890	IC20	EH510	TH10	KW10 GW15	KT9	WH10
		K20	UTi20T	H13A	KU10 K313 K68	HX	IC20	G10E H10E EH520	KS15F KS20	GW25	KT9	WH20
		K30	UTi20T			883		G10E H10E				
	N	N01		H10				H1 H2	KS05F	GW05 KW10		
		N10	HTi10	H10 HBA	KU10 K313 K68	890	IC08 IC20	EH510	TH10	KW10 GW15	KT9	WH10
		N20		H10 HBA	KU10 K313 K68	HX KX	IC08 IC20	G10E EH520	KS15F		KT9	WH20
		N30				883						
	S	S01	MT9005							SW05		
		S10	MT9005 RT9010 MT9015	H10A H10F H13A	KU10 K313 K68	HX 883	IC07 IC08	EH510	KS05F TH10	SW10		WH13S
		S20	RT9010 TF15		KU10 K313 K68	883	IC07 IC08	EH520	KS15F KS20	SW25		
		S30	TF15									
Milling	P	P10										
		P20	UTi20T		K125M		IC50M IC28	A30N				EX35
		P30	UTi20T	SM30	GX		IC50M IC28	A30N	UX30			EX35
		P40					IC28					EX35
	M	M10										
		M20	UTi20T				IC08 IC20	A30N				EX35
		M30	UTi20T	SM30			IC08 IC28	A30N				EX35
		M40					IC28					
	K	K01	HTi05T		K115M,K313							
		K10	HTi10		K115M K313		IC20	G10E	TH10	KW10 GW25	KT9	WH10
		K20	UTi20T	H13A		HX	IC20	G10E		GW25	FZ15	WH20
		K30	UTi20T									

Note 1) The tables above are based on published data and not authorized by each manufacturer.

MICRO GRAIN

	ISO		Mitsubishi Materials	Sandvik	Kennametal	Seco Tools	Sumitomo Electric	Tungaloy	Kyocera	Dijet	MOLDINO
	Classification	Symbol									
Cutting Tools	Z	Z01	**SF10** **MF07** **MF10**	PN90 6UF,H3F 8UF,H6F			F0	F MD05F MD1508		FZ05 FB05 FB10	NM08
		Z10	**HTi10** **MF20**	H10F		890	XF1 F1 AFU	MD10 MD0508 MD07F	FW30	FZ10 FZ15 FB15	NM10 NM12 NM15
		Z20	**TF15** **MF30**	H15F		890 883	AF0 SF2 AF1	EM10 MD20 G1F		FZ15 FB15 FB20	BRM20 EF20N
		Z30				883	A1 CC			FZ20 FB20	NM25 NM40

CERMET

	ISO		Mitsubishi Materials	Sandvik	Kennametal	Seco Tools	Iscar	Sumitomo Electric	Tungaloy	Kyocera	Dijet	MOLDINO
	Classification	Symbol										
Turning	P	P01	**AP25N*** **VP25N***				IC20N IC520N*	T1000A	NS520 GT720*	CCX* TN610 PV710* PV30*	LN10	
		P10	**NX2525** **AP25N*** **VP25N***	CT5015	KT315 KTP10* KT125	TP1020 TP1030* CM CMP*	IC20N IC520N* IC530N*	T1500A T1500Z*	NS520 NS9530 GT9530* AT9530*	CCX* TN60 TN610 PV710* TN620 PV720*	CX75 PX75*	CZ25*
		P20	**NX2525** **AP25N*** **VP25N*** **NX3035** **MP3025***	GC1525*	KT325 KTP10* KT1120 KT5020*	TP1020 TP1030*	IC20N IC520N* IC30N IC530N* IC75T	T1500A T1500Z* T2500A T2500Z* T3000Z*	NS9530 GT9530* AT9530*	TN60 TN620 PV720* TN6020	CX75 PX75* CX90 PX90*	CH550 CZ25*
		P30	**MP3025*** **VP45N***				IC75T	T3000Z*		PV730* PV90*	CX90 PX90*	
	M	M10	**NX2525** **AP25N*** **VP25N***	GC1525*	KT315 KTP10*	TP1020 TP1030* CM CMP*		T1000A T1500Z*		TN60 TN620 PV720* TN6020	LN10	CZ25*
		M20	**NX2525** **AP25N*** **VP25N***					T1500A T1500Z*		TN90 TN6020 TN620 PV720* PV90*	CX75 PX75 CX90	CH550 CZ25*
		M30								PV730*		
	K	K01	**NX2525** **AP25N***					T1000A	NS520 GT720*	CCX* PV7005*	LN10	
		K10	**NX2525** **AP25N***	CT5015	KT315 KTP10*				NS520 NS9530 GT9530*	CCX* PV7005* TN60		CZ25*
		K20	**NX2525** **AP25N***									CH550
Milling	P	P10	**NX2525**			C15M	IC30N			TN100M TN60	CX75	MZ1000*
		P20	**MX3020** **NX2525**	CT530	KT530M HT7 KT605M	C15M MP1020	IC30N	T250A T2500A		TN100M TN620M TN60	CX75 CX90	CH550 CH7030 MZ1000*
		P30	**MX3030** **NX4545**				IC30N	T4500A	NS740		CX90	CH7035
	M	M10	**NX2525**				IC30N			TN60		
		M20	**MX3020** **NX2525**	CT530	KT530M HT7 KT605M	C15M	IC30N	T250A T2500A		TN100M	CX75	
		M30	**MX3030** **NX4545**					T4500A				
	K	K01										
		K10	**NX2525**							TN60	CX75	
		K20	**NX2525**		KT530M HT7						CX75	

*Coated Cermet

Note 1) The tables above are based on published data and not authorized by each manufacturer.

