

HOW TO READ THE STANDARD OF THREADING

● How this section page is organized

- 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.

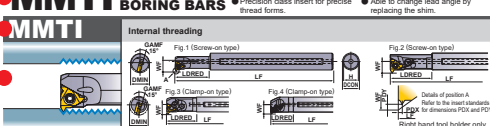
TITLE OF PRODUCT
PRODUCT SECTION

INDICATION OF EXTERNAL
/INTERNAL APPLICATION

THREADING

MMTI

TYPE BORING BARS



Order Number	Stock Number	Insert Number	Dimensions (inch)	Dimensions (mm)	Insert	Tool Holder	Fig.
MMTIR102-0.50-1.5-C	R	MMT11R	1.5" 625 5.000 1.000 340 590	38.1 127 127 25.4 91.4	0.50	MMT11R	1
MMTIR102-0.60-2.5-C	R	MMT11R	2.5" 625 6.000 1.000 340 590	63.5 127 127 25.4 91.4	0.60	MMT11R	1
MMTIR102-0.80-2.5-C	R	MMT11R	2.5" 625 8.000 1.250 380 590	63.5 127 127 31.8 91.4	0.80	MMT11R	1
MMTIR102-0.75-1.5-C	R	MMT11R	1.5" 625 6.000 1.000 340 590	38.1 127 127 25.4 91.4	0.75	MMT11R	1
MMTIR102-0.75-2.5-C	R	MMT11R	2.5" 625 6.000 1.000 340 590	63.5 127 127 25.4 91.4	0.75	MMT11R	1
MMTIR123-0.90-1.5-C	R	MMT12R	1.5" 750 7.000 1.500 510 711	19.0 19.0 178 38.1 178	0.90	MMT12R	2
MMTIR163-1.15-1.5-C	R	MMT16R	1.5" 1000 10.000 2.000 660 807	25.4 25.4 178 50.8 178	1.15	MMT16R	3
MMTIR203-1.45-1.5-C	R	MMT20R	1.5" 1250 12.000 2.000 810 1187	31.8 31.8 178 50.8 178	1.45	MMT20R	4
MMTIR24-0.85-1.5-C	R	MMT24R	1.5" 750 7.000 2.000 610 711	19.0 19.0 178 50.8 178	0.85	MMT24R	2
MMTIR124-0.85-2.5-C	R	MMT24R	2.5" 750 7.000 2.000 610 711	63.5 19.0 178 50.8 178	0.85	MMT24R	2
MMTIR264-1.20-1.5-C	R	MMT26R	1.5" 1000 10.000 1.500 700 837	25.4 25.4 178 38.1 178	1.20	MMT26R	3
MMTIR264-1.20-1.5-C	R	MMT26R	1.5" 1250 10.000 2.000 860 1187	31.8 25.4 178 50.8 178	1.20	MMT26R	4
MMTIR264-1.75-1.5-C	R	MMT26R	1.5" 1500 12.000 2.000 880 1427	38.1 31.8 178 50.8 178	1.75	MMT26R	4

Order Number	Stock Number	Insert Number	Dimensions (inch)	Dimensions (mm)	Insert	Tool Holder	Fig.
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MMTIR102-0.80-2.5-C	R	MMT11R	2.5" 625 8.000 1.250 380 590	63.5 127 127 31.8 91.4	0.80	MMT11R	1
MMTIR102-0.75-1.5-C	R	MMT11R	1.5" 625 6.000 1.000 340 590	38.1 127 127 25.4 91.4	0.75	MMT11R	1
MMTIR102-0.75-2.5-C	R	MMT11R	2.5" 625 6.000 1.000 340 590	63.5 127 127 25.4 91.4	0.75	MMT11R	1
MMTIR123-0.90-1.5-C	R	MMT12R	1.5" 750 7.000 1.500 510 711	19.0 19.0 178 38.1 178	0.90	MMT12R	2
MMTIR163-1.15-1.5-C	R	MMT16R	1.5" 1000 10.000 2.000 660 807	25.4 25.4 178 50.8 178	1.15	MMT16R	3
MMTIR203-1.45-1.5-C	R	MMT20R	1.5" 1250 12.000 2.000 810 1187	31.8 31.8 178 50.8 178	1.45	MMT20R	4
MMTIR24-0.85-1.5-C	R	MMT24R	1.5" 750 7.000 2.000 610 711	19.0 19.0 178 50.8 178	0.85	MMT24R	2
MMTIR124-0.85-2.5-C	R	MMT24R	2.5" 750 7.000 2.000 610 711	63.5 19.0 178 50.8 178	0.85	MMT24R	2
MMTIR264-1.20-1.5-C	R	MMT26R	1.5" 1000 10.000 1.500 700 837	25.4 25.4 178 38.1 178	1.20	MMT26R	3
MMTIR264-1.20-1.5-C	R	MMT26R	1.5" 1250 10.000 2.000 860 1187	31.8 25.4 178 50.8 178	1.20	MMT26R	4
MMTIR264-1.75-1.5-C	R	MMT26R	1.5" 1500 12.000 2.000 880 1427	38.1 31.8 178 50.8 178	1.75	MMT26R	4

Work Material	Hardness	Grade	Cutting Speed (SFM)	Work Material	Hardness	Grade	Cutting Speed (SFM)
Mid Steel	≤180HB	VP10MF	150 (100-230)	Heat Resistant Alloy	—	VP10MF	150 (100-230)
Carbon Steel	180-280HB	VP15TF	100 (85-130)	Titanium Alloy	—	VP15TF	150 (80-210)
Alloy Steel	220HB	VP15TF	150 (100-230)	Heat-Treated Alloy	45-55HRC	VP15TF	150 (80-210)
Stainless Steel	5200HB	VP15TF	150 (100-230)				
Gray Cast Iron	Tensile Strength >3500MPa	VP15TF	150 (100-230)				

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Stainless Steel	5200HB	VP15TF	150 (100-230)
Gray Cast Iron	Tensile Strength >3500MPa	VP15TF	150 (100-230)

● USA Stock * Stocked in Japan
* Inserts in one case

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), applicable inserts, holder dimensions, and spare parts.

STANDARDS FOR APPLICABLE INSERTS indicates stock status, dimensions, etc. for applicable inserts.

MMT M-CLASS INSERTS WITH 3-D CHIP BREAKERS

INSERTS											
Type	Order Number	Coated VPMPT VPMPT	Pitch		Dimensions (mm)					Total depth of cut (mm)	Geometry
			mm	thread/inch	IC	S	PDY	PDX	RE		
Partial Profile 90°	MMT111RA60-S	●	0.5 - 1.5	48 - 16	6.35	3.04	0.8	0.9	0.03	—	Partial form PMA 90° RE PDX PDY
	MMT111RA80-S	●	0.5 - 1.5	48 - 16	9.525	3.44	0.8	0.9	0.03	—	
	MMT111RG60-S	●	1.75 - 3.0	14 - 8	9.525	3.44	1.2	1.7	0.11	—	
Partial Profile 30°	MMT111RA55-S	★	—	48 - 16	6.35	3.04	0.8	0.9	0.07	—	Partial form PMA 30° RE PDX PDY
	MMT111RA55-S	★	—	48 - 16	9.525	3.44	0.8	0.9	0.07	—	
	MMT111RG55-S	★	—	14 - 8	9.525	3.44	1.2	1.7	0.21	—	
ISO Metric 90°	MMT111R10I0-S	●	1.0	16	6.35	3.04	0.6	0.7	0.06	0.58	Full form PMA 90° RE PDX PDY
	MMT111R125I0-S	●	1.25	16	6.35	3.04	0.8	0.9	0.08	0.72	
	MMT111R15I0-S	●	1.5	16	6.35	3.04	0.8	1.0	0.10	0.87	
	MMT111R18I0-S	●	1.8	16	9.525	3.44	0.6	0.7	0.06	0.58	
	MMT111R25I0-S	●	2.5	16	9.525	3.44	0.8	0.9	0.08	0.72	
	MMT111R15I90-S	●	1.5	16	9.525	3.44	0.9	1.0	0.11	0.87	
	MMT111R17S10-S	●	1.75	16	9.525	3.44	0.9	1.2	0.11	1.01	
	MMT111R20I90-S	●	2.0	16	9.525	3.44	1.0	1.3	0.13	1.15	
	MMT111R25I90-S	●	2.5	16	9.525	3.44	1.1	1.5	0.17	1.44	
	MMT111R30I90-S	●	3.0	16	9.525	3.44	1.1	1.5	0.20	1.73	
American UNF 90°	MMT111R16I0-S	●	1.0	18	9.525	3.44	0.9	1.1	0.11	0.92	Full form PMA 90° RE PDX PDY
	MMT111R14I0-S	●	1.4	18	9.525	3.44	0.9	1.2	0.12	1.05	
	MMT111R12I0-S	●	1.2	12	9.525	3.44	1.1	1.4	0.14	1.22	
Universal 90°	MMT111R19I0-S	●	1.9	14	9.525	3.44	1.0	1.2	0.10	0.86	Full form PMA 90° RE PDX PDY
	MMT111R16I90-S	●	1.6	14	9.525	3.44	1.0	1.2	0.25	1.16	
	MMT111R10I-S	●	1.1	11	9.525	3.44	1.1	1.5	0.32	1.48	
BSP 55°	MMT111R10BPT-S	★	19	19	9.525	3.44	0.8	0.9	0.18	0.86	Full form PMA 55° RE PDX PDY
	MMT111R14BPT-S	★	19	19	9.525	3.44	1.0	1.2	0.25	1.16	
	MMT111R16BPT-S	★	11	11	9.525	3.44	1.1	1.5	0.32	1.48	

TURNING TOOLS

THREADING

CLASSIFICATION (EXTERNAL THREADING)	G002
CLASSIFICATION (INTERNAL THREADING).....	G003
CROSS REFERENCE OF THREAD PITCHES	
EXTERNAL	G004
INTERNAL	G006
STANDARD THREAD AND CORRESPONDING INSERT ...	G008
PIPE THREADS AND TOOL SELECTION	G009

STANDARD OF THREADING TOOLS

MMT SERIES

FEATURES	G010
CUTTING CONDITIONS.....	G012
STANDARD OF DEPTH OF CUT.....	G014

EXTERNAL THREADING

MMTE HOLDER	G021
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INTERNAL THREADING

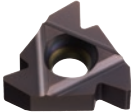
MMTI TYPE BORING BARS	G026
FSL5 TYPE BORING BARS	G031
SL5N TYPE BORING BARS	G032
MICRO-MINI TWIN(CT) BORING BARS	G034

*Arranged by Alphabetical order

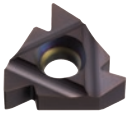
G034	CT
G031	FSL51
G031	FSL52
G033	MLG (INTERNAL INSERTS)
G033	MLT (INTERNAL INSERTS)
G022	MMT (EXTERNAL INSERTS)
G027	MMT (INTERNAL INSERTS)
G021	MMTE
G026	MMTI
G032	S-SL5N



CLASSIFICATION (EXTERNAL THREADING)

Name of Tool Holder	Insert Shape	Features
MMTE Holder   G021		● Various insert types. ● Precision class insert for precise thread forms. ● Available with a pressed breaker for chip control. ● Able to change lead angle by replacing the shim.

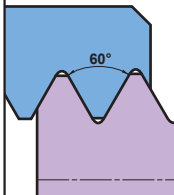
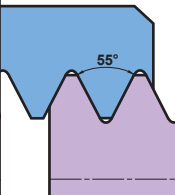
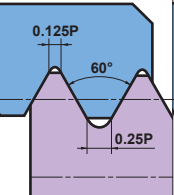
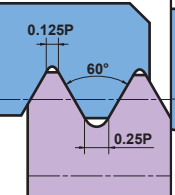
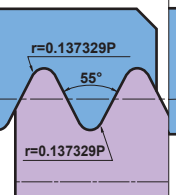
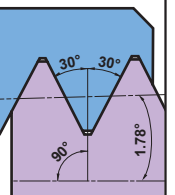
CLASSIFICATION (INTERNAL THREADING)

Name of Tool Holder	Insert Shape	Features
MMTI Boring Bars  → G026		● Minimum cutting diameter .500 inch. ● Various insert types. ● Precision class insert for precise thread forms. ● Available with a pressed breaker for chip control. ● Able to change lead angle by replacing the shim.
FSL5 S-SL5 Boring Bars  → G031 → G032		● Screw-on type. ● Precision class insert. ● Holder is capable of performing both grooving and threading. ● Maximum groove depth .118 inch.
MICRO-MINI TWIN Boring Bars  → G034	—	● Solid carbide type. ● Economical due to single holder with two cutting edges.
MICRO-MINI Boring Bars  → E031	—	● Solid carbide type. ● Insert can be ground to suit the application.

