

QM Mill

PME^{TYPE}**QM** Quick & Mini
MILL**Low cutting
force**

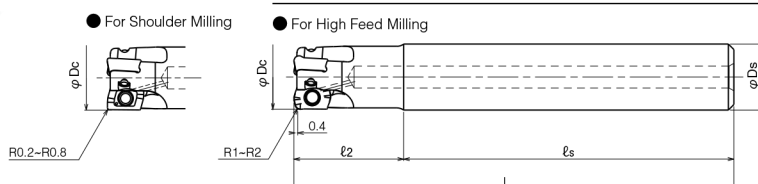
Adopted unique 3D geometry insert with low cutting force and multi blades.
Even if small insert, QM MILL achieved high speed and high efficient machining.
Possible to use on low power and compact machines such as BT30.

Multi blades

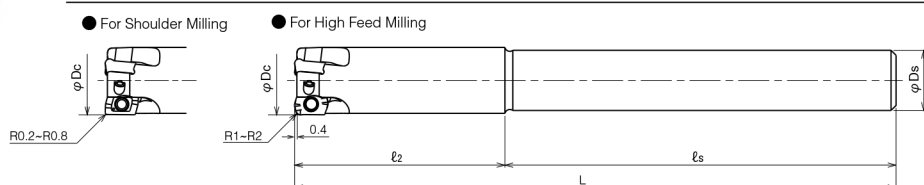
Diameter 10 mm: 2 flutes and diameter 14 mm: 3 flutes



■ PME type



■ PME-L type



■ BODY

Type	Cat. No.	Stock	No. of inserts	Coolant hole	Dimensions (mm)					Applicable inserts	Parts	
					φDc	ℓ ₂	ℓ _s	L	φDs		Clamp screw	Wrench
Regular type	PME2010S10	●	2	With	10	20	60	80	10	EO**0602**Z*R ZOMT0602**ZER	DSW-1838H	A-06
	PME3012S12	●	3		12	20	60	80	12			
	PME3014S12	●	3		14	20	60	80	12			
Long shank type	PME2011S10-LS	●	2	Without	11	33	87	120	10	EO**0602**Z*R ZOMT0602**ZER	DSW-1838H	A-06
	PME3013S12-LS	●	3		13	39	81	120	12			
	PME3014S12-LS	□	3		14	42	78	120	12			

Note) 1. All cutters are supplied without inserts.
2. Please refer page C072-C074 for recommended cutting conditions.

Modular Head Type Please refer Page B019

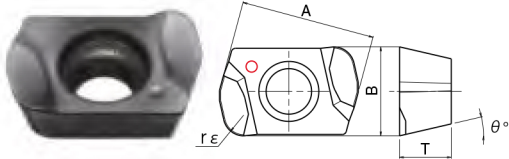
Clamp Screw	Recommended Torque N·m
DSW-1838H	0.4

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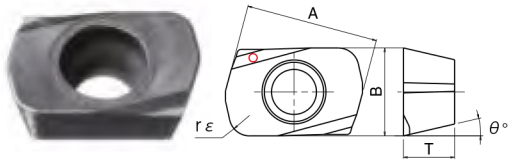
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■ INSERTS