GRADES COMPARISON TABLE

CVD COATED GRADE

	ISO Classification	ISO Symbol	Mitsubishi Materials	Sandvik	Kennametal	Seco Tools	Iscar	Sumitomo Electric	Tungaloy	Kyocera	Dijet	MOLDINO
Turning	P	P01	MC6115	GC4305 GC4405 GC4415	KCP05B KCP05	TP0501 TP1501	IC9150 IC8150 IC428	AC810P AC8015P	T9105 T9205	CA510 CA115P CA5505	JC110V	HG8010
		P10	MC6115 MY5015 MC6125	GC4315 GC4325 GC4415	KCP10B KCP10 KCP25	TP1501 TP2501	IC9150 IC8150 IC8250	AC810P AC8020P	T9205 T9105 T9115 T9215	CA510 CA115P CA5505 CA515 CA5515	JC110V JC215V	HG8010 HG8025 GM8020
		P20	MC6115 MC6125 MC6135 MY5015	GC4315 GC4325 GC4425	KCP25B KCP30B KCP25 KCP25C	TP2501	IC8250 IC9250 IC8350	AC8020P AC820P AC2000 AC8025P	T9115 T9125 T9215 T9225	CA025P CA125P CA515 CA5515 CA525 CA5525 CR9025	JC110V JC215V	HG8025 GM8020 GM25
		P30	MC6125 MC6135 UH6400	GC4325 GC4335 GC4425	KCP30B KCP30	TP3501	IC8350 IC9250 IC9350	AC6030M AC8035P AC830P AC630M	T9125 T9135 T9225 T9235	CA025P CA125P CA525 CA5525 CA530 CA5535 CR9025	JC215V JC325V	GM25 GM8035
		P40	MC6035 UH6400	GC4335	KCP40 KCP40B	TP3501 TP40	IC9350	AC6030M AC8035P AC630M AC830P	T9135 T9235	CA530 CA5535	JC325V	GM8035 GX30
	M	M10	MC7015 US7020	GC2015 GC2220	KCM15B KCM15	TM1501 TM2000	IC6015 IC8250	AC610M AC6020M	T6120 T6215	CA6515		
		M20	MC7015 US7020 MC7025	GC2015 GC2220	KCM15 KCM25B KCP40B	TM2000 TM2501	IC8150 IC6015	AC6020M AC610M AC6030M AC630M	T6120 T6215	CA6515 CA6525		HG8025 GM25
		M30	MC7025 US735	GC2025	KCM35B KCP40	TM4000 TM3501	IC8250 IC6025	AC6030M AC630M	T6130	CA6525		GM8035 GX30
		M40	US735	GC2025	KCM35B	TM4000 TM3501	IC6025	AC6030M AC630M				GX30
	K	K01	MC5105	GC3205 GC3210	KCK05B KCK05	TK0501 TH1500	IC5005	AC405K AC4010K	T505 T5105	CA4505 CA310		HX3505
		K10	MC5115 MH515 MY5015	GC3205 GC3210	KCK15B KCK15 KCK20 KCK20B	TK0501 TK1501	IC5005 IC5010 IC428	AC405K AC4010K AC410K AC4015K AC415K	T515 T5115	CA315 CA4515		HX3515 HG8010
		K20	MC5125 MH515 MY5015	GC3225	KCK20B KCK20	TK1501	IC5010 IC8150	AC4015K AC415K AC420K AC4125K	T5115 T5125	CA320 CA4515		HG8025 GM8020
		K30	MC6115	GC3225	KCPK05			AC8025P AC4125K	T5125			HG8025 GM8020
	S	S01	MV9005 US905	S05F S205						CA6515 CA6525		HS9105 HS9115
Milling	P	P10	MV1020 MV1030			MP1501	IC5400 IC5600	ACP2000 XCU2500 ACP100				
		P20	MV1020 MV1030 MC7020 F7030	GC4220	KCPM20	MP1501 MP2501 MP3501 T25M	IC5400 IC5500	ACP2000 XCU2500 ACP100	T3130 T3225			GX2140 GF30
		P30	MV1020 MV1030 MC7020 F7030	GC4330	KCPK30	MP1501 MP2501 MP3501 MS2500 T25M	IC5500	XCU2500 ACP100	T3130 T3225			GX2140 GX2160 GF30
		P40		GC4340	KC935M KC530M	MP2501 MP3501 MS2500 MM4500						GX2030 GX2160
	M	M10	MV1030			MP2501		XCU2500 XCS2000				
		M20	MV1030 MC7020 F7030		KC925M	MP2501 MP3501 MS2500 T25M MM4500		ACP100 ACM200 XCU2500 XCS2000	T3130 T3225	CA6535		AX2040 GX2140
		M30	MV1030 MC7020 F7030	GC2040	KC930M	MP2501 MP3501 MS2500 T25M MM4500	IC5820	ACP100 XCU2500 ACM200 XCS2000	T3130 T3225	CA6535		AX2040 GX2140 GX2160 GX30
		M40			KC930M KC935M	MP3501 MM4500						GX2160
	K	K10	MV1020 MV1030 MC520 MC5020		KCK15	MK1500		XCK2000 ACK2000	T1215 T1115	CA420M	JC605W	GX2120
		K20	MV1020 MV1030 MC520 MC5020	GC3330 K20W	KC915M	MK1500 MP1501	IC5100	ACK2000 XCU2500 XCK2000 ACK200	T1115		JC605W	GX2120
		K30	MV1030	GC3330 GC3040	KC920M KC925M KCPK30 KC930M KC935M	MK1500 MP1501 MP2501 MP3501	IC5100 DT7150					
		K40				MP3501						
	S	Ni				MS2500 MP3501		XCS2000		CA6535		
		Ti		S40T		MP3501						

Note 1) The tables above are based on published data and not authorized by each manufacturer.

PVD COATED GRADE

	ISO Classification	ISO Symbol	Mitsubishi Materials	Sandvik	Kennametal	Seco Tools	Iscar	Sumitomo Electric	Tungaloy	Kyocera	Dijet	MOLDINO
Turning	P	P10	VP10MF MS6015	GC1125	KCU10 KCU10B KC5010 KC5510	CP200 TS2000	IC250 IC807 IC907 IC908		AH710	PR1705 PR930 PR1025 PR1115 PR1225 PR1725 PR2025		
		P20	VP10RT VP20RT VP15TF VP20MF MS6015	GC1125	KCS10 KCU10 KCU10B KC5025 KC5525	TS2500	IC1007 IC250 IC308 IC807 IC808 IC907 IC908 IC1008 IC1028 IC3028		AH725 AH120 J740 SH730 SH725 SH7025	PR930 PR1025 PR1725 PR1115 PR1225 PR1425 PR1535 PR2025		IP2000
		P30	VP10RT VP20RT VP15TF VP20MF MS7025	GC1125	KCU25 KC5525	CP500	IC228 IC250 IC328 IC330 IC354 IC528 IC1008 IC1028	AC1030U AC530U	AH725 AH120 SH730 GH730 GH130 AH740 J740 SH725 AH7025 SH7025	PR1025 PR1725 PR1225 PR1425 PR1535 PR1625 PR2025		IP3000
		P40				CP500 CP600	IC228 IC328 IC528 IC928 IC1008 IC1028		AH740	PR1535		
	M	M01				CP200 TS2000				PR1725	JC5003	
		M10	VP10MF	GC1115 GC1125 GC1105	KCS10 KCU10 KCU10B KC5010	CP200 TS2000 TS2500	IC354 IC807 IC907 IC1007		AC8005 AH630 AH6225	PR1025 PR1225 PR930 PR1725 PR120S	JC5003 JC8015 JC5015	IP050S
		M20	VP10RT VP20RT VP15TF VP20MF MS7025 MS9025	GC1115 GC1125	KCU25 KC5025 KCU10 KCU10B KC5010 KCS10	TS2500 CP500 CP600	IC354 IC808 IC908 IC1008 IC1028	AC1030U AC530U AC6040M	AH725 AH120 SH730 AH630 SH725 AH8015 AH7025 AH6225 SH7025	PR1025 PR1225 PR930 PR1535 PR1725 PR120S	JC5015 JC8015 JC5118	IP100S
		M30	VP10RT VP20RT VP15TF VP20M VP20MF MS7025 MP7035	GC1125 GC2035	KC5025 KCU25	CP500 CP600	IC228 IC250 IC328 IC1008 IC1028	AC530U AC1030U AC6040M	AH725 AH120 SH730 J740 AH645 SH725 AH6235 SH7025	PR1025 PR1725 PR1535 PR1225 PR120S PR2035	JC5118	
		M40	MP7035	GC2035		CP600	IC328 IC928 IC1008 IC1028	AC530U AC6040M AC1030U	AH645 AH6235	PR1535 PR1225		
	K	K10		GC15	KCU10 KCS10 KC5010 KC5510	CP200 TS2000	IC350 IC1008		GH110 AH110			
		K20	VP10RT VP20RT VP15TF		KCU15 KCU25	CP200 TS2000 TS2500	IC228 IC808 IC830 IC908 IC1007 IC1008	AC1030U AC530U	AH7025 AH120			
		K30	VP10RT VP20RT VP15TF		KCU25 KC5525	CP500	IC228 IC350 IC808 IC830 IC908 IC928 IC1007 IC1008		AH120 GH130			
	S	S01	MP9005 VP05RT	GC1105 GC1205		TH1000	IC804 IC807 IC907	AC510U AC5005S AC5015S AC5005S	AH8005	PR005S PR015S	JC5003 JC8015 JC5015	JP9105
		S10	MP9005 MP9015 VP10RT	GC1105 GC1205 GC1115 GC1210	KCU10 KCU10B KC5010 KCS10 KCS10B	CP200 TS2000 TS2050 TS2500 TH1000	IC806 IC807	AC510U AC520U AC5015S AC5025S	AH8005 AH8015	PR005S PR015S PR115S	JC5003 JC5015 JC8015	JP9115
		S20	MP9015 MT9015	GC1115 GC1125	KCU10 KCU10B KCU25 KC5025 KCS10 KC5010 KCS10B	TS2000 TS2500 CP200	IC228 IC328 IC808 IC908 IC928 IC806	AC520U AC5015S AC5025S	AH7025 AH8015	PR015S PR1535 PR115S	JC5015 JC5118	
		S30	MP9025 VP15TF VP20RT	GC1125	KCU25 KC5025	CP600	IC928 IC830	AC1030U	AH630 AH7025	PR1535 PR120S	JC5118	
Milling	P	P01							AH710 AH110		JC8003	ATH80D JP4105
		P10		GC1010 GC1130	KC505M KC715M KC510M KC515M		IC250 IC350 IC808 IC810 IC910 IC950	ACU2500 ACP200	AH120 AH725	PR830 PR1225 PR1825	JC8003 JC8015 JC5015 JC5118	PN15M PN215 PCA12M JP4115
		P20	MP6120 VP15TF	GC1010 GC1030 GC1130 GC2030	KC522M KC525M KC527M KC610M KC620M KC635M KC715M KC730M KTPK20	F25M MP3000	IC250 IC328 IC330 IC350 IC808 IC810 IC830 IC910 IC928 IC950	ACU2500 ACP200	AH3135 AH3225 AH725 AH120 AH9130 AH6030 AH9030	PR830 PR1225 PR1230 PR1525 PR1825	JC5015 JC8015 JC5118	CY9020 JP4120 CY150