G

THREADING

CROSS REFERENCE OF THREAD PITCHES (EXTERNAL)

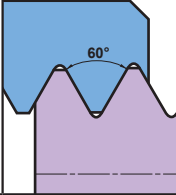
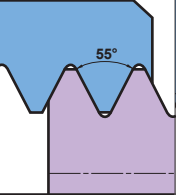
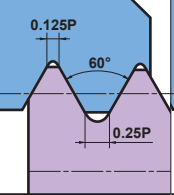
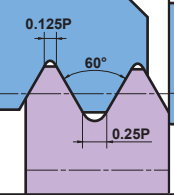
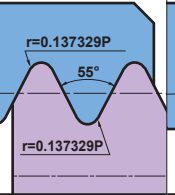
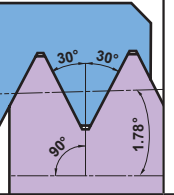
Application		General machining				Pipe fittings and couplings for gas and water		
Type		Partial Profile 60°	Partial Profile 55°	ISO Metric 60°	American UN 60°	Parallel Pipe Thread Whitworth 55° for BSW, BSP	American NPT 60°	
								
Symbol		M UNC UNF	W	M	UNC UNF	G(PF) Rp(PS) W	NPT	
Pitch		mm (thread/inch)	thread/inch	mm	thread/inch	thread/inch	thread/inch	
Holder								
MMT Holder 	Full form	—	—	0.5 2.5 0.75 3.0 1.0 3.5 1.25 4.0 1.5 4.5 1.75 5.0 2.0	32 12 28 11 24 10 20 9 18 8 16 7 14 6 13 5	28 11 26 10 20 9 19 8 18 7 16 6 14 5 12	27 18 14 11.5 8	
	Partial form	0.5 –1.5(48–16) 1.75–3.0(14– 8) 0.5 –3.0(48– 8) 3.5 –5.0(07– 5)	48–16 14– 8 48– 8 7– 5	0.5 –1.5 1.75–3.0 0.5 –3.0 3.5 –5.0	48–16 14– 8 48– 8 7– 5	—	—	
G021								

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THREADING

Steam, gas and water pipes		Pipe couplings for food and fire fighting industries	Motion transmission		Aircraft and aerospace	Oil and gas	
Taper Pipe Thread BSPT 55°	American NPTF 60°	Round DIN 405 30°	ISO Trapezoidal 30°	American ACME 29°	UNJ	API Buttress Casing	API Round 60° Casing & Tubing
BSPT R(PT) Rc(RT) 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 2.0 3.0 4.0 5.0	12 10 8 6 5	32 16 28 14 24 12 20 10 18 8	5	10 8
—	—	—	—	—	—	—	—

CROSS REFERENCE OF THREAD PITCHES (INTERNAL)

Application		General machining				Pipe fittings and couplings for gas and water	
Type		Partial Profile 60°	Partial Profile 55°	ISO Metric 60°	American UN 60°	Parallel Pipe Thread Whitworth 55° for BSW, BSP	American NPT 60°
							
Symbol		M UNC UNF	W	M	UNC UNF	G(PF) Rp(PS) W	NPT
Pitch		mm (thread/inch)	thread/inch	mm	thread/inch	thread/inch	thread/inch
Holder							
MMT Boring Bars 	Full form	—	—	0.5 2.5 0.75 3.0 1.0 3.5 1.25 4.0 1.5 4.5 1.75 5.0 2.0	32 12 28 11 24 10 20 9 18 8 16 7 14 6 13 5	28 11 26 10 20 9 19 8 18 7 16 6 14 5 12	27 18 14 11.5 8
	Partial form	0.5 -1.5(48-16) 1.75-3.0(14- 8) 0.5 -3.0(48- 8) 3.5 -5.0(07- 5)	48-16 14- 8 48- 8 7- 5	0.5 -1.5 1.75-3.0 0.5 -3.0 3.5 -5.0	48-16 14- 8 48- 8 7- 5	—	—
➔ G026							
FSL5 SL5N Boring Bars 	Partial form	1.5-2.0(16-13) 1.5-2.5(16-11) 1.5-3.5(16- 7)	—	1.5-2.0 1.5-2.5 1.5-3.5	16-13 16-11 16- 7	—	—
➔ G031 ➔ G032							
MICRO-MINI TWIN 	Partial form	0.5 -1.0 (36-24) 0.75-1.25(28-20) 0.75-1.5 (24-18) 0.75-1.75(24-16)	—	0.5 -1.0 0.75-1.25 0.75-1.5 0.75-1.75	36-24 28-20 24-18 24-16		
➔ G034							

Steam, gas and water pipes		Pipe couplings for food and fire fighting industries	Motion transmission		Aircraft and aerospace	Oil and gas	
Taper Pipe Thread BSPT 55°	American NPTF 60°	Round DIN 405 30°	ISO Trapezoidal 30°	American ACME 29°	UNJ	API Buttress Casing	API Round 60° Casing & Tubing
BSPT 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 2.0 3.0 4.0 5.0	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 60° American UN 60°. In this case, a full form type insert cannot be used.

STANDARD THREAD AND CORRESPONDING INSERT

Thread Name	Standard Thread Type	Symbol	Thread Name	Standard Thread Type	Symbol
ISO Metric 60° / American UN 60°		M UNC UNF	BSPT 55°		BSPT R (PT) Rc (PT) Rp
Parallel Pipe Thread Whitworth 55° for BSW, BSP		W G (PF) Rp (PS)	Round DIN 405		Rd
American NPT 60°		NPT	ISO Trapezoidal 30°		Tr (TM)
API Round 60° Casing & Tubing		CSG LCSG	American ACME 29°		ACME (TW)
API Buttress Casing		BCSG			

PIPE THREADS AND TOOL SELECTION

● Parallel Pipe Threads G(PF)

Thread Type	Number of threads	Standard internal diameter
G1/16	28	.258"
G1/8		.337"
G1/4	19	.451"
G3/8		.589"
G1/2	14	.734"
G5/8		.811"
G3/4		.949"
G7/8		1.098"
G1	11	1.193"
G1-1/8		1.376"
G1-1/4		1.534"

Note 1) Same as PF.

● Taper Pipe Threads R(PT), Rc(PT)

Thread Type	Number of threads	Standard internal diameter
R1/16	28	.258"
R1/8		.337"
R1/4	19	.451"
R3/8		.589"
R1/2	14	.734"
—	—	—
R3/4	14	.949"
—	—	—
R1	11	1.193"
—	—	—
R1-1/4	11	1.534"

Note 1) Same as Rc and PT.

· The pitch is pre-determined for each nominal diameter. Note the minimum machining diameter especially when internal threading.

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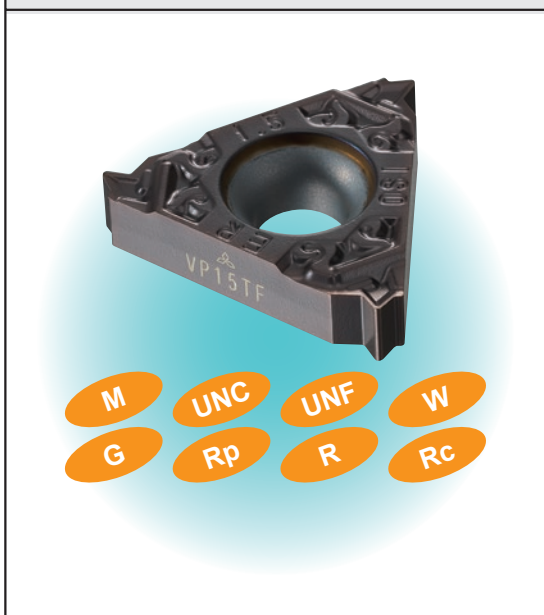
THREADING

FEATURES OF MMT SERIES

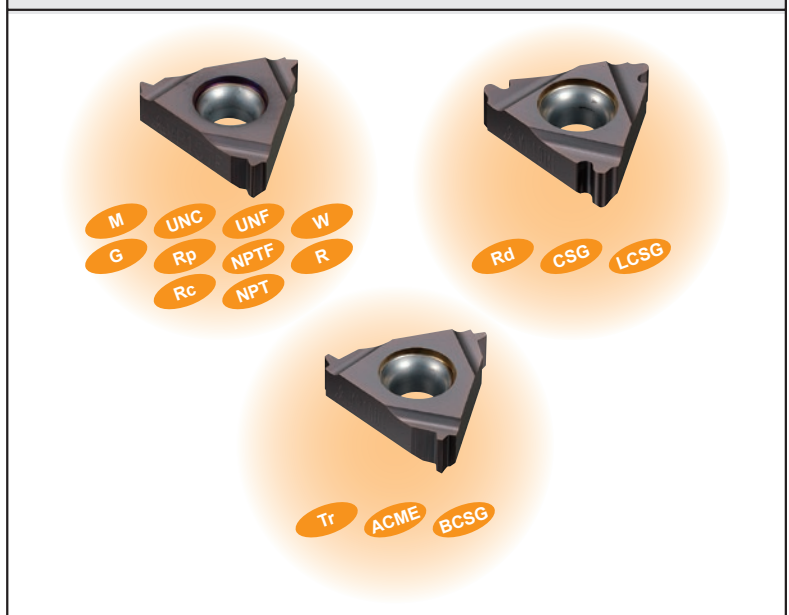
■ A WIDE VARIETY OF CHOICES

Mitsubishi Miracle Threading (MMT) series contains 297 inserts and 23 holders.

M-CLASS INSERTS WITH 3-D CHIP BREAKERS

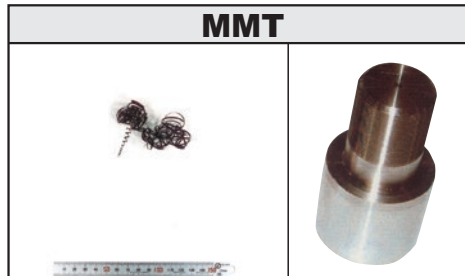
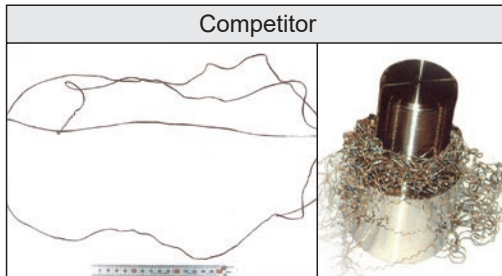


G-CLASS GROUND INSERTS



■ IDEAL CHIP CONTROL EVEN IN THE LATTER HALF OF PASSES WHEN CONTINUOUS CHIPS ARE USUALLY PRODUCED. (M-CLASS INSERTS WITH 3-D CHIP BREAKERS)

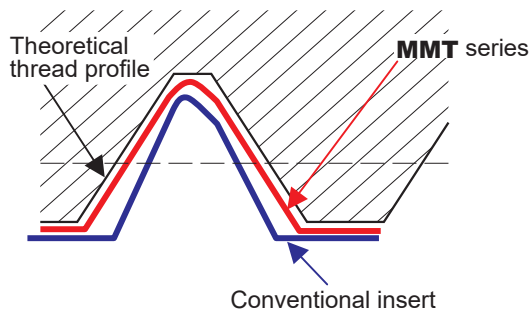
ISO metric external thread pitch 1.5 mm Final pass (6th pass)



<Cutting Conditions>

Work Material : AISI 4140
Insert : MMT16ER150ISO-S
Grade : VP15TF
Cutting speed : 395 SFM
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)

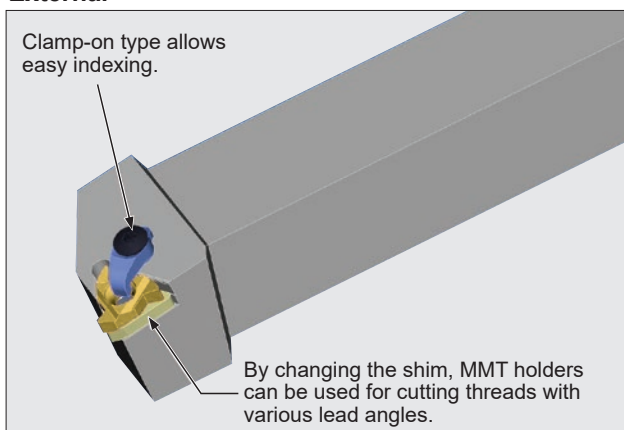


High precision threading can be achieved by using MMT inserts that feature a ground rake face and peripheral cutting edge.

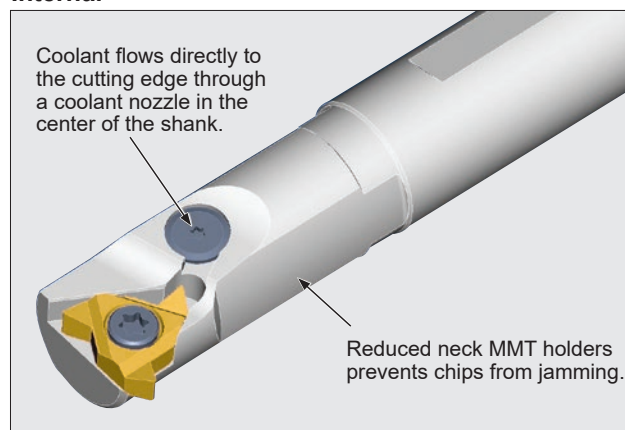
Thread Type	Threading Tolerance
ISO Metric 60°	6g / 6H
American UN 60°	2A / 2B
Whitworth 55° for BSW, BSP	Medium Class A
BSPT 55°	Standard BSPT
Round DIN 405 30°	7h / 7H
ISO Trapezoidal 30°	7e / 7H
American ACME 29°	3G
UNJ	3A
API Buttress Casing	Standard API
API Round 60° Casing & Tubing 60°	Standard API RD
American NPT 60°	Standard NPT
American NPTF 60°	Class2

■ HOLDER (Use of special surface treatment)

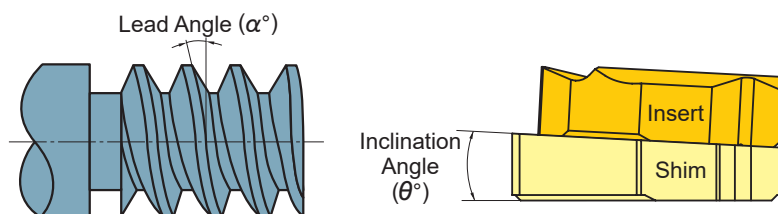
External



Internal



■ 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 insert 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 insert, M-class insert with 3-D chip breakers)

● Wide versatility

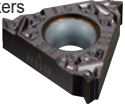
- High fracture resistance during low rigidity applications such as bar feed machining. Able to withstand harsh conditions for long periods where conventional inserts would be liable to breakage.
- Effective combination of high cost performance M-class inserts with 3-D chip breakers.