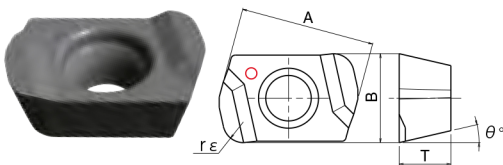
High feed Insert



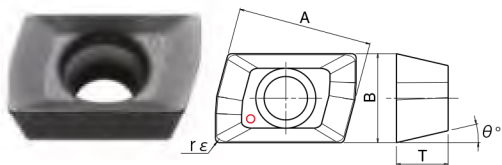
For high hardened steel Insert



High feed insert for unfavourable condition



Shoulder milling Insert

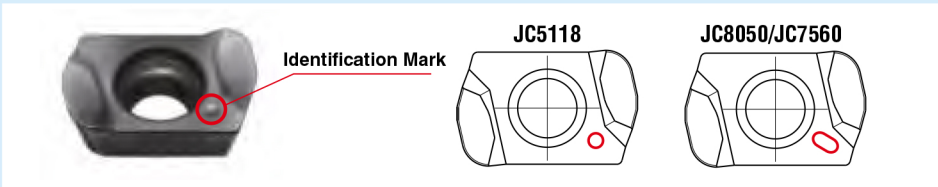


Type	Cat. No.	Tolerance	PVD coated				Dimensions (mm)				
			JC5118	DH102	JC7560	JC8050	A	T	B	rε	θ°
High feed insert	EOMT060210ZER	M	●		●	●	6.5	2.5	4.3	1.0	13°
	NEW EOMT060220ZER	M	●			●	6.5	2.5	4.3	2.0	13°
High feed insert for unfavourable condition	EOMW060210ZER	M	●		●	●	6.5	2.5	4.3	1.0	13°
For high hardened steel insert	EOHW060210ZTR	H		●			6.5	2.5	4.3	1.0	13°
	NEW EOHW060220ZTR	H		●			6.5	2.5	4.3	2.0	13°
Shoulder milling insert	ZOMT060202ZER	M	●			●	6.5	2.5	4.3	0.2	13°
	ZOMT060204ZER	M	●			●	6.5	2.5	4.3	0.4	13°
	ZOMT060208ZER	M	●			●	6.5	2.5	4.3	0.8	13°

10 inserts per case.

Identification of grade for QM MILL insert

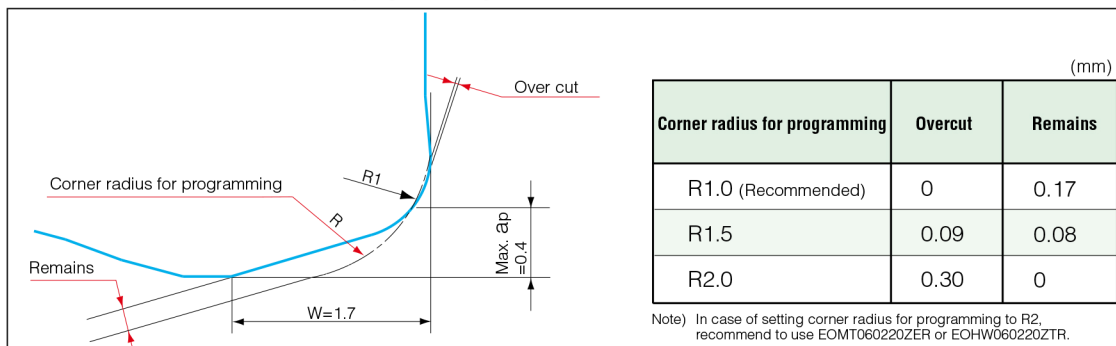
Identification for the grades has been defined by different mark.



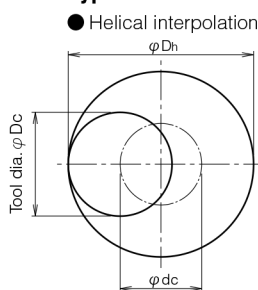
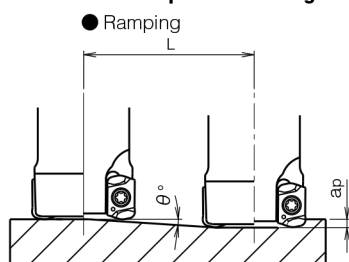
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■ Definition of corner radius for programming



■ Instructions for profile milling with E0※※ type insert



- Calculation of tool pass dia.

$$\phi_{dc} = \phi_{Dh} - \phi_{Dc}$$

Tool pass dia. Bore dia. Tool dia.

- Depth of cut per one circle should not exceed max. depth of cut ap.
- Down cutting is recommended, so tool pass rotation should be counterclockwise.

- In case of ramping and helical interpolation, apply 70% or less feed speed from standard cutting condition table.
- In case of drilling, apply 50% or less Z axis feed speed from standard cutting condition table.
- Long continuous chips may come out in case of drilling, confirm the correct cutting parameters.

Cat. No.	Tool dia. ϕ_{Dc} (mm)	Effective cutting dia. (mm)	Max. depth of cut a_p (mm)	Ramping		Helical interpolation	
				Max. ramping angle θ°	Total cutting length L (mm) at max. a_p	Min. bore dia. $D_{h \min}$ (mm)	Max. bore dia. $D_{h \max}$ (mm)
PME2010S10	10	6.6	0.3	2°18'	7.5	15	18
PME2011S10-LS	11	7.6	0.3	1°54'	9	17	20
PME30125S	12	8.5	0.3	1°36'	10.7	19	22
PME3013S-LS	13	9.5	0.3	1°24'	12.3	21	24
PME3014S(-LS)	14	10.5	0.3	1°18'	13.2	23	26

Note) The ramping angle 0.5° or less is recommended (please refer to the above table).