Note 1) The tables above are based on published data and not authorized by each manufacturer.

GRADES COMPARISON TABLE

PVD COATED GRADE

	ISO		Mitsubishi Materials	Sandvik	Kennametal	Seco Tools	Iscar	Sumitomo Electric	Tungaloy	Kyocera	Dijet	MOLDINO
	Classification	Symbol										
Milling	P	P30	**MP6120 VP15TF MP6130 VP30RT**	GC1010 GC1030 GC2030 GC1130	KC735M KC725M KC530M KCPM40	F25M MP3000 F30M MP2050	IC250 IC300 IC330 IC350 IC830 IC845 IC928 IC950	ACU2500 ACP200 ACP300	AH725 AH130 AH140 AH3035 AH6030 AH3225 AH9130	PR1230 PR1525 PR1825	JC8050 JC5040 JC5118	JS4045 CY250 CY250V CY25 HC844
		P40	**VP30RT**	GC2030 GC1030 GC1130	KC735M KCPM40	F40M T60M	IC328 IC330 IC830 IC928	ACP300	AH140 AH3035	PR1525	JC8050 JC5040	JS4060 PTH30E PTH40H JS4060
	M	M01					IC907					PN08M PN208
		M10		GC1025 GC1030 GC1010 GC1130	KC715M KC515M		IC903	ACU2500 ACM100	AH725	PR1225		PN15M PN215
		M20	**VP15TF MP7130 MP7030 VP20RT**	GC1025 GC1030 GC1040 GC2030 S30T	KC610M KC635M KC730M KC522M KC525M KCPM40 KTPK20	F25M MP3000	IC250 IC808 IC830 IC928	ACU2500 ACP200	AH725 AH6030 AH130 AH330 AH9130	PR1025 PR1225	JC5015 JC5118 JC8015	JP4120
		M30	**VP15TF MP7130 MP7030 VP20RT VP30RT MP7140**	S30T GC1040 GC2030	KC725M KC735M KCPM40 KC530M	F30M F40M MP3000 MP2050	IC250 IC328 IC330 IC380 IC830 IC882 IC928	ACP300 ACM300 ACK300	AH130 AH140 AH730 AH3135 AH4035 AH9130	PR830 PR1225 PR1525 PR1535 PR1835	JC5015 JC8015 JC8050 JC5118	JS4045 CY250
		M40	**MP7140 VP30RT**			F40M MP2050	IC250 IC328 IC330 IC882	ACP300 ACM300	AH140 AH3135 AH4035	PR1535 PR1835	JC8050	PTH30E PTH40H JM4160
	K	K01	**MP8010**						AH110 AH330		JC8003	ATH80D ATH08M TH308
		K10	**MP8010**	GC1010	KCKP10 KC514M KC515M KC527M KC635M KCK20B	MK2050	IC350 IC810 IC830 IC900 IC910 IC928 IC950 IC380	ACU2500 ACK3000	AH110 AH725 AH120 AH330	PR1210 PR1510 PR1810	JC8015	ATH10E TH315 CY100H
		K20	**VP15TF VP20RT**	GC1010 GC1020	KTPK20 KC514M KC610M KC520M KC620M KC524M KCK20B	MK2000 MK2050	IC350 IC808 IC810 IC830 IC910 IC928 IC950	ACU2500 ACK300 ACK3000	AH120 AH9130 AH9030	PR1210 PR1510 PR1810	JC5015 JC8015	CY150 JP4120 CY9020 PTH13S
		K30	**VP15TF VP20RT**	GC1020	KC522M KC725M KC524M KC735M	MK2050	IC350 IC808 IC830 IC928 IC950	ACK300 ACK3000	AH120		JC5080 JC5015 JC8015	CY250 JS4045
	S	S01					IC907 IC808		AH110 AH710	PR1210	JC8003 JC8015 JC5118	PN08M PN208
		S10	**MP9120 VP15TF**	GC1130 GC1010 GC1030 GC2030	KC505M KC510M	MS2050	IC907 IC840 IC910 IC808	EH520Z EH20Z ACM100	AH120 AH725	PR1210	JC8003 JC5015 JC8015 JC5118 DS118	JS1025 JP4120
		S20	**MP9120 VP15TF MP9130 MP9030**	S30T GC2030 GC1030 GC1130	KC522M KC525M KCSM30 KCPM40	MS2050 MP2050	IC808 IC830 IC928 IC328 IC330 IC840 IC882 IC380	EH520Z EH20Z ACK300 ACP300	AH725 AH6030 AH130	PR1535	JC8015 JC5015 JC8050 JC5118 DS150	PTH30H
		S30	**MP9140**	GC2030 GC1040	KC725M KCPM40	MS2050 F40M KCSM40	IC830 IC882 IC928	ACP300 ACM300	AH130 AH3135	PR1535	JC8050 JC5118	JM4160
	H	H01	**MP8010 VP05HT**						AH110 AH710		JC8003	
		H10	**VP15TF VP10H**	GC1130 GC1010 GC1030	KC505M KC510M	MH1000 F15M	IC808 IC907		AH110 AH120 AH710		JC6102 JC8008	JP4105 TH303 TH308 PTH08M ATH08M ATH80D
		H20	**VP15TF**	GC1030 GC1130		F15M	IC808 IC380		AH120 AH3135 AH725 AH9030		JC8015 JC5118	JP4115 TH315
		H30				MP3000 F30M	IC380		AH3135			JP4120

Note 1) The tables above are based on published data and not authorized by each manufacturer.