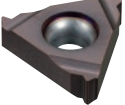
VP20RT (M-class insert with 3-D chip breakers)

● 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 chip breakers.

■ CHOOSING M-CLASS INSERTS WITH 3-D CHIP BREAKERS OR G-CLASS INSERTS

Insert	Chip control	Precision of thread
M-class inserts with 3-D chip breakers 		

Insert	Chip control	Precision of thread
G-class inserts 		

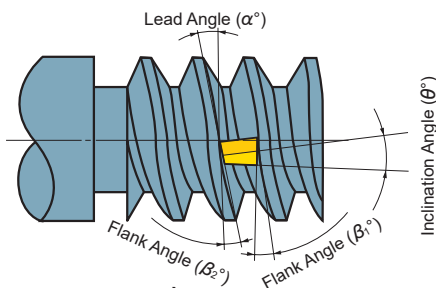
- For ideal chip control and a high cost performance ratio, M-class inserts with 3-D chip breakers are recommended.
- G-class inserts are recommended where higher precision is required.

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.



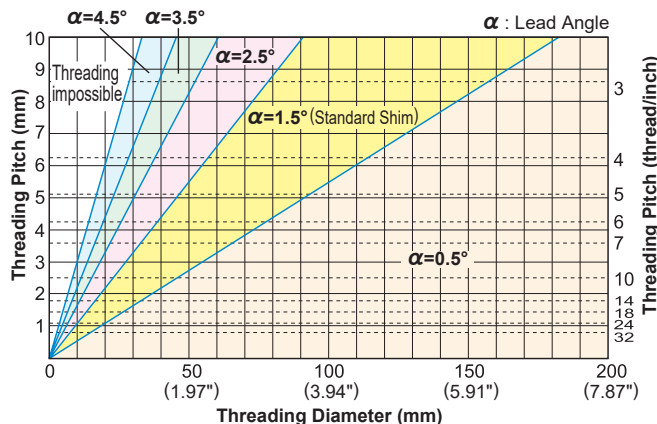
■ SHIM REFERENCE TABLE (THREADING DIAMETER) (Thread angle 60° and 55°)

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		$\leq \phi 1.7$	$\phi 1.7 - \phi 2.3$	$\phi 2.3 - \phi 3.0$	$\phi 3.0 - \phi 4.6$	$\phi 4.6 - \phi 9.1$	$\geq \phi 9.1$	$\leq \phi 3.6$	$\phi 3.6 - \phi 9.1$	$\geq \phi 9.1$
0.75		$\leq \phi 2.5$	$\phi 2.5 - \phi 3.4$	$\phi 3.4 - \phi 4.6$	$\phi 4.6 - \phi 6.8$	$\phi 6.8 - \phi 13.7$	$\geq \phi 13.7$	$\leq \phi 5.5$	$\phi 5.5 - \phi 13.7$	$\geq \phi 13.7$
1		$\leq \phi 3.3$	$\phi 3.3 - \phi 4.6$	$\phi 4.6 - \phi 6.1$	$\phi 6.1 - \phi 9.1$	$\phi 9.1 - \phi 18.2$	$\geq \phi 18.2$	$\leq \phi 7.3$	$\phi 7.3 - \phi 18.2$	$\geq \phi 18.2$
1.25		$\leq \phi 4.1$	$\phi 4.1 - \phi 5.7$	$\phi 5.7 - \phi 7.6$	$\phi 7.6 - \phi 11.4$	$\phi 11.4 - \phi 22.8$	$\geq \phi 22.8$	$\leq \phi 9.1$	$\phi 9.1 - \phi 22.8$	$\geq \phi 22.8$
1.5		$\leq \phi 5.0$	$\phi 5.0 - \phi 6.8$	$\phi 6.8 - \phi 9.1$	$\phi 9.1 - \phi 13.7$	$\phi 13.7 - \phi 27.4$	$\geq \phi 27.4$	$\leq \phi 10.9$	$\phi 10.9 - \phi 27.4$	$\geq \phi 27.4$
1.75		$\leq \phi 5.8$	$\phi 5.8 - \phi 8.0$	$\phi 8.0 - \phi 10.6$	$\phi 10.6 - \phi 16.0$	$\phi 16.0 - \phi 31.9$	$\geq \phi 31.9$	$\leq \phi 12.8$	$\phi 12.8 - \phi 31.9$	$\geq \phi 31.9$
2		$\leq \phi 6.6$	$\phi 6.6 - \phi 9.1$	$\phi 9.1 - \phi 12.1$	$\phi 12.1 - \phi 18.2$	$\phi 18.2 - \phi 36.5$	$\geq \phi 36.5$	$\leq \phi 14.6$	$\phi 14.6 - \phi 36.5$	$\geq \phi 36.5$
2.5		$\leq \phi 8.3$	$\phi 8.3 - \phi 11.4$	$\phi 11.4 - \phi 15.2$	$\phi 15.2 - \phi 22.8$	$\phi 22.8 - \phi 45.6$	$\geq \phi 45.6$	$\leq \phi 18.2$	$\phi 18.2 - \phi 45.6$	$\geq \phi 45.6$
3		$\leq \phi 9.9$	$\phi 9.9 - \phi 13.7$	$\phi 13.7 - \phi 18.2$	$\phi 18.2 - \phi 27.3$	$\phi 27.3 - \phi 54.7$	$\geq \phi 54.7$	$\leq \phi 21.9$	$\phi 21.9 - \phi 54.7$	$\geq \phi 54.7$
3.5		$\leq \phi 11.6$	$\phi 11.6 - \phi 15.9$	$\phi 15.9 - \phi 21.3$	$\phi 21.3 - \phi 31.9$	$\phi 31.9 - \phi 63.8$	$\geq \phi 63.8$	$\leq \phi 25.5$	$\phi 25.5 - \phi 63.8$	$\geq \phi 63.8$
4		$\leq \phi 13.2$	$\phi 13.2 - \phi 18.2$	$\phi 18.2 - \phi 24.3$	$\phi 24.3 - \phi 36.5$	$\phi 36.5 - \phi 72.9$	$\geq \phi 72.9$	$\leq \phi 29.2$	$\phi 29.2 - \phi 72.9$	$\geq \phi 72.9$
4.5		$\leq \phi 14.9$	$\phi 14.9 - \phi 20.5$	$\phi 20.5 - \phi 27.3$	$\phi 27.3 - \phi 41.0$	$\phi 41.0 - \phi 82.1$	$\geq \phi 82.1$	$\leq \phi 32.8$	$\phi 32.8 - \phi 82.1$	$\geq \phi 82.1$
5		$\leq \phi 16.5$	$\phi 16.5 - \phi 22.8$	$\phi 22.8 - \phi 30.4$	$\phi 30.4 - \phi 45.6$	$\phi 45.6 - \phi 91.2$	$\geq \phi 91.2$	$\leq \phi 36.5$	$\phi 36.5 - \phi 91.2$	$\geq \phi 91.2$

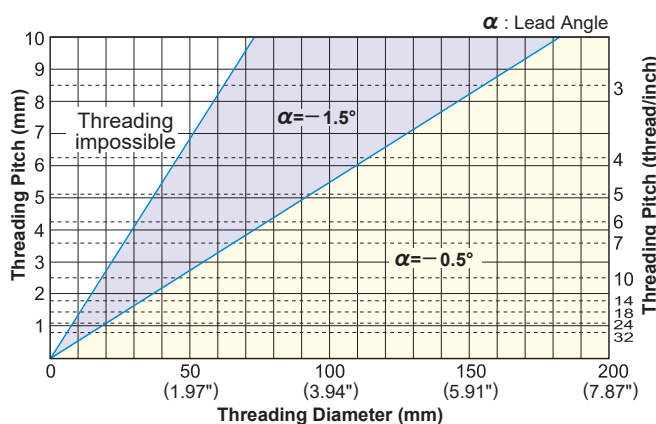
* Back turning in the case of left hand threads.

■ SHIM REFERENCE GRAPH (Thread angle 60° and 55°)

Right Hand Thread



Left Hand Thread



Note 1) When a thread lead angle $\leq$ 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.)

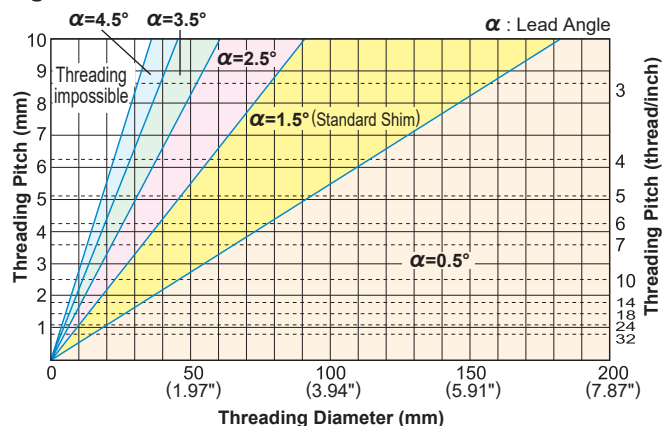
■ SHIM REFERENCE TABLE (THREADING DIAMETER) (Thread angle 30° and 29°)

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		$\leq \phi 1.8$	$\phi 1.8 - \phi 2.3$	$\phi 2.3 - \phi 3.0$	$\phi 3.0 - \phi 4.6$	$\phi 4.6 - \phi 9.1$	$\geq \phi 9.1$	$\leq \phi 4.6$	$\phi 4.6 - \phi 9.1$	$\geq \phi 9.1$
0.75		$\leq \phi 2.7$	$\phi 2.7 - \phi 3.4$	$\phi 3.4 - \phi 4.6$	$\phi 4.6 - \phi 6.8$	$\phi 6.8 - \phi 13.7$	$\geq \phi 13.7$	$\leq \phi 6.8$	$\phi 6.8 - \phi 13.7$	$\geq \phi 13.7$
1		$\leq \phi 3.6$	$\phi 3.6 - \phi 4.6$	$\phi 4.6 - \phi 6.1$	$\phi 6.1 - \phi 9.1$	$\phi 9.1 - \phi 18.2$	$\geq \phi 18.2$	$\leq \phi 9.1$	$\phi 9.1 - \phi 18.2$	$\geq \phi 18.2$
1.25		$\leq \phi 4.5$	$\phi 4.5 - \phi 5.7$	$\phi 5.7 - \phi 7.6$	$\phi 7.6 - \phi 11.4$	$\phi 11.4 - \phi 22.8$	$\geq \phi 22.8$	$\leq \phi 11.4$	$\phi 11.4 - \phi 22.8$	$\geq \phi 22.8$
1.5		$\leq \phi 5.5$	$\phi 5.5 - \phi 6.8$	$\phi 6.8 - \phi 9.1$	$\phi 9.1 - \phi 13.7$	$\phi 13.7 - \phi 27.4$	$\geq \phi 27.4$	$\leq \phi 13.7$	$\phi 13.7 - \phi 27.4$	$\geq \phi 27.4$
1.75		$\leq \phi 6.4$	$\phi 6.4 - \phi 8.0$	$\phi 8.0 - \phi 10.6$	$\phi 10.6 - \phi 16.0$	$\phi 16.0 - \phi 31.9$	$\geq \phi 31.9$	$\leq \phi 16.0$	$\phi 16.0 - \phi 31.9$	$\geq \phi 31.9$
2		$\leq \phi 7.3$	$\phi 7.3 - \phi 9.1$	$\phi 9.1 - \phi 12.1$	$\phi 12.1 - \phi 18.2$	$\phi 18.2 - \phi 36.5$	$\geq \phi 36.5$	$\leq \phi 18.2$	$\phi 18.2 - \phi 36.5$	$\geq \phi 36.5$
2.5		$\leq \phi 9.1$	$\phi 9.1 - \phi 11.4$	$\phi 11.4 - \phi 15.2$	$\phi 15.2 - \phi 22.8$	$\phi 22.8 - \phi 45.6$	$\geq \phi 45.6$	$\leq \phi 22.8$	$\phi 22.8 - \phi 45.6$	$\geq \phi 45.6$
3		$\leq \phi 10.9$	$\phi 10.9 - \phi 13.7$	$\phi 13.7 - \phi 18.2$	$\phi 18.2 - \phi 27.3$	$\phi 27.3 - \phi 54.7$	$\geq \phi 54.7$	$\leq \phi 27.3$	$\phi 27.3 - \phi 54.7$	$\geq \phi 54.7$
3.5		$\leq \phi 12.7$	$\phi 12.7 - \phi 15.9$	$\phi 15.9 - \phi 21.3$	$\phi 21.3 - \phi 31.9$	$\phi 31.9 - \phi 63.8$	$\geq \phi 63.8$	$\leq \phi 31.9$	$\phi 31.9 - \phi 63.8$	$\geq \phi 63.8$
4		$\leq \phi 14.6$	$\phi 14.6 - \phi 18.2$	$\phi 18.2 - \phi 24.3$	$\phi 24.3 - \phi 36.5$	$\phi 36.5 - \phi 72.9$	$\geq \phi 72.9$	$\leq \phi 36.5$	$\phi 36.5 - \phi 72.9$	$\geq \phi 72.9$
4.5		$\leq \phi 16.4$	$\phi 16.4 - \phi 20.5$	$\phi 20.5 - \phi 27.3$	$\phi 27.3 - \phi 41.0$	$\phi 41.0 - \phi 82.1$	$\geq \phi 82.1$	$\leq \phi 41.0$	$\phi 41.0 - \phi 82.1$	$\geq \phi 82.1$
5		$\leq \phi 18.2$	$\phi 18.2 - \phi 22.8$	$\phi 22.8 - \phi 30.4$	$\phi 30.4 - \phi 45.6$	$\phi 45.6 - \phi 91.2$	$\geq \phi 91.2$	$\leq \phi 45.6$	$\phi 45.6 - \phi 91.2$	$\geq \phi 91.2$

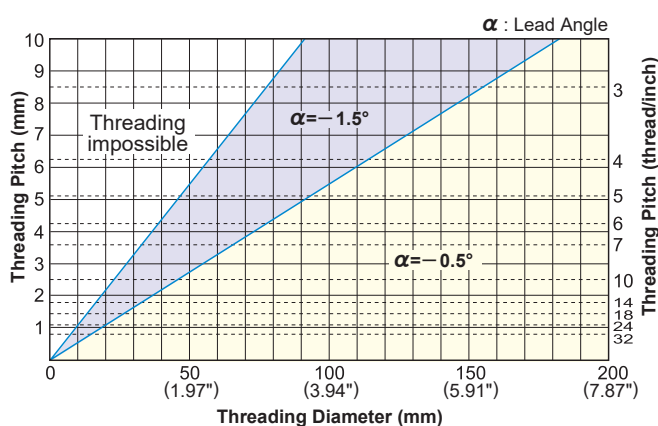
* Back turning in the case of left hand threads.