PCBN

	ISO Classification	ISO Symbol	Mitsubishi Materials	Sandvik	Seco Tools	Iscar	Sumitomo Electric	Tungaloy	Kyocera
Turning	H	H01	**BC8105 BC8210 BC8110 MB8110**	CB7105 CB7015	CBN010 CBN060K CH0550	IB50 IB10H IB10HC	BNC2105 BNC2115 BNC2010 BN1000	BXA10 BXM10 BX310	KBN05M KBN010 KBN510
		H10	**BC8110 BC8210 BC8120 BC8220 MB8110 MB8120**	CB7115 CB7125 CB7025 CB20	CBN010 CBN060K CBN150 CH2540 CH1050	IB50 IB10H IB10HC IB55 IB20H IB25HA	BNC2115 BNC2125 BNC2010 BNC2020 BN2000	BXA10 BXA20 BXM10 BX330 BX530	KBN010 KBN020 KBN05M KBN25M KBN525
		H20	**BC8220 BC8120 MB8120**	CB7125 CB7025 CB50	CBN150 CBN160C CH2540 CH2581	IB20H IB25HA IB90 IB25HC	BNC2020 BNC2125 BN2000	BXM20 BXA20 BX360	KBN020 KBN25M
		H30	**BC8130 MB8130**	CB7135 CB7525	CBN160C CH3515	IB90 IB25HC	BNC300 BN350	BXC50 BX380 BR35F	KBN35M
	S	S01	**MB4120**		CBN170	IB05S	BN7125 BN7000 NBC100	BX815	
		S10				IB05S IB10S	BNS8125		
		S20				IB10S	BNS8125		
		S30							
	K	K01	**BC5110 MB5015**	CB50	CBN400C	IB50 IB55 IB85	BN7125 BNC500 BN500	BX910 BX930	KBN475 KBN60M
		K10	**MB4120**	CB7525	CBN300 CBN300 P CBN200	IB50 IB55 IB85	BN7125 BN500	BX480	KBN475 KBN60M
		K20	**MB4120**		CBN200		BN7125 BNC8115 BNS8125	BX480	KBN60M
		K30	**BC5030 MBS140**	CB7925	CBN500		BNS800 BNC8115 BNC8125	BXC90 BX90S	KBN900
	Sintered Alloy		**MB4120**		CBN200	IB05S IB10S	BN7115 BN7125	BX470 BX480	KBN570 KBN70M

PCD

	ISO Classification	ISO Symbol	Mitsubishi Materials	Sandvik	Seco Tools	Iscar	Sumitomo Electric	Tungaloy	Kyocera
Turning	N	N01	**MD205***	CD05	PCD30 PCD30M	ID5	DA90	DX180 DX160	KPD230
		N10	**MD220**	CD10 CD1810	PCD10	ID5	DA150	DX160 DX140	KPD010 KPD230
		N20	**MD220**		PCD20		DA2200 DA1000	DX140 DX110	KPD010
		N30	**MD230* MD2030**		PCD05		DA2200 DA1000	DX120 DX110	KPD001

***Non stock, produced to order only.**

Note 1) The tables above are based on published data and not authorized by each manufacturer.

INSERT CHIPBREAKER COMPARISON TABLE

NEGATIVE INSERT TYPE

ISO Classification	Cutting Mode	Mitsubishi Materials	Sandvik	Kennametal	Seco Tools	Sumitomo Electric	Tungaloy	Kyocera	MOLDINO	Walter	TaeguTec
P	Finish	FH, FP FY, FS	 LC	FF, FPS	FF1, FF2	FA, FB FL, FE	01* TF, 11 ZF	GP, PP, VF XP, XF	FE	FP5	FLP, FS FA FX
	Light	LP SA, SH	XF PF MF	FV K LF, FN	 MF2	SU, LU SX, SE	PS NS, 27, TS TSF, AS, TQ	PQ HQ, CQ	 BE B, BH, CE	MP3	FM FG
	Light (Mild Steel)	SY					17	XQ, XS			FC
	Light (With Wiper)	SW	WL, WF	FW, FWS	W-FF2 W-MF2	LUW, SEW	FW, SW AFW, ASW	WF WP, WQ		FW5	WS, WA
	Medium	MP MA MH	PM, PMC QM, XM XMR	MV MP, P MN	MF3 MF5, M3 M5	GU UG GE, UX	PM, NM, ZM TA, TM, AM, 28 DM, 33, 37, 38	PMG, PG, CJ GS, PS PT	CT, AB AH, AR AY, AE	MP5 MU5	PC, MP, FT MT MGP
	Medium (With Wiper)	MW	WMX, WM WR	MW, RW	W-M6, W-M3 W-MF5	GUW		WE		MW5	WT
	Rough	RP GH Std.	PR, HM Std.	RN, RP	M6, MR6, MR7	MU, MX, ME UZ	TH, THS Std.	PH GT Std.	RE Y	RP5, RP7	RGP RT Std.
	Heavy	HZ HL, HM, HX HV	QR, PR HR, MR	MR, RP RM RH	R4, R5 R57, RR6, R7 R68, RR9	MP HG, HP HU, HW, HF	TRS, 57 TU TUS, 65	PX	 HX HE, H	HU3 HU5 HU7	RX, RH HD, HY, HT HZ, EH
M	Finish Light	SH, LM	XF, MF	FF, FP LF*	FF1, FF2 MF1	SU, EF	SS	MQ, SK*	MP, AB, BH	FM5	SF
	Medium	MS, GM MM, MA ES	MM, MMC QM, XM K	MS, MP UP	MF3 MF4 MF5, M3	EX, EG, UP GU HM	SA, SF SM S	MS, MU TK ST	PV, DE, SE AH	MM5, RM5 MU5	ML EM, MM VF
	Heavy	GH, RM HL, HZ	MR, MRR MR, MRR	MR, RP	M5, M6, R6 R56, RR6, R7 R8, RR9	EM, MU MP	TH, SH		AE	HU5	
K	Finish Light	LK, MA	KF	FN	MF2 M3, M4		CF	KQ	VA, AH	MK5	FG
	Medium	MK, GK Std.	KM	RP, UN	M5	UZ, GZ, UX	CM Std.	KG, Std., C	V, AE	RK5, MV7	MC
	Rough	RK	KR, KRR		MR7			KH, GC, PH	RE	RK7	KT
	Heavy	Flat top		Flat top	MR9 Flat top	Flat top	CH, Flat top	ZS, Flat top	Flat top	Flat top	
S	Finish	FS*, FJ*	SF	FS*, FF, FP	MF1	EF		MQ, SK*		FM5	FA
	Light	LS, MJ, MJ*	SGF*	LF*, MS, FN	MF3	SU*	HRF			NFT MS3	EA, SF
	Medium	MS MA	SM QM, SMC	UP, P, MP	M1 M3	EG, EX, UP	SDM, HRM, 28 SA, HMM	SQ MS, MU, TK	VI	NMS, NMT MU5	MGS, MK
	Heavy	RS, GJ	SMR	RP	MR3 MR4	MU		SG, SX		NRS, NRT HU5	ET

*Peripheral ground type insert.
Note 1) The tables above are based on published data and not authorized by each manufacturer.

7°POSITIVE INSERT TYPE

ISO Classification	Cutting Mode	Mitsubishi Materials	Sandvik	Kennametal	Seco Tools	Sumitomo Electric	Tungaloy	Kyocera	MOLDINO	Walter	TaeguTec
P	Finish	FS-P* SMG*	UM*	LF*		FF* FC*	JP* JS*, 01*	CF*, GF* SKS*		FL2* FP2*	SL* SA*
	Finish Light	FP, FV LS-P* LP, SV	PF, UF	UF, 11, FPS LFS* LF, FP	FF1 F1, MF2	FB, FP, LU SI*, SL*, SC* LB, SU	PF, PSF PS, PSS, TSF	GP, PP, VF GQ*, SK*, CK* XP	JQ	FP4	FA, FX SM, FG
	Light (With Wiper)	SW	WF	FW, FWS	W-F1	LUW		WP		FW4	
	Medium	MV MP, Std.	PM, UM PR, UR, PMC	MF, MP, MPS	M3 F2, M5	GU MU	TM, 23 PM, 24	HQ, MF* XQ, GK	JE	FP6, MP4, MP6 RP4	PC, FM SH*, MT
	Medium (With Wiper)	MW	WM	MW, MWS	W-MF2 W-M3		SW			MW4	WT
M	Finish Light	FS-P*, FM LS-P* LM	MF, UF	FFS*, LFS* LF, UF FP	F1, F2 MF2	FF*, FC*, LU SI* SL*, SC* LB, SU	JP* PF, PSF PS, PSS	CF*, GF*, SKS* GQ*, SK*, CK* MQ*	MP	FM2* FM4, FL2*	FA FG, FM
	Medium	MM Std.	MM, UM, MMC MR, UR	MP	M3 M5	GU, MU	PM	HQ, GK		FM6 MM4, RM4	PC MT
K	Medium	MK, Std. Flat top	KF, KM, UM, KR	Flat top	F1, M3, M5	MU, Flat top*	Flat top, CM	Flat top*		FK6, MK4 RK4, RK6	MT
N	Medium	AZ*	AL*	HP*	AL*	AG*	AL*	AP* AH*		FN2* MN2*	FL*
S	Finish Light	FS*, LS* FS-P*, LS-P* FJ* LS, MS	UM* UF, MF UM, MM, SMC	FFS*, LFS* LF* HP*		FF* SI* GU	Std.	CF*, GF*, SKS* GQ*, SK*, CK* MQ*		FM2*, FM4, FM6 MM4, RM4	SA*, FA, FG SL*, SM* SH*, PC, MT

*Peripheral ground type insert.
Note 1) The tables above are based on published data and not authorized by each manufacturer.

11°POSITIVE INSERT TYPE

ISO Classification	Cutting Mode	Mitsubishi Materials	Sandvik	Kennametal	Seco Tools	Sumitomo Electric	Tungaloy	Kyocera	MOLDINO	Walter	TaeguTec
P	Finish Light	FV, SMG* SV	PF	UF, FP FW, LF, K		SI, FK, FB LU, LUW, LB SU,SF	01* PF, PSF PS, PSS, TSF	PP, GP, GF* SKS*, CF*, CK* PF*, XP	JQ	FP2* FP4	FG
	Medium	MV	PM, UM	MF MP, MW		GU, MU, US, SS	PM TM, 23 24	HQ XQ	JE	MP4	
M	Finish Light	SMG* SV	MF	HP* LF		SU	SS* PF, PS	GF*, CK* PF*, GP, CF* SKS*	MP	FP2* FM4	
	Medium	MV	MM			GU, MU, US	PM, Std.	HQ		MM4	PC, FM

*Peripheral ground type insert.
Note 1) The tables above are based on published data and not authorized by each manufacturer.

Memo

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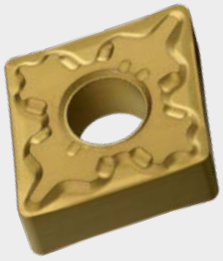

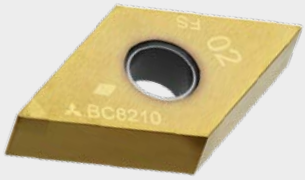

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A○○○PWLNR/L06	P type boring bar	E040
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BF-CCGT○○○○○○○○2	Insert (Class G tolerance)	B038
BF-CNGM○○○○○○○○WS2	Insert (Class G tolerance)	B024
BF-CNGM○○○○○○○○2	Insert (Class G tolerance)	B024
BF-DCGT○○○○○○○○2	Insert (Class G tolerance)	B041
BF-DNGM○○○○○○○○2	Insert (Class G tolerance)	B028
BF-DNGM○○○○○○○○WS2	Insert (Class G tolerance)	B028
BM-CCGT○○○○○○○○2	Insert (Class G tolerance)	B038
BM-CNGM○○○○○○○○2	Insert (Class G tolerance)	B024
BM-DCGT○○○○○○○○2	Insert (Class G tolerance)	B041
BM-DNGM○○○○○○○○2	Insert (Class G tolerance)	B028
BM-TNGM○○○○○○○○3	Insert (Class G tolerance)	B031
BOES101	Set bolt	N008
BR-CNGM○○○○○○○○2	Insert (Class G tolerance)	B024
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BRS○○○	Clamp screw	N003
BTAHR/L○○○○-50	Small tools holder (External back turning)	D014
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BTBT○○○○○○○R-SMB	Insert for external back turning	D015
BTBT606000R/L	Insert for external back turning	D015
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BTVT○○○○○○R-B	Insert for external back turning	D016
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C○○-○○SCLCR/L○○-○○○	BORING BAR (Carbide shank)	E047
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C○○-○○SCLPR/L○○-○○○-C	BORING BAR (Carbide shank)	E048
C○○-○○SDQCR/L○○-○○○-C	BORING BAR (Carbide shank)	E053
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C○○-○○STUCR/L○○-○○○	BORING BAR (Carbide shank)	E049
C○○-○○STUCR/L○○-○○○-C	BORING BAR (Carbide shank)	E050
C○○-○○STUPR/L○○-○○○-C	BORING BAR (Carbide shank)	E051
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C○○-○○SWUCR/L○○-○○○-C	BORING BAR (Carbide shank)	E054
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CB○○RS	MICRO-MINI TWIN	E021
CB○○RS-○○	MICRO-MINI TWIN	E021
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CCGH○○○○○○MR/L-F	Insert (Class G tolerance)	A141
CCGH○○○○○○R/L-F	Insert (Class G tolerance)	A141
CCGT○○○○○○-AZ	Insert (Class G tolerance)	A141
CCGT○○○○○○-FJ	Insert (Class G tolerance)	A141
CCGT○○○○○○L-F	Insert (Class G tolerance)	A141
CCGT○○○○○○-LS	Insert (Class G tolerance)	A142
CCGT○○○○○○M-FS	Insert (Class G tolerance)	A140
CCGT○○○○○○M-FS-P	Insert (Class G tolerance)	A140
CCGT○○○○○○M-LS	Insert (Class G tolerance)	A142
CCGT○○○○○○M-LS-P	Insert (Class G tolerance)	A143
CCGT○○○○○○MR/L-F	Insert (Class G tolerance)	A141
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CCGT○○○○○○MR/L-SS	Insert (Class G tolerance)	A143
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CCGT○○○○○○R/L-SS	Insert (Class G tolerance)	A143
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CCGW○○○○○○	Insert (Class G tolerance)	A148
CCK○○	Clamp bridge	N014
CCMH○○○○○○-MV	Insert (Class M tolerance)	A145
CCMH○○○○○○-SV	Insert (Class M tolerance)	A143
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CCMT○○○○○○-FM	Insert (Class M tolerance)	A140
CCMT○○○○○○-FP	Insert (Class M tolerance)	A140
CCMT○○○○○○-FS	Insert (Class M tolerance)	A140
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CCMT○○○○○○-LP	Insert (Class M tolerance)	A142
CCMT○○○○○○-LS	Insert (Class M tolerance)	A142
CCMT○○○○○○-MK	Insert (Class M tolerance)	A144
CCMT○○○○○○-MM	Insert (Class M tolerance)	A144
CCMT○○○○○○-MP	Insert (Class M tolerance)	A144