SHIM REFERENCE GRAPH (Thread angle 30° and 29°)

Right Hand Thread



Left Hand Thread



Note 1) When a thread lead angle $\leq$ 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	Not Available	Not Available
2.5	P25	P25	Not Available	Not Available	P25	P25	Not Available	Not Available
3	P35	P35	Not Available	Not Available	P35	P35	Not Available	Not Available
3.5	P35	P35	Not Available	Not Available	P35	P35	Not Available	Not Available
4	P45	P45	Not Available	Not Available	P45	P45	Not Available	Not Available
4.5	P45	P45	Not Available	Not Available	P45	P45	Not Available	Not Available
5	P45	P45	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
5.5	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

* 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°
 - In 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 Standard Shim List on pages G021 and G026.
 - In 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 Standard Shim List on pages G021 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.

THREADING

MMT STANDARD OF DEPTH OF CUT EXTERNAL (RADIAL INFED)

ISO Metric 60°

(mm)

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 chip breakers
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 60°

(inch)

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 chip breakers
32	.019	.007	.006	.004	.002											MMT16ER320UN	–
28	.022	.007	.006	.004	.003	.002										MMT16ER280UN	–
24	.026	.007	.006	.006	.005	.002										MMT16ER240UN	–
20	.031	.008	.007	.005	.005	.004	.002									MMT16ER200UN	–
18	.034	.009	.008	.006	.005	.004	.002									MMT16ER180UN	–
16	.038	.009	.008	.006	.005	.004	.004	.002								MMT16ER160UN	MMT16ER160UN-S
14	.044	.009	.008	.006	.005	.005	.005	.004	.002							MMT16ER140UN	MMT16ER140UN-S
13	.047	.010	.009	.007	.006	.005	.005	.003	.002							MMT16ER130UN	–
12	.051	.011	.009	.007	.006	.006	.005	.005	.002							MMT16ER120UN	MMT16ER120UN-S
11	.056	.011	.009	.007	.006	.006	.006	.005	.004	.002						MMT16ER110UN	–
10	.061	.011	.009	.007	.006	.006	.006	.005	.005	.004	.002					MMT16ER100UN	–
9	.068	.013	.011	.009	.007	.006	.006	.005	.005	.004	.002					MMT16ER090UN	–
8	.077	.014	.012	.009	.007	.006	.006	.006	.006	.005	.004	.002				MMT16ER080UN	–
7	.087	.015	.013	.011	.009	.008	.007	.006	.006	.005	.005	.002				MMT22ER070UN	–
6	.102	.017	.014	.011	.010	.008	.007	.007	.006	.006	.005	.005	.004	.002		MMT22ER060UN	–
5	.123	.017	.015	.012	.011	.009	.009	.008	.007	.007	.007	.007	.006	.006	.002	MMT22ER050UN	–

Whitworth 55° for BSW, BSP

(inch)

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 chip breakers
28	.023	.007	.006	.004	.004	.002										MMT16ER280W	–
26	.025	.007	.006	.005	.005	.002										MMT16ER260W	–
20	.032	.008	.007	.006	.005	.004	.002									MMT16ER200W	–
19	.034	.008	.007	.006	.006	.005	.002									MMT16ER190W	MMT16ER190W-S
18	.035	.010	.007	.006	.005	.005	.002									MMT16ER180W	–
16	.040	.008	.007	.006	.005	.004	.004	.004	.002							MMT16ER160W	–
14	.046	.009	.008	.007	.006	.005	.005	.004	.002							MMT16ER140W	MMT16ER140W-S
12	.054	.011	.010	.008	.006	.006	.006	.005	.002							MMT16ER120W	–
11	.058	.011	.009	.008	.007	.006	.006	.005	.005	.002						MMT16ER110W	MMT16ER110W-S
10	.064	.011	.010	.008	.007	.006	.006	.005	.005	.004	.002					MMT16ER100W	–
9	.071	.011	.010	.008	.007	.006	.006	.006	.005	.005	.005	.002				MMT16ER090W	–
8	.080	.012	.011	.009	.007	.007	.006	.006	.006	.005	.005	.004	.002			MMT16ER080W	–
7	.091	.013	.013	.010	.009	.008	.007	.007	.006	.006	.006	.004	.002			MMT22ER070W	–
6	.107	.014	.013	.011	.009	.008	.008	.007	.007	.006	.006	.006	.005	.005	.002	MMT22ER060W	–
5	.128	.017	.016	.014	.011	.010	.009	.009	.008	.007	.007	.007	.006	.005	.002	MMT22ER050W	–

- Note 1) · Set the finishing allowance on a diameter at approx. .004 inch when using a full form insert.
 · Please note the cutting depth and the number of passes when a nose radius of a partial or semi-full form insert or of an internal threading insert is small to prevent damage to the insert nose.
 · 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 55°

(inch)

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 chip breakers
28	.023	.007	.006	.004	.004	.002								MMT16ER280BSPT	—
19	.034	.009	.007	.006	.005	.005	.002							MMT16ER190BSPT	MMT16ER190BSPT-S
14	.046	.009	.008	.007	.006	.005	.005	.004	.002					MMT16ER140BSPT	MMT16ER140BSPT-S
11	.058	.010	.009	.008	.007	.006	.006	.005	.005	.002				MMT16ER110BSPT	MMT16ER110BSPT-S

Round DIN 405 30°

(inch)

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	
10	.050	.009	.008	.008	.007	.006	.005	.005	.002							MMT16ER100RD	
8	.063	.009	.008	.008	.007	.007	.006	.006	.005	.005	.002					MMT16ER080RD	
6	.083	.010	.010	.009	.009	.008	.007	.007	.006	.006	.005	.004	.002			MMT16ER060RD	
4	.125	.013	.013	.013	.012	.011	.010	.009	.009	.008	.007	.007	.006	.005	.002	MMT22ER040RD	

ISO Trapezoidal 30°

(mm)

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	
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	0.06			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 29°

(inch)

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	
12	.047	.011	.009	.008	.007	.006	.004	.002								MMT16ER120ACME	
10	.060	.011	.010	.008	.007	.006	.006	.005	.005	.002						MMT16ER100ACME	
8	.072	.012	.010	.009	.007	.006	.006	.006	.005	.005	.004	.002				MMT16ER080ACME	
6	.093	.013	.012	.011	.009	.008	.007	.006	.006	.005	.005	.004	.005	.002		MMT22ER060ACME	
5	.110	.014	.013	.012	.010	.009	.008	.007	.007	.006	.006	.006	.005	.005	.002	MMT22ER050ACME	

UNJ

(inch)

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes														Insert Type	
		1	2	3	4	5	6	7	8	9	10	11				G-class ground inserts	
32	.018	.006	.006	.004	.002											MMT16ER320UNJ	
28	.020	.006	.005	.004	.003	.002										MMT16ER280UNJ	
24	.024	.007	.006	.006	.003	.002										MMT16ER240UNJ	
20	.029	.007	.006	.005	.005	.004	.002									MMT16ER200UNJ	
18	.032	.009	.007	.006	.004	.004	.002									MMT16ER180UNJ	
16	.036	.010	.008	.006	.005	.004	.003									MMT16ER160UNJ	
14	.041	.010	.009	.007	.005	.004	.004	.002								MMT16ER140UNJ	
12	.048	.011	.011	.008	.007	.005	.004	.002								MMT16ER120UNJ	
10	.058	.012	.011	.008	.006	.005	.005	.005	.004	.002						MMT16ER100UNJ	
8	.072	.012	.012	.009	.007	.006	.006	.005	.005	.004	.004	.002				MMT16ER080UNJ	

API Buttress Casing

(inch)

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes														Insert Type	
		1	2	3	4	5	6	7	8	9	10	11				G-class ground inserts	
5	.061	.010	.009	.007	.006	.005	.005	.005	.004	.004	.004	.002				MMT22ER050APBU	

- Note 1) · Set the finishing allowance on a diameter at approx. .004 inch when using a full form insert.
 · Please note the cutting depth and the number of passes when a nose radius of a partial or semi-full form insert or of an internal threading insert is small to prevent damage to the insert nose.
 · 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 STANDARD OF DEPTH OF CUT EXTERNAL (RADIAL INFEEED)

API Round 60° Casing & Tubing

(inch)

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes														Insert Type
		1	2	3	4	5	6	7	8	9	10	11	12			
10	.056	.010	.009	.006	.006	.005	.005	.005	.004	.004	.002					MMT16ER100APRD
8	.071	.010	.009	.007	.006	.006	.006	.005	.005	.005	.005	.005	.002			MMT16ER080APRD

American NPT 60°

(inch)

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	.026	.006	.005	.005	.004	.004	.002										MMT16ER270NPT
18	.040	.008	.006	.006	.005	.005	.004	.002									MMT16ER180NPT
14	.052	.009	.007	.006	.006	.005	.005	.004	.004	.004	.002						MMT16ER140NPT
11.5	.065	.009	.007	.007	.006	.006	.005	.005	.005	.005	.004	.004	.002				MMT16ER115NPT
8	.095	.013	.011	.009	.008	.007	.006	.006	.006	.005	.005	.005	.004	.004	.004	.002	MMT16ER080NPT

American NPTF 60°

(inch)

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	.025	.006	.006	.004	.004	.003	.002										MMT16ER270NPTF
18	.039	.007	.006	.006	.005	.005	.004	.004	.002								MMT16ER180NPTF
14	.053	.009	.008	.006	.006	.005	.005	.004	.004	.004	.002						MMT16ER140NPTF
11.5	.064	.009	.009	.007	.006	.005	.005	.005	.004	.004	.004	.004	.002				MMT16ER115NPTF
8	.094	.013	.011	.009	.007	.007	.006	.006	.006	.005	.005	.005	.004	.004	.004	.002	MMT16ER080NPTF

- Note 1) · Set the finishing allowance on a diameter at approx. .004 inch when using a full form insert.
 · Please note the cutting depth and the number of passes when a nose radius of a partial or semi-full form insert or of an internal threading insert is small to prevent damage to the insert nose.
 · 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 STANDARD OF DEPTH OF CUT INTERNAL (RADIAL INFED)

ISO Metric 60°

(mm)

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 chip breakers	
0.5	0.29	0.09	0.07	0.07	0.06											MMT11R050ISO	MMT16R050ISO	—	—
0.75	0.43	0.15	0.13	0.09	0.06											MMT11R075ISO	MMT16R075ISO	—	—
1.0	0.58	0.17	0.15	0.11	0.09	0.06										MMT11R100ISO	MMT16R100ISO	MMT11R100ISO-S	MMT16R100ISO-S
1.25	0.72	0.18	0.16	0.12	0.11	0.09	0.06									MMT11R125ISO	MMT16R125ISO	MMT11R125ISO-S	MMT16R125ISO-S
1.5	0.87	0.21	0.20	0.16	0.13	0.11	0.06									MMT11R150ISO	MMT16R150ISO	MMT11R150ISO-S	MMT16R150ISO-S
1.75	1.01	0.21	0.20	0.15	0.12	0.10	0.09	0.08	0.06							MMT11R175ISO	MMT16R175ISO	—	MMT16R175ISO-S
2.0	1.15	0.24	0.22	0.18	0.14	0.12	0.10	0.09	0.06							MMT11R200ISO	MMT16R200ISO	—	MMT16R200ISO-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					—	MMT16R250ISO	—	MMT16R250ISO-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			—	MMT16R300ISO	—	MMT16R300ISO-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			—	MMT22R350ISO	—	—
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	—	MMT22R400ISO	—	—
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	—	MMT22R450ISO	—	—
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	—	MMT22R500ISO	—	—

American UN 60°

(inch)