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CCMT○○○○○○-MS	Insert (Class M tolerance)	A145
CCMT○○○○○○-MW	Insert (Class M tolerance)	A145
CCMT○○○○○○-SW	Insert (Class M tolerance)	A143
CCMW○○○○○○	Insert (Class M tolerance)	A147, B053
CCP○○	Shim pin	N013
CCTC1	Clamp bridge	N014
CG○○RS-○○○	MICRO-MINI TWIN	F134
CG○○○○RS-○○○	MICRO-MINI TWIN	F134
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C○-GYHER/LM90-M25R/L	GY PSC holder	F096
CK○○○	Clamp bridge	N014
CKW6	Clamp bridge	N015
CNGA○○○○○○	Insert (Class G tolerance)	B024
CNGG○○○○○○-FJ	Insert (Class G tolerance)	A098
CNGG○○○○○○-FS	Insert (Class G tolerance)	A098
CNGG○○○○○○-LS	Insert (Class G tolerance)	A099
CNGG○○○○○○-MJ	Insert (Class G tolerance)	A100
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CNMG○○○○○○-FP	Insert (Class M tolerance)	A098
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CNMG○○○○○○-GH	Insert (Class M tolerance)	A103
CNMG○○○○○○-GJ	Insert (Class M tolerance)	A103
CNMG○○○○○○-GK	Insert (Class M tolerance)	A101
CNMG○○○○○○-GM	Insert (Class M tolerance)	A101
CNMG○○○○○○-LK	Insert (Class M tolerance)	A099
CNMG○○○○○○-LM	Insert (Class M tolerance)	A099
CNMG○○○○○○-LP	Insert (Class M tolerance)	A098
CNMG○○○○○○-LS	Insert (Class M tolerance)	A099
CNMG○○○○○○-MA	Insert (Class M tolerance)	A101
CNMG○○○○○○-MH	Insert (Class M tolerance)	A102
CNMG○○○○○○-MJ	Insert (Class M tolerance)	A099
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CNMG○○○○○○-MP	Insert (Class M tolerance)	A100
CNMG○○○○○○-MS	Insert (Class M tolerance)	A101
CNMG○○○○○○-MW	Insert (Class M tolerance)	A102
CNMG○○○○○○-RK	Insert (Class M tolerance)	A103
CNMG○○○○○○-RM	Insert (Class M tolerance)	A103
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CNMG○○○○○○-SW	Insert (Class M tolerance)	A099
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CPMB○○○○○○	Insert (Class M tolerance)	A151
CPMH○○○○○○	Insert (Class M tolerance)	A151
CPMH○○○○○○-FM	Insert (Class M tolerance)	A149
CPMH○○○○○○-FP	Insert (Class M tolerance)	A149
CPMH○○○○○○-FS	Insert (Class M tolerance)	A149
CPMH○○○○○○-FV	Insert (Class M tolerance)	A149
CPMH○○○○○○-LM	Insert (Class M tolerance)	A150
CPMH○○○○○○-LP	Insert (Class M tolerance)	A150
CPMH○○○○○○-LS	Insert (Class M tolerance)	A150
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CPMH○○○○○○-MM	Insert (Class M tolerance)	A151
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MK1KS	Anti seize lubricant	N017
MLCP42	Shim	N011
MLDP42	Shim	N011
MLSP42	Shim	N011
MLTP32	Shim	N011
MMT○○ER○○○○○○○○○	Insert (For MMTE holder)	G020─G023
MMTER○○○○○○○-C	MMTE holder	G019
MMT○○IR○○○○○○○○○	Insert (For MMTI boring bar)	G027─G030
MMTIR○○○○A○○○-○○○○	MMTI boring bar	G026
MP6	Shim pin	N013
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MSCN63	Shim	N011
MSSNR○○○○○19	DOUBLE CLAMP holder	C014
MSSN63	Shim	N011
MTENN○○○○○○○N	WP holder	C018
MTHR/L○○○○○○	MT holder	G024
MTJNR/L○○○○○○○N	WP holder	C017
MTK○R/L	Clamp bridge	N015
MTQNR/L○○○○○○N	WP holder	C018
MTTR/L○○○○○○	Insert (For MT holder/ D type boring head)	G025, H018
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MWLNR/L○○○○○08	WP holder	C023

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NP-CCGW○○○○○○G/FS	Insert (Class G tolerance)	B038
NP-CCGW○○○○○○○W○2	Insert (Class G tolerance)	B038
NP-CCGW○○○○○○○○2	Insert (Class G tolerance)	B037
NP-CCMH○○○○○○	Insert (Class M tolerance)	B053
NP-CCMW○○○○○○	Insert (Class M tolerance)	B053
NP-CNGA○○○○○○○○W○2	Insert (Class G tolerance)	B023
NP-CNGA○○○○○○○○W○4	Insert (Class G tolerance)	B022
NP-CNGA○○○○○○○○2	Insert (Class G tolerance)	B023
NP-CNGA○○○○○○○○4	Insert (Class G tolerance)	B022
NP-CNMM○○○○○○R-F	Insert (Class M tolerance)	B049
NP-CPGB○○○○○○○○2	Insert (Class G tolerance)	B039
NP-CPMH○○○○○○	Insert (Class M tolerance)	B053
NP-DCGW○○○○○○○○2	Insert (Class G tolerance)	B040
NP-DCMT○○○○○○R/L-F	Insert (Class M tolerance)	B054
NP-DNGA○○○○○○○○2	Insert (Class G tolerance)	B026
NP-DNGA○○○○○○○○4	Insert (Class G tolerance)	B025
NP-DNGA○○○○○○G○WS2JR/L	Insert (Class G tolerance)	B028
NP-DNMM○○○○○○R-F	Insert (Class M tolerance)	B050
NP-SNGA○○○○○○○○2	Insert (Class G tolerance)	B029
NP-SNMM○○○○○○R-F	Insert (Class M tolerance)	B050
NP-SPGN120412GS2	Insert (Class G tolerance)	B047
NP-TCGW○○○○○○○○3	Insert (Class G tolerance)	B042
NP-TNGA○○○○○○○○3	Insert (Class G tolerance)	B030
NP-TNGA○○○○○○○○6	Insert (Class G tolerance)	B030
NP-TNMM○○○○○○R-F	Insert (Class M tolerance)	B051
NP-TPGB○○○○○○○○3	Insert (Class G tolerance)	B043
NP-TPMH○○○○○○R/L-F	Insert (Class M tolerance)	B056
NP-TPMX○○○○○○R/L-F	Insert (Class M tolerance)	B056
NP-VBGT○○○○○○R-F	Insert (Class G tolerance)	B057
NP-VBGW○○○○○○○○2	Insert (Class G tolerance)	B045
NP-VCGT○○○○○○R-F	Insert (Class G tolerance)	B057
NP-VCGW○○○○○○○○2	Insert (Class G tolerance)	B046
NP-VNGA○○○○○○○○2	Insert (Class G tolerance)	B032
NP-VNGA○○○○○○○○4	Insert (Class G tolerance)	B032
NP-VNMM○○○○○○R-F	Insert (Class M tolerance)	B052
NP-WNGA080408GSWS3	Insert (Class G tolerance)	B034
NP-WNGA○○○○○○○○3	Insert (Class G tolerance)	B034
NP-WNGA○○○○○○○○6	Insert (Class G tolerance)	B034
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PDJNR/L○○○○○15	LL holder	C010
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PS○○	Shim	N010
PSBNR/L○○○○○○○	LL holder	C012
PSDNN○○○○○○○	LL holder	C014
PSKNR/L○○○○○○○	LL holder	C015
PSSNR/L○○○○○○○	LL holder	C013
PSTNR/L○○○○○○○	LL holder	C013
PT○○	Shim	N010
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TPMH○○○○○○-FS	Insert (Class M tolerance)	A170
TPMH○○○○○○-FV	Insert (Class M tolerance)	A170
TPMH○○○○○○-LK	Insert (Class M tolerance)	A172
TPMH○○○○○○-LM	Insert (Class M tolerance)	A172
TPMH○○○○○○-LP	Insert (Class M tolerance)	A171
TPMH○○○○○○-LS	Insert (Class M tolerance)	A172
TPMH○○○○○○-MV	Insert (Class M tolerance)	A173
TPMH○○○○○○-SV	Insert (Class M tolerance)	A172
TPMN○○○○○○	Insert (Class M tolerance)	A191, L045
TPMN220408T	Insert (Class M tolerance)	A191, L045
TPMR○○○○○○	Insert (Class M tolerance)	A191
TPMR○○○○○○-FV	Insert (Class M tolerance)	A190
TPMR○○○○○○-LM	Insert (Class M tolerance)	A190
TPMR○○○○○○-LP	Insert (Class M tolerance)	A190
TPMR○○○○○○-MK	Insert (Class M tolerance)	A191
TPMR○○○○○○-MM	Insert (Class M tolerance)	A191
TPMR○○○○○○-MP	Insert (Class M tolerance)	A190
TPMR○○○○○○-80	Insert (Class M tolerance)	A190
TPMX○○○○○○	Insert (Class M tolerance)	A173
TPMX○○○○○○L	Insert (Class M tolerance)	A171
TPMX○○○○○○-SW	Insert (Class M tolerance)	A173
TPS○	Clamp screw	N007
TPS○○	Clamp screw	N007
TPS○○○	Clamp screw	N007
TPS○○○○	Clamp screw	N007
TPS○○○-1	Clamp screw	N007
TS○	Clamp screw	N006
TS○○	Clamp screw	N006
TS○○○	Clamp screw	N006
TS○○○○	Clamp screw	N006
TSS○○○○○	Radial screw	N007
TSS○○○○○S	Clamp screw	N007
TTAHR/L○○○○	Small tools holder (External threading)	D024
TTAT○○○○○○○○○○-B	Insert for external threading	D024