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 chip breakers	
32	.018	.006	.006	.004	.002											MMT11R320UN	MMT16R320UN	—	—
28	.020	.006	.005	.004	.003	.002										MMT11R280UN	MMT16R280UN	—	—
24	.024	.007	.006	.005	.004	.002										MMT11R240UN	MMT16R240UN	—	—
20	.029	.007	.006	.005	.005	.004	.002									MMT11R200UN	MMT16R200UN	—	—
18	.032	.008	.007	.006	.005	.004	.002									MMT11R180UN	MMT16R180UN	—	—
16	.036	.008	.007	.006	.005	.004	.004	.002								MMT11R160UN	MMT16R160UN	MMT16R160UN-S	—
14	.041	.008	.007	.006	.005	.005	.004	.004	.002							MMT11R140UN	MMT16R140UN	MMT16R140UN-S	—
13	.044	.009	.007	.006	.006	.005	.005	.004	.002							—	MMT16R130UN	—	—
12	.048	.009	.009	.007	.006	.005	.005	.005	.002							—	MMT16R120UN	MMT16R120UN-S	—
11	.052	.009	.009	.008	.006	.005	.005	.004	.004	.002						—	MMT16R110UN	—	—
10	.058	.010	.009	.008	.006	.005	.005	.005	.004	.004	.002					—	MMT16R100UN	—	—
9	.064	.012	.009	.008	.007	.006	.006	.005	.005	.004	.002					—	MMT16R090UN	—	—
8	.072	.012	.010	.008	.007	.006	.006	.006	.005	.005	.005	.002				—	MMT16R080UN	—	—
7	.082	.014	.012	.009	.008	.007	.007	.006	.006	.006	.005	.002				—	MMT22R070UN	—	—
6	.096	.016	.013	.010	.009	.007	.007	.006	.006	.006	.005	.005	.004	.002		—	MMT22R060UN	—	—
5	.115	.016	.014	.012	.010	.009	.008	.008	.007	.007	.006	.006	.005	.005	.002	—	MMT22R050UN	—	—

Whitworth 55° for BSW, BSP

(inch)

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 chip breakers	
28	.023	.007	.006	.004	.004	.002										—	MMT16R280W	—	—
26	.025	.007	.006	.005	.005	.002										—	MMT16R260W	—	—
20	.032	.008	.007	.006	.005	.004	.002									—	MMT16R200W	—	—
19	.034	.008	.007	.006	.006	.005	.002									MMT11R190W	MMT16R190W	MMT16R190W-S	—
18	.035	.010	.007	.006	.005	.005	.002									—	MMT16R180W	—	—
16	.040	.008	.007	.006	.005	.004	.004	.004	.002							—	MMT16R160W	—	—
14	.046	.009	.008	.007	.006	.005	.005	.004	.002							MMT11R140W	MMT16R140W	MMT16R140W-S	—
12	.054	.011	.010	.008	.006	.006	.006	.005	.002							—	MMT16R120W	MMT16R120W-S	—
11	.058	.011	.009	.008	.007	.006	.006	.005	.004	.002						—	MMT16R110W	—	—
10	.064	.011	.010	.008	.007	.006	.006	.005	.005	.004	.002					—	MMT16R100W	—	—
9	.071	.011	.010	.008	.007	.006	.006	.006	.005	.005	.005	.002				—	MMT16R090W	—	—
8	.080	.012	.011	.009	.007	.007	.006	.006	.006	.005	.005	.004	.002			—	MMT16R080W	—	—
7	.091	.013	.013	.010	.009	.008	.007	.007	.006	.006	.006	.004	.002			—	MMT22R070W	—	—
6	.107	.014	.013	.011	.009	.008	.008	.007	.007	.006	.006	.006	.005	.005	.002	—	MMT22R060W	—	—
5	.128	.017	.016	.014	.011	.010	.009	.009	.008	.007	.007	.007	.006	.005	.002	—	MMT22R050W	—	—

- Note 1) · Set the finishing allowance on a diameter at approx. .004 inch when using a full form insert.
 · Please note the cutting depth and the number of passes when a nose radius of a partial or semi-full form insert or of an internal threading insert is small to prevent damage to the insert nose.
 · 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.

THREADING

MMT STANDARD OF DEPTH OF CUT INTERNAL (RADIAL INFED)

BSPT 55°

(inch)

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 chip breakers
19	.034	.009	.007	.006	.005	.005	.002									MMT11IR190BSPT	MMT16IR190BSPT
14	.046	.009	.008	.007	.006	.005	.005	.004	.002							MMT11IR140BSPT	MMT16IR140BSPT
11	.058	.010	.009	.008	.007	.006	.006	.005	.005	.002						—	MMT16IR110BSPT

Round DIN 405 30°

(inch)

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	
10	.050	.009	.008	.008	.007	.006	.005	.005	.002							MMT16IR100RD	
8	.063	.009	.008	.008	.007	.007	.006	.006	.005	.005	.002					MMT16IR080RD	
6	.083	.010	.010	.009	.009	.008	.007	.007	.006	.006	.005	.004	.002			MMT16IR060RD	
4	.125	.013	.013	.013	.012	.011	.010	.009	.009	.008	.007	.007	.006	.005	.002	MMT22IR040RD	

ISO Trapezoidal 30°

(mm)

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	
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 29°

(inch)

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	
12	.047	.011	.009	.008	.007	.006	.004	.002								MMT16IR120ACME	
10	.060	.011	.010	.008	.007	.006	.006	.005	.005	.002						MMT16IR100ACME	
8	.072	.012	.010	.009	.007	.006	.006	.006	.005	.005	.004	.002				MMT16IR080ACME	
6	.093	.013	.012	.011	.009	.008	.007	.006	.006	.005	.005	.005	.004	.002		MMT22IR060ACME	
5	.110	.014	.013	.012	.010	.009	.008	.007	.007	.006	.006	.006	.005	.005	.002	MMT22IR050ACME	

API Buttress Casing

(inch)

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes														Insert Type	
		1	2	3	4	5	6	7	8	9	10	11				G-class ground inserts	
5	.061	.010	.009	.007	.006	.005	.005	.005	.004	.004	.004	.002				MMT22IR050APBU	

API Round 60° Casing & Tubing

(inch)

Pitch (thread/ inch)	Total Cutting Depth	Number of Passes														Insert Type	
		1	2	3	4	5	6	7	8	9	10	11	12			G-class ground inserts	
10	.056	.010	.009	.006	.006	.005	.005	.005	.004	.004	.002					MMT16IR100APRD	
8	.071	.010	.009	.007	.006	.006	.006	.005	.005	.005	.005	.005	.002			MMT16IR080APRD	

- Note 1) · Set the finishing allowance on a diameter at approx. .004 inch when using a full form insert.
 · Please note the cutting depth and the number of passes when a nose radius of a partial or semi-full form insert or of an internal threading insert is small to prevent damage to the insert nose.
 · 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.

American NPT 60°

(inch)

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	
																	G-class ground inserts
27	.026	.006	.005	.005	.004	.004	.002										MMT16IR270NPT
18	.040	.008	.006	.006	.005	.005	.004	.004	.002								MMT16IR180NPT
14	.052	.009	.007	.006	.006	.005	.005	.004	.004	.004	.002						MMT16IR140NPT
11.5	.065	.009	.007	.007	.006	.006	.005	.005	.005	.004	.004	.002					MMT16IR115NPT
8	.095	.013	.011	.009	.008	.007	.006	.006	.006	.005	.005	.005	.004	.004	.004	.002	MMT16IR080NPT

American NPTF 60°

(inch)

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	
																	G-class ground inserts
14	.053	.009	.008	.006	.006	.005	.005	.004	.004	.004	.002						MMT16IR140NPTF
11.5	.064	.009	.009	.007	.006	.005	.005	.005	.004	.004	.004	.004	.002				MMT16IR115NPTF
8	.094	.013	.011	.009	.007	.007	.006	.006	.006	.005	.005	.005	.004	.004	.004	.002	MMT16IR080NPTF

- Note 1) · Set the finishing allowance on a diameter at approx. .004 inch when using a full form insert.
 · Please note the cutting depth and the number of passes when a nose radius of a partial or semi-full form insert or of an internal threading insert is small to prevent damage to the insert nose.
 · 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	08		3	SM					
Designation	Application		Hand of Tool		Tool Size (inch) (Height and Width)				Insert Size		Tool Type	
	E	External	R	Right	06	.375	12	.750	3	MMT16	SM	Non-offset
					08	.500	16	1.000	4	MMT22		
					10	.625	20	1.250				

INTERNAL

MMT		I	R	10	2	0.50		1.5		C	
Designation	Application		Shank Diameter (inch)		Insert Size		Min. Cutting Diameter (inch)		Lead Angle		Coolant
	I	Internal	10	.625	2	MMT11	0.50	.500	1.15	1.150	C With
			12	.750	3	MMT16	0.60	.600	1.20	1.200	
			16	1.000	4	MMT22	0.75	.750	1.45	1.450	
Hand of Tool			20	1.250			0.90	.900	1.50	1.500	
R	Right		24	1.500			0.95	.950	1.75	1.750	

G

THREADING

INSERTS

M-CLASS

MMT	16	E	R	100	ISO	S	M-class inserts with 3-D chip breakers																																								
Designation	Diameter of Inscribed Circle (mm) <table><tr><td>11</td><td>6.35</td></tr><tr><td>16</td><td>9.525</td></tr></table>	11	6.35	16	9.525	Application <table><tr><td>E</td><td>External</td></tr><tr><td>I</td><td>Internal</td></tr></table>	E	External	I	Internal	Hand of Tool <table><tr><td>R</td><td>Right</td></tr></table>	R	Right	Pitch <table><tr><td>100</td><td>1.0 mm</td><td rowspan="3">A</td><td rowspan="3">0.5—1.5 mm or 48—16 thread/inch</td></tr><tr><td>125</td><td>1.25 mm</td></tr><tr><td>150</td><td>1.5 mm</td></tr><tr><td>175</td><td>1.75 mm</td><td rowspan="4">G</td><td rowspan="4">1.75—3.0 mm or 14—8 thread/inch</td></tr><tr><td>200</td><td>2.0 mm</td></tr><tr><td>250</td><td>2.5 mm</td></tr><tr><td>300</td><td>3.0 mm</td></tr></table>		100	1.0 mm	A	0.5—1.5 mm or 48—16 thread/inch	125	1.25 mm	150	1.5 mm	175	1.75 mm	G	1.75—3.0 mm or 14—8 thread/inch	200	2.0 mm	250	2.5 mm	300	3.0 mm	Threading Type <table><tr><td>60</td><td>Partial Profile 60°</td></tr><tr><td>55</td><td>Partial Profile 55°</td></tr><tr><td>ISO</td><td>ISO Metric 60°</td></tr><tr><td>W</td><td>Whitworth 55° for BSW, BSP</td></tr><tr><td>BSPT</td><td>BSPT 55°</td></tr><tr><td>UN</td><td>American UN 60°</td></tr></table>		60	Partial Profile 60°	55	Partial Profile 55°	ISO	ISO Metric 60°	W	Whitworth 55° for BSW, BSP	BSPT	BSPT 55°	UN	American UN 60°
11		6.35																																													
16	9.525																																														
E	External																																														
I	Internal																																														
R	Right																																														
100	1.0 mm	A	0.5—1.5 mm or 48—16 thread/inch																																												
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250	2.5 mm																																														
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60	Partial Profile 60°																																														
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W	Whitworth 55° for BSW, BSP																																														
BSPT	BSPT 55°																																														
UN	American UN 60°																																														

G-CLASS

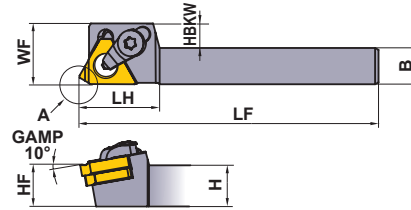
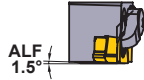
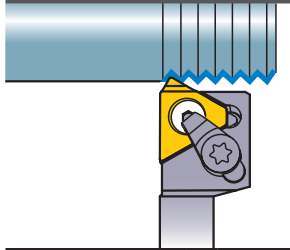
MMT	16	E	R	050	ISO		
Designation			Hand of Tool	Pitch		Threading Type	
	Diameter of Inscribed Circle (mm)	Application	R Right	050 0.5 mm	A	0.5—1.5 mm or 48—16 thread/inch	60 Partial Profile 60°
	11 6.35	E External		075 0.75 mm			55 Partial Profile 55°
	16 9.525	I Internal		100 1.0 mm			ISO ISO Metric 60°
	22 12.7			125 1.25 mm	G	1.75—3.0 mm or 14—8 thread/inch	W Whitworth 55° for BSW, BSP
				150 1.5 mm			BSPT BSPT 55°
				175 1.75 mm			UN American UN 60°
				200 2.0 mm	AG	0.5—3.0 mm or 48—8 thread/inch	RD Round DIN 405 30°
				250 2.5 mm			TR ISO Trapezoidal 30°
				300 3.0 mm			ACME American ACME 29°
				350 3.5 mm	N	3.5—5.0 mm or 7—5 thread/inch	UNJ UNJ
				400 4.0 mm			APBU API Buttress Casing
				450 4.5 mm			APRD API Round 60° Casing&Tubing
				500 5.0 mm			NPT NPT 60°
							NPTF NPTF 60°

MMTE HOLDER

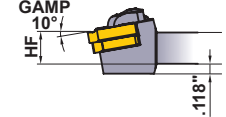
- Various insert types.
- Precision class insert for precise thread forms.
- Available with a pressed breaker for chip control.
- Able to change lead angle by replacing the shim.

MMTE

External threading



Details of position A
Refer to the insert standards
for dimensions PDX and PDY.



MMTER-063SM

Right hand tool holder only.