V

Order Number	PRODUCT NAME	Page
VBET○○○○○○R/L-SN	Insert (Class E tolerance)	A176
VBET○○○○○○R/L-SR	Insert (Class E tolerance)	A176
VBET○○○○○○R/LW-SN	Insert (Class E tolerance)	A176
VBGT○○○○○○R/L-F	Insert (Class G tolerance)	A174
VBMT○○○○○○-FM	Insert (Class M tolerance)	A174
VBMT○○○○○○-FP	Insert (Class M tolerance)	A174
VBMT○○○○○○-FS	Insert (Class M tolerance)	A174
VBMT○○○○○○-FV	Insert (Class M tolerance)	A174
VBMT○○○○○○-LM	Insert (Class M tolerance)	A175
VBMT○○○○○○-LP	Insert (Class M tolerance)	A175
VBMT○○○○○○-LS	Insert (Class M tolerance)	A175
VBMT○○○○○○-MK	Insert (Class M tolerance)	A175
VBMT○○○○○○-MM	Insert (Class M tolerance)	A175
VBMT○○○○○○-MP	Insert (Class M tolerance)	A175
VBMT○○○○○○-MS	Insert (Class M tolerance)	A175
VBMT○○○○○○-MV	Insert (Class M tolerance)	A175
VBMT○○○○○○-SV	Insert (Class M tolerance)	A175
VBMW160408	Insert (Class M tolerance)	A176
VCET○○○○○○MR/L-SRF	Insert (Class E tolerance)	A178
VCGT○○○○○○-AZ	Insert (Class G tolerance)	A177
VCGT○○○○○○M-FS-P	Insert (Class G tolerance)	A177
VCGT○○○○○○M-LS	Insert (Class G tolerance)	A179
VCGT○○○○○○M-LS-P	Insert (Class G tolerance)	A179
VCGT○○○○○○R/L-F	Insert (Class G tolerance)	A178
VCGW1103○○	Insert (Class G tolerance)	B057
VCMT○○○○○○	Insert (Class M tolerance)	A179
VCMT○○○○○○-FM	Insert (Class M tolerance)	A177
VCMT○○○○○○-FP	Insert (Class M tolerance)	A177
VCMT○○○○○○-FS	Insert (Class M tolerance)	A177
VCMT○○○○○○-FV	Insert (Class M tolerance)	A177
VCMT○○○○○○-LM	Insert (Class M tolerance)	A178
VCMT○○○○○○-LP	Insert (Class M tolerance)	A178
VCMT○○○○○○-LS	Insert (Class M tolerance)	A178
VCMT○○○○○○-MK	Insert (Class M tolerance)	A179
VCMT○○○○○○-MM	Insert (Class M tolerance)	A179
VCMT○○○○○○-MP	Insert (Class M tolerance)	A179
VCMT○○○○○○-MS	Insert (Class M tolerance)	A179
VCMT○○○○○○-MV	Insert (Class M tolerance)	A180
VCMT○○○○○○-SV	Insert (Class M tolerance)	A179
VCMW○○○○○○	Insert (Class M tolerance)	A180
VDGX○○○○○○R-F	Insert (Class G tolerance)	B060
VDGX○○○○○○R/L	Insert (Class G tolerance)	A181
VNGA○○○○○○	Insert (Class G tolerance)	A130, B052
VNGG○○○○○○-FJ	Insert (Class G tolerance)	A127
VNGG○○○○○○-FS	Insert (Class G tolerance)	A127
VNGG○○○○○○-LS	Insert (Class G tolerance)	A128
VNGG○○○○○○R/L	Insert (Class G tolerance)	A130
VNGG○○○○○○R/L-F	Insert (Class G tolerance)	A127
VNGM○○○○○○-MJ	Insert (Class G tolerance)	A129
VNMA○○○○○○	Insert (Class M tolerance)	A130
VNMG○○○○○○	Insert (Class M tolerance)	A130
VNMG○○○○○○-FH	Insert (Class M tolerance)	A127
VNMG○○○○○○-FP	Insert (Class M tolerance)	A127

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VNMG○○○○○○-FS	Insert (Class M tolerance)	A127
VNMG○○○○○○-GK	Insert (Class M tolerance)	A129
VNMG○○○○○○-GM	Insert (Class M tolerance)	A129
VNMG○○○○○○-LK	Insert (Class M tolerance)	A128
VNMG○○○○○○-LM	Insert (Class M tolerance)	A128
VNMG○○○○○○-LP	Insert (Class M tolerance)	A127
VNMG○○○○○○-LS	Insert (Class M tolerance)	A128
VNMG○○○○○○-MA	Insert (Class M tolerance)	A129
VNMG○○○○○○-MH	Insert (Class M tolerance)	A130
VNMG○○○○○○-MJ	Insert (Class M tolerance)	A128
VNMG○○○○○○-MK	Insert (Class M tolerance)	A129
VNMG○○○○○○-MP	Insert (Class M tolerance)	A129
VNMG○○○○○○-MS	Insert (Class M tolerance)	A129
VNMG○○○○○○-SA	Insert (Class M tolerance)	A128
VNMG○○○○○○-SH	Insert (Class M tolerance)	A128
VNMG160408-MM	Insert (Class M tolerance)	A129
VPET○○○○○○-SRF	Insert (Class E tolerance)	A182
VPGT○○○○○○M-SMG	Insert (Class G tolerance)	A182
W		
WBGT○○○○○○R/L-F	Insert (Class G tolerance)	A183
WBMT○○○○○○R/L-MV	Insert (Class M tolerance)	A183
WCGT○○○○○○R/L	Insert (Class G tolerance)	A184
WCMT○○○○○○	Insert (Class M tolerance)	A184
WCMT○○○○○○-FV	Insert (Class M tolerance)	A184
WCMT○○○○○○-MP	Insert (Class M tolerance)	A184
WCMW06T304	Insert (Class M tolerance)	B058
WCS○○○○○○H	Shim screw	N007
WNMA○○○○○○	Insert (Class M tolerance)	A135
WNMG○○○○○○	Insert (Class M tolerance)	A134
WNMG○○○○○○-FH	Insert (Class M tolerance)	A131
WNMG○○○○○○-FP	Insert (Class M tolerance)	A131
WNMG○○○○○○-FS	Insert (Class M tolerance)	A131
WNMG○○○○○○-FY	Insert (Class M tolerance)	A131
WNMG○○○○○○-GH	Insert (Class M tolerance)	A135
WNMG○○○○○○-GJ	Insert (Class M tolerance)	A135
WNMG○○○○○○-GK	Insert (Class M tolerance)	A133
WNMG○○○○○○-GM	Insert (Class M tolerance)	A134
WNMG○○○○○○-LK	Insert (Class M tolerance)	A132
WNMG○○○○○○-LM	Insert (Class M tolerance)	A131
WNMG○○○○○○-LP	Insert (Class M tolerance)	A131
WNMG○○○○○○-LS	Insert (Class M tolerance)	A132
WNMG○○○○○○-MA	Insert (Class M tolerance)	A134
WNMG○○○○○○-MH	Insert (Class M tolerance)	A134
WNMG○○○○○○-MJ	Insert (Class M tolerance)	A133
WNMG○○○○○○-MK	Insert (Class M tolerance)	A133
WNMG○○○○○○-MM	Insert (Class M tolerance)	A133
WNMG○○○○○○-MP	Insert (Class M tolerance)	A133
WNMG○○○○○○-MS	Insert (Class M tolerance)	A133
WNMG○○○○○○-MW	Insert (Class M tolerance)	A134
WNMG○○○○○○-RK	Insert (Class M tolerance)	A135
WNMG○○○○○○-RM	Insert (Class M tolerance)	A135
WNMG○○○○○○-RP	Insert (Class M tolerance)	A135
WNMG○○○○○○-RS	Insert (Class M tolerance)	A135
WNMG○○○○○○-SA	Insert (Class M tolerance)	A132
WNMG○○○○○○-SH	Insert (Class M tolerance)	A132
WNMG○○○○○○-SW	Insert (Class M tolerance)	A132
WNMG○○○○○○-SY	Insert (Class M tolerance)	A132
WPGT○○○○○○	Insert (Class G tolerance)	B058
WPGT○○○○○○R/L-FS	Insert (Class G tolerance)	A185
WPMT○○○○○○-MV	Insert (Class M tolerance)	A185
WPSTN○○	Shim	N012
WPSWC43	Shim	N012
WPSWN43	Shim	N012
WS○○○○○○T	Clamp screw	N007
WS○○○○○○TPS	Clamp screw	N007
X		
XCMT○○○○○○-SVX	Insert (Class M tolerance)	A186

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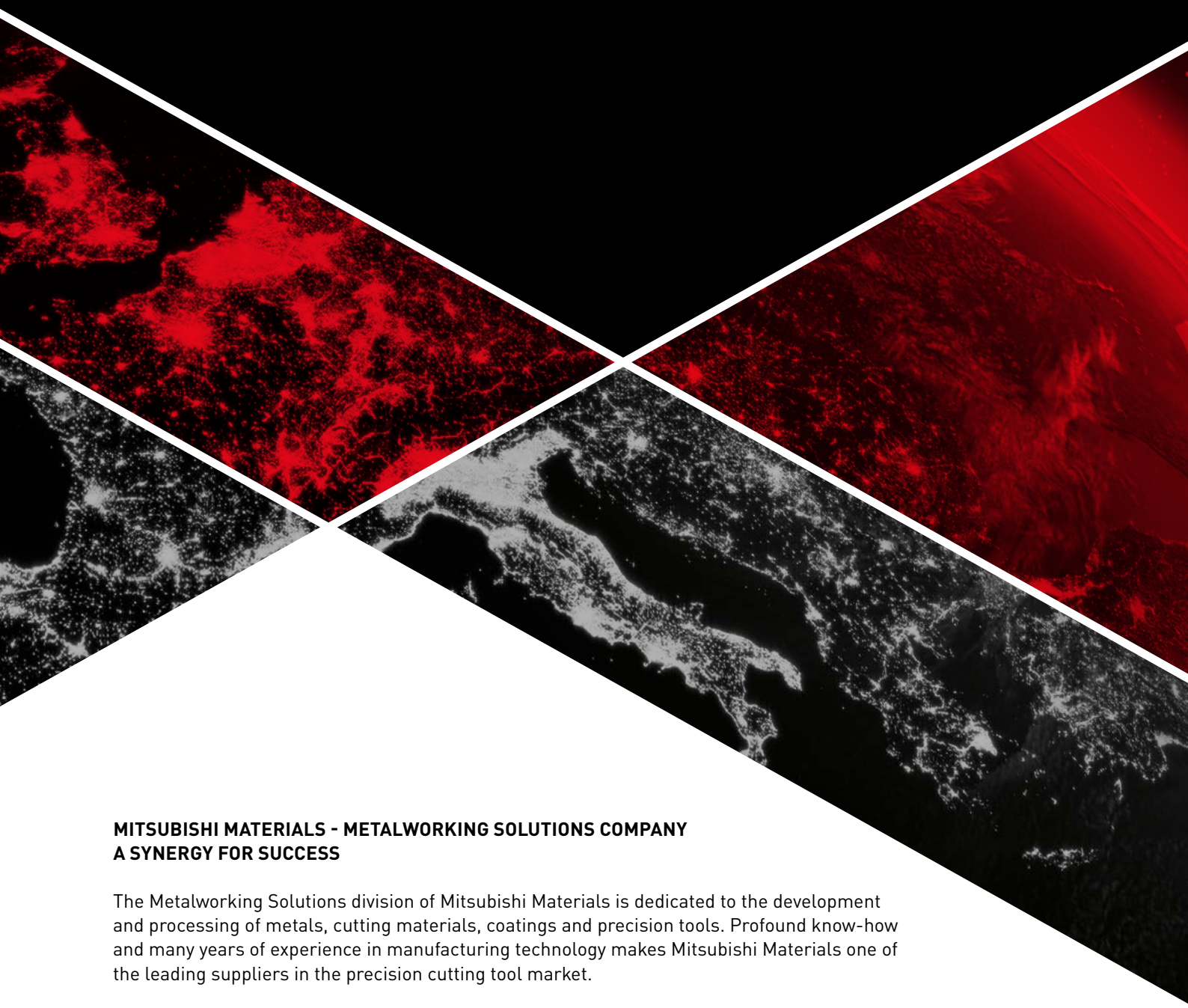

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