Order Number	Stock R	Insert Number	Dimensions (inch)							Clamp Bridge	Clamp Screw *	Stop Ring	Shim Screw *	Shim	Wrench
			H	B	LF	LH	HF	WF	HBKW						
MMTER-063SM	●	MMT16ER ○○○○○	.375	.375	4.724	.875	.375	.625	.250	SETK51	SETS51	CR4	HFC03008	CTE32TP15	①TKY15F ②HKY20R
MMTER-083SM	●		.500	.500	4.724	.875	.500	.625	.125	SETK51	SETS51	CR4	HFC03008	CTE32TP15	①TKY15F ②HKY20R
MMTER-083	●		.500	.500	4.000	1.000	.500	.625	—	SETK51	SETS51	CR4	HFC03008	CTE32TP15	①TKY15F ②HKY20R
MMTER-103	●		.625	.625	4.000	1.000	.625	.750	—	SETK51	SETS51	CR4	HFC03008	CTE32TP15	①TKY15F ②HKY20R
MMTER-123	●		.750	.750	5.000	1.000	.750	1.000	—	SETK51	SETS51	CR4	HFC03008	CTE32TP15	①TKY15F ②HKY20R
MMTER-163	●		1.000	1.000	6.000	1.000	1.000	1.250	—	SETK51	SETS51	CR4	HFC03008	CTE32TP15	①TKY15F ②HKY20R
MMTER-124	●	MMT22ER ○○○○○	.750	.750	5.000	1.250	.750	1.000	—	SETK61	SETS61	CR5	HFC04010	CTE43TP15	①TKY20F ②HKY25R
MMTER-164	●		1.000	1.000	6.000	1.250	1.000	1.250	—	SETK61	SETS61	CR5	HFC04010	CTE43TP15	①TKY20F ②HKY25R
MMTER-204	●		1.250	1.250	6.000	1.250	1.250	1.500	—	SETK61	SETS61	CR5	HFC04010	CTE43TP15	①TKY20F ②HKY25R

Note 1) Select and use an alternate shim from list below (sold separately), dependant on the lead angle.

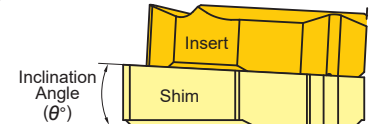
* Clamp Torque (lbf-in) : SETS51=31, SETS61=44, HFC03008=13, HFC04010=19

SHIM

Lead Angle (α°)	Order Number	Stock R	Inclination Angle (θ°)	Applicable Holder
-1.5°	CTE32TN15	●	-3°	MMTER -○○3
-0.5°	CTE32TN05	●	-2°	
0.5°	CTE32TP05	●	-1°	
1.5°	CTE32TP15	●	0°	
2.5°	CTE32TP25	●	1°	
3.5°	CTE32TP35	●	2°	
4.5°	CTE32TP45	●	3°	

Standard shim delivered with the holder.

Lead Angle (α°)	Order Number	Stock R	Inclination Angle (θ°)	Applicable Holder
-1.5°	CTE43TN15	●	-3°	MMTER -○○4
-0.5°	CTE43TN05	●	-2°	
0.5°	CTE43TP05	●	-1°	
1.5°	CTE43TP15	●	0°	
2.5°	CTE43TP25	●	1°	
3.5°	CTE43TP35	●	2°	
4.5°	CTE43TP45	●	3°	



RECOMMENDED CUTTING CONDITIONS

	Work Material	Hardness	Grade	Cutting Speed (SFM)
P	Mild Steel	≤180HB	VP10MF	490 (230—755)
			VP15TF	330 (195—460)
			VP20RT	260 (195—330)
	Carbon Steel Alloy Steel	180—280HB	VP10MF	460 (260—655)
M	Stainless Steel	≤200HB	VP15TF	260 (130—395)
			VP20RT	260 (130—395)
			VP10MF	460 (260—655)
K	Gray Cast Iron	Tensile Strength ≤350MPa	VP15TF	295 (195—395)
			VP10MF	460 (260—655)

	Work Material	Hardness	Grade	Cutting Speed (SFM)
S	Heat Resistant Alloy	—	VP10MF	150 (50—230)
			VP15TF	100 (65—130)
			VP20RT	100 (65—130)
	Titanium Alloy	—	VP10MF	195 (130—260)
H	Heat-Treated Alloy	45—55HRC	VP15TF	150 (80—210)
			VP10MF	165 (100—230)
			VP15TF	130 (65—195)

HOW TO SELECT A SHIM ➤ G012
SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

● : USA Stock

THREADING

G021

MMT M-CLASS INSERTS WITH 3-D CHIP BREAKERS

INSERTS

Type	Order Number	Coated		Pitch		Dimensions (mm)					Total depth of cut (mm)	Geometry
		VP15TF	VP20RT			IC	S	PDY	PDX	RE		
				mm	thread/inch							
Partial Profile 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°	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 60°	MMT16ER100ISO-S	●	★	1.0		9.525	3.44	0.7	0.7	0.13	0.61	
	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 60°	MMT16ER160UN-S	●			16	9.525	3.44	0.9	1.1	0.23	0.97	
	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 55° for BSW, BSP	MMT16ER190W-S	★			19	9.525	3.44	0.8	1.0	0.18	0.86	
	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 55°	MMT16ER190BSPT-S	★			19	9.525	3.44	0.8	0.9	0.18	0.86	
	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

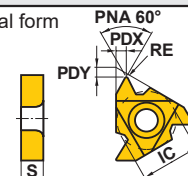
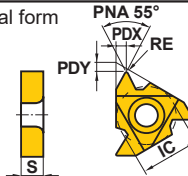
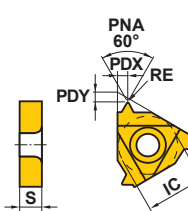
MMT	16	E	R	100	ISO	-	S	M-class inserts with 3-D chip breakers
Designation	Diameter of Inscribed Circle (mm)	Application	Hand of Tool	Pitch	Threading Type			
	11 6.35 16 9.525	E External I Internal	R Right	100 1.0 mm 125 1.25 mm 150 1.5 mm 175 1.75 mm 200 2.0 mm 250 2.5 mm 300 3.0 mm	60 Partial Profile 60° 55 Partial Profile 55° ISO ISO Metric 60° W Whitworth 55° for BSW, BSP BSPT BSPT 55° UN American UN 60°			
				A 0.5—1.5 mm or 48—16 thread/inch G 1.75—3.0 mm or 14—8 thread/inch				

● : USA Stock ★ : Stocked in Japan

<5 inserts in one case>

MMT G-CLASS GROUND INSERTS

INSERTS

Type	Thread Tolerance	Order Number	Coated		Pitch		Dimensions (mm)					Total depth of cut (mm)	Geometry
			VP10MF	VP15TF			IC	S	PDY	PDX	RE		
					mm	thread/inch							
Partial Profile 60°	—	MMT16ERA60	★	★	0.5—1.5	48—16	9.525	3.44	0.8	0.9	0.05	—	
		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	—	
		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 60°	6g	MMT16ER050ISO	●		0.5		9.525	3.44	0.6	0.4	0.06	0.31	
		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	

THREADING

IDENTIFICATION

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

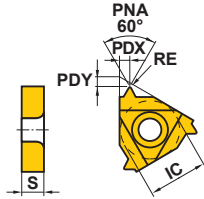
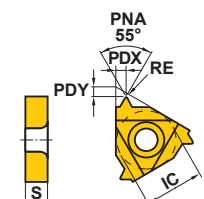
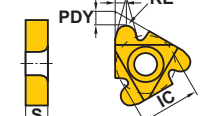
050	0.5 mm	A	0.5—1.5 mm or 48—16 thread/inch
075	0.75 mm		
100	1.0 mm		
125	1.25 mm	G	1.75—3.0 mm or 14—8 thread/inch
150	1.5 mm		
175	1.75 mm		
200	2.0 mm	AG	0.5—3.0 mm or 48—8 thread/inch
250	2.5 mm		
300	3.0 mm		
350	3.5 mm	N	3.5—5.0 mm or 7—5 thread/inch
400	4.0 mm		
450	4.5 mm		
500	5.0 mm		

Threading Type

60	Partial Profile 60°
55	Partial Profile 55°
ISO	ISO Metric 60°
W	Whitworth 55° for BSW, BSP
BSPT	BSPT 55°
UN	American UN 60°
RD	Round DIN 405 30°
TR	ISO Trapezoidal 30°
ACME	American ACME 29°
UNJ	UNJ
APBU	API Buttress Casing
APRD	API Round 60° Casing&Tubing
NPT	NPT 60°
NPTF	NPTF 60°

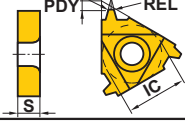
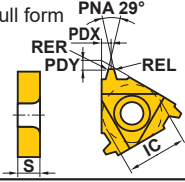
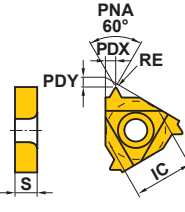
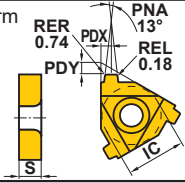
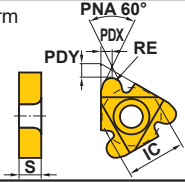
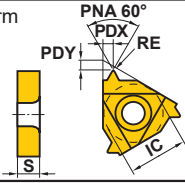
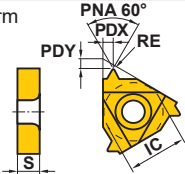
MMT G-CLASS GROUND INSERTS

INSERTS

Type	Thread Tolerance	Order Number	Coated		Pitch		Dimensions (mm)					Total depth of cut (mm)	Geometry
			VP10MF	VP15TF			IC	S	PDY	PDX	RE		
					mm	thread/inch							
American UN 60°	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 55° 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 55°	Standard BSPT	MMT16ER280BSPT	★			28	9.525	3.44	0.6	0.6	
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 30°	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	

● : USA Stock ★ : Stocked in Japan

<5 inserts in one case>

Type	Thread Tolerance	Order Number	Coated		Pitch		Dimensions (mm)					Total depth of cut (mm)	Geometry
			VP10MF				IC	S	PDY	PDX	RE		
					mm	thread/inch							
ISO Trapezoidal 30°	7e	MMT16ER150TR	★		1.5		9.525	3.44	1.0	1.1	0.08	0.90	Semi-full form 
		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 29°	3G	MMT16ER120ACME	●			12	9.525	3.44	1.1	1.2	0.08	1.19	Semi-full form 
		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 60° 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 60°	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 60°	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	

THREADING

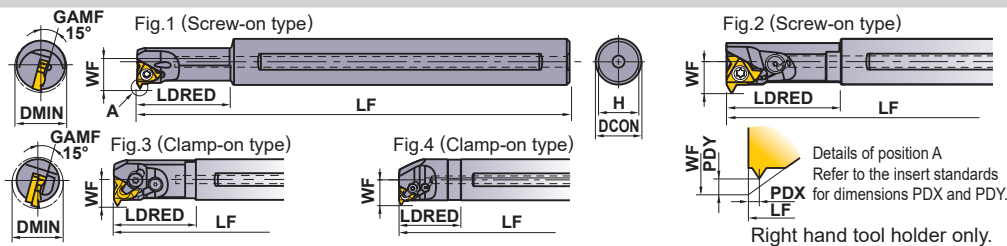
MMTI TYPE BORING BARS

- Minimum cutting diameter .500".
- Various insert types.
- Precision class insert for precise thread forms.

- Available with a pressed breaker for chip control.
- Able to change lead angle by replacing the shim.

MMTI

Internal threading



Right hand tool holder only.

Order Number	Stock	Insert Number	Lead Angle	Dimensions (inch)						Clamp Bridge	Clamp Screw	Stop Ring	Shim Screw	Shim	Wrench	Fig.
				DCON	LF	LDRED	WF	H	DMIN							
MMTIR102-0.50-1.5-C	●	MMT11IR	1.5°	.625	5.000	1.000	.340	.586	.500	—	TS25	—	—	—	①TKY08F	1
MMTIR102-0.50-2.5-C	●		2.5°	.625	5.000	1.000	.340	.586	.500	—	TS25	—	—	—	①TKY08F	1
MMTIR102-0.60-1.5-C	●		1.5°	.625	6.000	1.250	.380	.586	.600	—	TS25	—	—	—	①TKY08F	1
MMTIR102-0.60-2.5-C	●		2.5°	.625	6.000	1.250	.380	.586	.600	—	TS25	—	—	—	①TKY08F	1
MMTIR103-0.75-1.5-C	●	MMT16IR	1.5°	.625	6.000	1.500	.480	.586	.750	—	CS350860T	—	—	—	①TKY15F	2
MMTIR103-0.75-2.5-C	●		2.5°	.625	6.000	1.500	.480	.586	.750	—	CS350860T	—	—	—	①TKY15F	2
MMTIR123-0.90-1.5-C	●		1.5°	.750	7.000	1.500	.510	.711	.900	SETK51	SETS51	CR4	HFC03006	CTI32TP15	①TKY15F ②HKY20R	3
MMTIR163-1.15-1.5-C	●		1.5°	1.000	10.000	2.500	.660	.937	1.150	SETK51	SETS51	CR4	HFC03006	CTI32TP15	①TKY15F ②HKY20R	3
MMTIR203-1.45-1.5-C	●	MMT22IR	1.5°	1.250	10.000	2.000	.810	1.187	1.450	SETK51	SETS51	CR4	HFC03006	CTI32TP15	①TKY15F ②HKY20R	4
MMTIR124-0.95-1.5-C	●		1.5°	.750	7.000	2.000	.610	.711	.950	—	TS43	—	—	—	①TKY15F	2
MMTIR124-0.95-2.5-C	●		2.5°	.750	7.000	2.000	.610	.711	.950	—	TS43	—	—	—	①TKY15F	2
MMTIR164-1.20-1.5-C	●		1.5°	1.000	8.000	1.500	.700	.937	1.200	SETK61	SETS61	CR5	HFC04008	CTI43TP15	①TKY20F ②HKY25R	4
MMTIR204-1.50-1.5-C	●	MMT24IR	1.5°	1.250	10.000	2.000	.860	1.187	1.500	SETK61	SETS61	CR5	HFC04008	CTI43TP15	①TKY20F ②HKY25R	4
MMTIR244-1.75-1.5-C	●		1.5°	1.500	12.000	2.500	.980	1.437	1.750	SETK61	SETS61	CR5	HFC04008	CTI43TP15	①TKY20F ②HKY25R	4

Note 1) Select and use an alternate shim from list below (sold separately), dependant on the lead angle.

- The screw-on type has no shim. The holder has an in-built lead angle. Please select a holder with the appropriate lead angle.
- The minimum cutting diameter (DMIN) indicates the prepared hole diameter, not the nominal thread diameter.

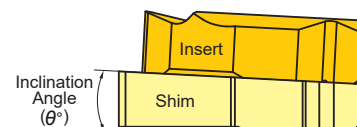
* Clamp Torque (lbf-in) : TS25=8.9, CS350860T=31, SETS51=31, TS43=31, SETS61=44, HFC03006=13, HFC04008=19

SHIM

Lead Angle (α°)	Order Number	Stock	Inclination Angle (θ°)	Applicable Holder
-1.5°	CTI32TN15	●	-3°	MMTIR ③③-③③ ③③-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°	

Standard shim delivered with the holder.

Lead Angle (α°)	Order Number	Stock	Inclination Angle (θ°)	Applicable Holder
-1.5°	CTI43TN15	●	-3°	MMTIR ④④-④④ ④④-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°	



RECOMMENDED CUTTING CONDITIONS

	Work Material	Hardness	Grade	Cutting Speed (SFM)
P	Mild Steel	≤180HB	VP10MF	490 (230—755)
			VP15TF	330 (195—460)
			VP20RT	260 (195—330)
	Carbon Steel Alloy Steel	180—280HB	VP10MF	460 (260—655)
			VP15TF	330 (195—460)
			VP20RT	260 (195—330)
M	Stainless Steel	≤200HB	VP15TF	260 (130—395)
K	Gray Cast Iron	Tensile Strength ≤350MPa	VP10MF	460 (260—655)
			VP15TF	295 (195—395)

	Work Material	Hardness	Grade	Cutting Speed (SFM)
S	Heat Resistant Alloy	—	VP10MF	150 (50—230)
			VP15TF	100 (65—130)
			VP20RT	
H	Titanium Alloy	—	VP10MF	195 (130—260)
			VP15TF	150 (80—210)
			VP20RT	
H	Heat-Treated Alloy	45—55HRC	VP10MF	165 (100—230)
			VP15TF	130 (65—195)

● : USA Stock ★ : Stocked in Japan
 <5 inserts in one case>

HOW TO SELECT A SHIM ➤ G012
 MMT SERIES ORDER NUMBER ➤ G020

MMT M-CLASS INSERTS WITH 3-D CHIP BREAKERS

INSERTS

Type	Order Number	Coated		Pitch		Dimensions (mm)					Total depth of cut (mm)	Geometry
		VP15TF	VP20RT			IC	S	PDY	PDX	RE		
				mm	thread/inch							
Partial Profile 60°	MMT11IRA60-S	★		0.5—1.5	48—16	6.35	3.04	0.8	0.9	0.03	—	
	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	—	
	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 60°	MMT11IR100ISO-S	★		1.0		6.35	3.04	0.6	0.7	0.06	0.58	
	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 60°	MMT16IR160UN-S	●			16	9.525	3.44	0.9	1.1	0.11	0.92	
	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 55° for BSW, BSP	MMT16IR190W-S	★			19	9.525	3.44	0.8	1.0	0.18	0.86	
	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 55°	MMT16IR190BSPT-S	★			19	9.525	3.44	0.8	0.9	0.18	0.86	
	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	M-class inserts with 3-D chip breakers
Designation	Diameter of Inscribed Circle (mm)	Application	Hand of Tool	Pitch	Threading Type			
	11 6.35 16 9.525	E External I Internal	R Right	100 1.0 mm 125 1.25 mm 150 1.5 mm 175 1.75 mm 200 2.0 mm 250 2.5 mm 300 3.0 mm	60 Partial Profile 60° 55 Partial Profile 55° ISO ISO Metric 60° W Whitworth 55° for BSW, BSP BSPT BSPT 55° UN American UN 60°			
				A 0.5–1.5 mm or 48–16 thread/inch G 1.75–3.0 mm or 14–8 thread/inch				

Type	Thread Tolerance	Order Number	Coated		Pitch		Dimensions (mm)					Total depth of cut (mm)	Geometry
			VP10MF	VP15TF			IC	S	PDY	PDX	RE		
			mm	thread/inch									
Partial Profile 60°	—	MMT11IRA60	★	★	0.5—1.5	48—16	6.35	3.04	0.8	0.9	0.05	—	
		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	—	
		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 60°	6H	MMT11IR050ISO	★		0.5		6.35	3.04	0.6	0.4	0.03	0.29	
		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	

The diagram illustrates the components of the thread designation **MMT 16 I R 050 ISO**:

- Designation**: MMT
- Diameter of Inscribed Circle (mm)**: 16

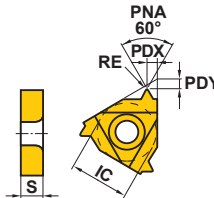
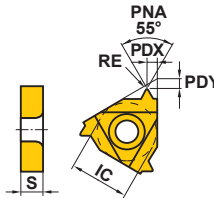
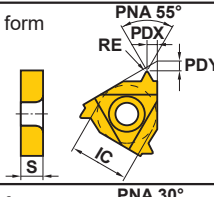
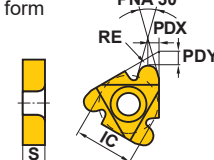
Diameter of Inscribed Circle (mm)	
11	6.35
16	9.525
22	12.7
- Application**: I

Application	
E	External
I	Internal
- Hand of Tool**: R

Hand of Tool	
R	Right
- Pitch**: 050

Pitch		
050	0.5 mm	A 0.5—1.5 mm or 48—16 thread/inch
075	0.75 mm	
100	1.0 mm	
125	1.25 mm	G 1.75—3.0 mm or 14—8 thread/inch
150	1.5 mm	
175	1.75 mm	
200	2.0 mm	AG 0.5—3.0 mm or 48—8 thread/inch
250	2.5 mm	
300	3.0 mm	
350	3.5 mm	N 3.5—5.0 mm or 7—5 thread/inch
400	4.0 mm	
450	4.5 mm	
500	5.0 mm	
- Threading Type**: ISO

Threading Type	
60	Partial Profile 60°
55	Partial Profile 55°
ISO	ISO Metric 60°
W	Whitworth 55° for BSW, BSP
BSPT	BSPT 55°
UN	American UN 60°
RD	Round DIN 405 30°
TR	ISO Trapezoidal 30°
ACME	American ACME 29°
UNJ	UNJ
APBU	API Buttress Casing
APRD	API Round 60° Casing&Tubing
NPT	NPT 60°
NPTF	NPTF 60°

Type	Thread Tolerance	Order Number	Coated		Pitch		Dimensions (mm)					Total depth of cut (mm)	Geometry
			VP10MF	VP15TF			IC	S	PDY	PDX	RE		
					mm	thread/inch							
American UN 60°	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 55° 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 55°	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 30°	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		Pitch		Dimensions (mm)					Total depth of cut (mm)	Geometry
			VP10MF				IC	S	PDY	PDX	RE RER/L		
					mm	thread/inch							
ISO Trapezoidal 30°	7H	MMT16IR150TR	★		1.5		9.525	3.44	1.0	1.1	0.08	0.90	
		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 29°	3G	MMT16IR120ACME	●			12	9.525	3.44	1.2	1.3	0.05	1.19	
		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	0.74/0.8	1.55	
API Round 60° Casing & Tubing	Standard API RD	MMT16IR100APRD	●			10	9.525	3.44	1.2	1.4	0.34	1.41	
		MMT16IR080APRD	●			8	9.525	3.44	1.3	1.5	0.41	1.81	
American NPT 60°	Standard NPT	MMT16IR270NPT	●			27	9.525	3.44	0.7	0.8	0.04	0.66	
		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 60°	Class 2	MMT16IR140NPTF	★			14	9.525	3.44	0.9	1.2	0.04	1.35	
		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	

● : USA Stock ★ : Stocked in Japan

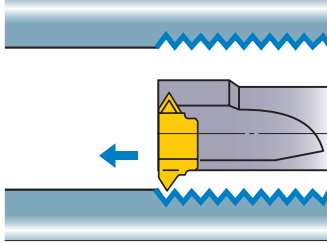
<5 inserts in one case>

F TYPE BORING BARS

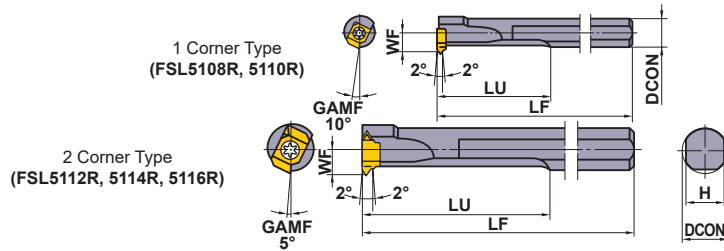
- Minimum cutting diameter 10 mm.
- Screw-on type.
- Applicable to threading, grooving.
- Thread pitch 1.5—3.5 mm.

FSL51

Internal threading, Grooving



Note 1) Cutting in the opposite direction is not possible.



Right hand tool holder only.

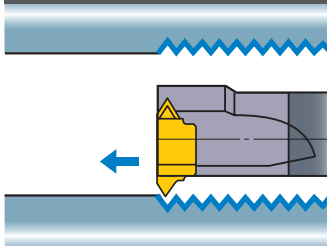
Order Number	Stock	Insert Number		Dimensions (mm)						*2	
	R	Threading	Grooving	DCON	LF	LU	WF	H	DMIN*1	Clamp Screw	Wrench
FSL5108R	★	MLT1001L	MLG10 $\odot$ L	8	125	30	4.8	7	10	TS25	TKY08F
FSL5110R	★	MLT1001L	MLG10 $\odot$ L	10	150	40	5.8	9	12	TS25	TKY08F
FSL5112R	★	MLT1401L	MLG14 $\odot$ L	12	180	50	6.8	10.8	14	TS32	TKY08F
FSL5114R	★	MLT1401L	MLG14 $\odot$ L	14	180	60	7.8	12.4	16	TS32	TKY08F
FSL5116R	★	MLT2001L	MLG20 $\odot$ L	16	200	70	9.7	14	20	TS43	TKY15F

*1 DMIN : Min.Cutting Diameter

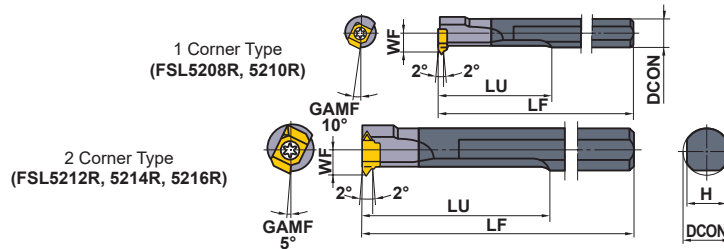
*2 Clamp Torque (lbf-in) : TS25=8.9, TS32=18, TS43=31

FSL52

(Carbide shank) Internal threading, Grooving



Note 1) Cutting in the opposite direction is not possible.



Right hand tool holder only.

Order Number	Stock	Insert Number		Dimensions (mm)						*2	
	R	Threading	Grooving	DCON	LF	LU	WF	H	DMIN*1	Clamp Screw	Wrench
FSL5208R	★	MLT1001L	MLG10 $\odot$ L	8	125	60	4.8	7	10	TS25	TKY08F
FSL5210R	★	MLT1001L	MLG10 $\odot$ L	10	150	70	5.8	9	12	TS25	TKY08F
FSL5212R	★	MLT1401L	MLG14 $\odot$ L	12	180	80	6.8	11	14	TS32	TKY08F
FSL5214R	★	MLT1401L	MLG14 $\odot$ L	14	180	85	7.8	12	16	TS32	TKY08F
FSL5216R	★	MLT2001L	MLG20 $\odot$ L	16	200	115	9.7	14	20	TS43	TKY15F

*1 DMIN : Min.Cutting Diameter

*2 Clamp Torque (lbf-in) : TS25=8.9, TS32=18, TS43=31

RECOMMENDED CUTTING CONDITIONS

Work Material	Hardness	Grade	Cutting Speed (SFM)
P	Mild Steel	≤180HB	UP20M 460 (330—590)
		UTi20T	395 (330—490)
	Carbon Steel Alloy Steel	180—280HB	UP20M 395 (330—490)
		UTi20T	330 (230—395)

Work Material	Hardness	Grade	Cutting Speed (SFM)
M	Stainless Steel	≤200HB	UP20M 395 (260—490)
		UTi20T	330 (230—425)
K	Gray Cast Iron	Tensile Strength ≤350MPa	UP20M 260 (195—330)
		UTi20T	260 (195—330)

INSERTS ➤ G033

SPARE PARTS ➤ M001
TECHNICAL DATA ➤ N001

G031

THREADING

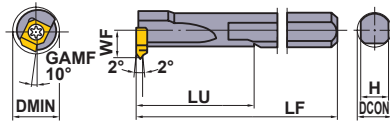
F TYPE BORING BARS

- Min. cutting diameter .390 inch.
- Screw-on type.
- Usable for various applications.
- Max. groove depth: .118 inch.

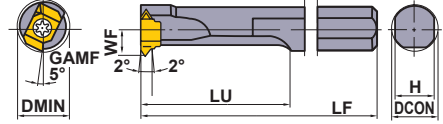
S-SL5N

Internal threading, Grooving

1 Corner type (S-SL5NR05 / 06)



2 Corner type (S-SL5NR08 / 10 / 12)



Right hand tool holder only.

Order Number	Stock	Insert Number		Dimensions (inch)						*2 Clamp Screw	*2 Wrench
		Threading	Grooving	DCON	LF	LU	WF	H	DMIN*1		
S-SL5NR05	●	MLT1001L	MLG10 $\odot\odot\odot$ L MLG10W $\odot\odot\odot$ L	.313	5.000	1.250	.188	.283	.390	TS25	TKY08F
S-SL5NR06	●	MLT1001L	MLG10 $\odot\odot\odot$ L MLG10W $\odot\odot\odot$ L	.375	6.000	1.500	.219	.340	.449	TS25	TKY08F
S-SL5NR08	●	MLT1401L	MLG14 $\odot\odot\odot$ L	.500	7.000	2.000	.281	.460	.579	TS32	TKY08F
S-SL5NR10	●	MLT2001L	MLG20 $\odot\odot\odot$ L	.625	8.000	3.000	.375	.560	.791	TS43	TKY15F
S-SL5NR12	●	MLT2001L	MLG20 $\odot\odot\odot$ L	.750	10.000	4.000	.438	.700	.902	TS43	TKY15F

*1 DMIN : Min. Cutting Diameter

*2 Clamp Torque (lbf-in) : TS25=8.9, TS32=18, TS43=31

RECOMMENDED CUTTING CONDITIONS

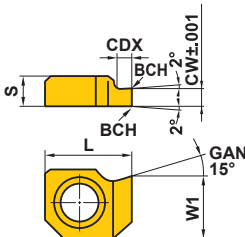
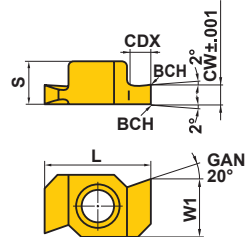
Work Material	Hardness	Grade	Cutting Speed (SFM)
P	≤180HB	UP20M	460 (330—590)
		UTi20T	395 (330—490)
	180—280HB	UP20M	395 (330—490)
		UTi20T	330 (230—395)

Work Material	Hardness	Grade	Cutting Speed (SFM)
M	≤200HB	UP20M	395 (260—490)
		UTi20T	330 (230—425)
K	Tensile Strength ≤350MPa	UP20M	260 (195—330)
		UTi20T	260 (195—330)

THREADING

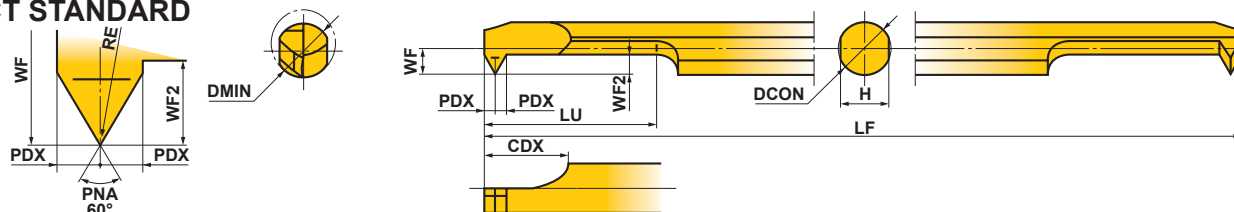
INSERTS

Application	Order Number	Coated	Carbide	Pitch (inch)	Dimensions (inch)				Geometry
		UP20M	UTi20T		L	W1	S	RE	
Threading	MLT1001L	●	●	.059—.079	.276	.197	.094	.004	MLT1001L (1 Corner type)
	MLT1401L	●	●	.059—.098	.465	.256	.187	.004	
	MLT2001L	●	●	.059—.138	.661	.356	.250	.004	
									MLT1401L /2001L (2 Corner type)

Application	Order Number	Carbide		CW (inch)	Dimensions (inch)					Geometry	
		UTi20T	HTi10		L	W1	CDX	S	BCH		
Grooving	MLG10W062L		●	Inch	.062	.276	.197	.039	.094	.004	MLG...L (1 Corner type) 
	MLG1012L	●		Metric	.047 (1.2 mm)	.276	.197	.039	.094	.004	
	MLG1015L	●			.059 (1.5 mm)	.276	.197	.039	.094	.004	
	MLG1020L	●			.079 (2.0 mm)	.276	.197	.039	.094	.004	
	MLG1415L	●		Metric	.059 (1.5 mm)	.465	.256	.079	.187	.004	MLG...L (2 Corner type) 
	MLG1420L	●			.079 (2.0 mm)	.465	.256	.079	.187	.004	
	MLG1430L	●			.118 (3.0 mm)	.465	.256	.079	.187	.004	
	MLG2020L	●			.079 (2.0 mm)	.661	.356	.118	.250	.004	
	MLG2030L	●			.118 (3.0 mm)	.661	.356	.118	.250	.004	
	MLG2040L	●			.157 (4.0 mm)	.661	.356	.118	.250	.004	

MICRO-MINI TWIN

CT STANDARD



Order Number	Stock		Breaker	Threads				Dimensions (mm)									
	Micro Grain Carbide	Coated		Metric Screw		Unified Coarse Screw											
				Thread	Pitch (mm)	Thread	Pitch (thread/inch)	DMIN	RE	DCON	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
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
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

THREAD PITCH FOR THE CT TYPE

Order Number	Metric Thread								Unified Thread						
	P (mm)								P (thread/inch)						
	0.50	0.70	0.75	0.80	1.00	1.25	1.50	1.75	36	32	28	24	20	18	16
CT03RS-M4/M4B	○	○	○	○	○	—	—	—	○	○	○	○	—	—	—
CT04RS-M6/M6B	—	—	○	—	○	○	—	—	—	—	○	○	○	—	—
CT05RS-M8/M8B	—	—	○	—	○	○	○	—	—	—	—	○	○	○	—
CT06RS-M10/M10B	—	—	○	—	○	○	○	○	—	—	—	○	○	○	○

Note 1) For internal threads that are larger than the minimum diameter of the Micro Mini Twin (CT type) it is possible to machining the above thread pitches. For the minimum diameter please refer to the standards.

DEPTH OF CUT FOR THE CT TYPE

● Metric Thread

P (pitch)		0.5	0.7	0.75	0.8	1		1.25	1.5	1.75	
D.O.C. (mm)		0.3	0.43	0.46	0.44	0.49	0.62	0.6	0.76	0.92	1.09
Re* (Corner radius)		0.03	0.03	0.03	0.05	0.03	0.03	0.05	0.05	0.05	0.05
Number of Passes	1	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07
	2	0.05	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07
	3	0.05	0.06	0.06	0.05	0.06	0.06	0.06	0.07	0.07	0.07
	4	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.07	0.07	0.07
	5	0.04	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.07	0.07
	6	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.07
	7	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.06	0.06	0.06
	8		0.04	0.04	0.03	0.04	0.04	0.04	0.05	0.06	0.06
	9		0.03	0.03	0.03	0.03	0.04	0.04	0.05	0.05	0.06
	10			0.03	0.03	0.03	0.04	0.04	0.05	0.05	0.06
	11					0.03	0.03	0.03	0.04	0.05	0.05
	12						0.03	0.03	0.04	0.05	0.05
	13						0.03		0.04	0.04	0.05
	14								0.03	0.04	0.05
	15									0.04	0.04
	16										0.04
	17									0.03	0.04
	18										0.04
	19										0.04
	20										0.03

● Unified Thread

P (thread/inch)										
D.O.C. (inch)										
Re* (Corner radius)										
Number of Passes	1	.0024	.0024	.0028	.0024	.0028	.0028	.0028	.0028	.0028
	2	.0024	.0024	.0024	.0024	.0028	.0028	.0028	.0028	.0028
	3	.0024	.0024	.0024	.0024	.0024	.0024	.0028	.0028	.0028
	4	.0020	.0020	.0024	.0020	.0024	.0024	.0024	.0028	.0028
	5	.0020	.0020	.0020	.0020	.0024	.0024	.0024	.0028	.0028
	6	.0016	.0016	.0020	.0020	.0020	.0020	.0024	.0024	.0024
	7	.0016	.0016	.0016	.0016	.0020	.0020	.0024	.0024	.0024
	8	.0016	.0016	.0016	.0016	.0016	.0020	.0020	.0024	.0024
	9	.0012	.0012	.0016	.0016	.0016	.0016	.0020	.0020	.0024
	10		.0012	.0012	.0012	.0016	.0016	.0020	.0020	.0024
	11		.0012	.0012	.0012	.0012	.0012	.0016	.0020	.0020
	12			.0012	.0012	.0012	.0012	.0016	.0020	.0020
	13					.0012	.0012	.0016	.0016	.0020
	14					.0012		.0012	.0016	.0016
	15							.0012	.0012	.0016
	16								.0012	.0016
	17									.0012
	18									.0012
	19									
	20									

* Even though the pitch may be the same, the depth of cut varies according to the corner radius. For the Micro Mini Twin CT type CT03RS-M4, and CT03RS-M4B the corner radius is 0.03 mm (.0012 inch), for other types it is 0.05 mm (.0020 inch). For further details please refer to the standards section.

● : USA Stock

HOLDER

HOLDER CROSS REFERENCE LIST OF INCH SHANK STANDARD

Holder		Stock	MICRO-MINI TWIN	Machine Makers
Type	Order Number *1		CT	
Round Type Holder φ.625 inch	ID : Metric Type			
	RBH10189A	●	0305RS-M4, 03RS-M4(B)	Citizen Precision Machinery Co., Ltd. NC lathes
	RBH10252A	●	0407RS-M6, 04RS-M6(B)	
	RBH10315A	●	0511RS-M8, 05RS-M8(B)	
	RBH10378A	●	0611RS-M10, 06RS-M10(B)	
Round Type Holder φ.750 inch	ID : Metric Type			Citizen Precision Machinery Co., Ltd.
	RBH19030N	●	0305RS-M4, 03RS-M4(B)	
	RBH19040N	●	0407RS-M6, 04RS-M6(B)	
	RBH19050N	●	0511RS-M8, 05RS-M8(B)	
	RBH19060N	●	0611RS-M10, 06RS-M10(B)	
Round Type Holder φ1.000 inch	ID : Metric Type			Citizen Precision Machinery Co., Ltd. NC lathes
	RBH16189A	●	0305RS-M4, 03RS-M4(B)	
	RBH16252A	●	0407RS-M6, 04RS-M6(B)	
	RBH16315A	●	0511RS-M8, 05RS-M8(B)	
	RBH16378A	●	0611RS-M10, 06RS-M10(B)	

*1 For holder details, refer to Boring Bar Section page E034—E038.

Note 1) Mitsubishi Materials obtained the makers' approval before entering their names in the list.

RECOMMENDED CUTTING CONDITIONS

	Work Material	Cutting Speed (SFM)	Recommended Tool Overhang (mm)
P	Carbon Steel Alloy Steel	100—260	Micro-Mini Twin CT LU+2(mm) Holder
M	Stainless Steel	100—260	
K	Cast Iron	100—260	
N	Non-Ferrous Metal	165—330	

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.

G

THREADING

HOLDER CROSS REFERENCE LIST OF METRIC SHANK STANDARD

Holder		Stock	MICRO-MINI TWIN	Machine Makers
Type	Order Number *1		CT	
Round Type Holder φ16 mm	RBH1630N	●	0305RS-M4, 03RS-M4(B)	MIYANO MACHINERY JAPAN INC. NC lathes
	RBH1640N	●	0407RS-M6, 04RS-M6(B)	
	RBH1650N	●	0511RS-M8, 05RS-M8(B)	
	RBH1660N	●	0611RS-M10, 06RS-M10(B)	
Round Type Holder φ20 mm	RBH2030N	●	0305RS-M4, 03RS-M4(B)	Citizen Precision Machinery Co., Ltd. Tsugami Corporation MIYANO MACHINERY JAPAN INC. NC lathes
	RBH2040N	●	0407RS-M6, 04RS-M6(B)	
	RBH2050N	●	0511RS-M8, 05RS-M8(B)	
	RBH2060N	●	0611RS-M10, 06RS-M10(B)	
Round Type Holder φ22 mm	RBH2230N	●	0305RS-M4, 03RS-M4(B)	STAR MICRONICS CO., LTD.
	RBH2240N	●	0407RS-M6, 04RS-M6(B)	
	RBH2250N	●	0511RS-M8, 05RS-M8(B)	
	RBH2260N	●	0611RS-M10, 06RS-M10(B)	
Round Type Holder φ25 mm	RBH2530N	●	0305RS-M4, 03RS-M4(B)	Tsugami Corporation MIYANO MACHINERY JAPAN INC. NC lathes
	RBH2540N	●	0407RS-M6, 04RS-M6(B)	
	RBH2550N	●	0511RS-M8, 05RS-M8(B)	
	RBH2560N	●	0611RS-M10, 06RS-M10(B)	
Square Type Holder □10 mm	SBH1030R	★	0305RS-M4, 03RS-M4(B)	NC lathes
	SBH1040R	★	0407RS-M6, 04RS-M6(B)	
	SBH1050R	★	0511RS-M8, 05RS-M8(B)	
	SBH1060R	★	0611RS-M10, 06RS-M10(B)	

Note 1) Mitsubishi Materials obtained the makers' approval before entering their names in the list.

*1 For holder details, refer to Boring Bar Section page E034—E038.