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RECOMMENDED CUTTING CONDITIONS

EOMT/W and EOHW type insert

Work Materials	Insert Grades	Tool dia. (mm)														
		10/11					12/13					14				
		No. of teeth 2N					No. of teeth 3N					No. of teeth 3N				
		ℓ (mm)	ap (mm)	ae (mm)	n (min ⁻¹)	Vf (mm/min)	ℓ (mm)	ap (mm)	ae (mm)	n (min ⁻¹)	Vf (mm/min)	ℓ (mm)	ap (mm)	ae (mm)	n (min ⁻¹)	Vf (mm/min)
Carbon steel S50C, S55C (C50, C55) Below 250HB	JC7560 (JC8050) (JC5118)	~30	0.3	~6	3,820	4,580	~35	0.3	~8	3,180	5,720	~35	0.3	~10	2,730	6,550
		30~50	0.25	~6	3,440	3,720	35~50	0.25	~8	2,860	4,630	35~50	0.25	~10	2,460	4,720
		50~70	0.15	~5	3,060	2,940	50~70	0.2	~7	2,540	3,660	55~70	0.2	~8	2,180	3,730
Die steel SKD61, SKD11 (1.2344, 1.2379) Below 255HB	JC7560 (JC8050) (JC5118)	~30	0.3	~6	3,500	4,200	~35	0.3	~8	2,920	5,260	~35	0.3	~10	2,500	6,010
		30~50	0.25	~6	3,150	3,400	35~50	0.25	~8	2,630	4,260	35~50	0.25	~10	2,250	4,810
		50~70	0.15	~5	2,800	2,690	50~70	0.2	~7	2,340	3,370	55~70	0.2	~8	2,000	3,420
Mold steel HPM7, PX5, P20 (1.2311, P20) 30-36HRC	JC7560 (JC8050) (JC5118)	~30	0.3	~6	3,500	4,200	~35	0.3	~8	2,920	5,260	~35	0.3	~10	2,500	6,010
		30~50	0.25	~6	3,150	3,400	35~50	0.25	~8	2,630	4,260	35~50	0.25	~10	2,250	4,810
		50~70	0.15	~5	2,800	2,690	50~70	0.2	~7	2,340	3,370	55~70	0.2	~8	2,000	3,420
Mold steel NAK80, HPM1, P21 (1.2311, P21) 38-43HRC	JC8050 (JC5118)	~30	0.3	~6	2,860	3,150	~35	0.3	~8	2,390	3,940	~35	0.3	~10	2,050	3,690
		30~50	0.25	~6	2,570	2,540	35~50	0.25	~8	2,150	3,190	35~50	0.25	~10	1,850	2,950
		50~70	0.15	~5	2,290	2,010	50~70	0.2	~7	1,910	2,520	55~70	0.2	~8	1,660	2,360
Hardened die steel SKD61, DAC, DHA (1.2344, 1.2379) 42-52HRC	DH102 EOHWtype	~30	0.2	~6	4,770	4,290	~35	0.2	~7	3,980	5,370	~35	0.2	~9	3,410	5,110
		30~50	0.15	~6	4,290	3,430	35~50	0.15	~7	3,580	4,300	35~50	0.15	~9	3,070	4,140
		50~70	—	—	—	—	50~70	—	—	—	—	55~70	—	—	—	—
Hardened die steel SKD11, SLD, DC11 (1.2344, 1.2379) 55-62HRC	JC6102 EOHWtype	~30	0.1	~6	2,550	1,530	~35	0.15	~7	2,120	1,900	~35	0.15	~9	1,820	1,640
		30~50	—	—	—	—	35~50	—	—	—	—	35~50	—	—	—	—
		50~70	—	—	—	—	50~70	—	—	—	—	55~70	—	—	—	—
Grey & Nodular cast iron FC, FCD (GG, GGG) Below 300HB	JC5118 (JC7560)	~30	0.3	~6	4,780	5,740	~35	0.3	~8	3,980	7,160	~35	0.3	~10	3,410	8,190
		30~50	0.25	~6	4,300	4,640	35~50	0.25	~8	3,580	5,800	35~50	0.25	~10	3,070	6,550
		50~70	0.15	~5	3,820	3,670	50~70	0.2	~7	3,180	4,580	55~70	0.2	~8	2,760	4,970
Stainless steel SUS304 Below 250HB	JC7560 (JC8050)	~30	0.3	~6	3,820	4,580	~35	0.3	~8	3,180	5,720	~35	0.3	~10	2,730	6,550
		30~50	0.25	~6	3,440	3,720	35~50	0.2	~8	2,860	4,630	35~50	0.2	~10	2,460	5,240
		50~70	0.15	~5	3,060	2,940	50~70	0.2	~7	2,540	3,660	55~70	0.2	~8	2,180	3,920
Titanium alloy (Ti-6Al-4V)	JC7560 (JC5118) (JC8050)	~30	0.3	~6	1,910	1,910	~35	0.3	~8	1,590	2,380	~35	0.3	~10	1,360	2,040
		30~50	0.25	~6	1,720	1,550	35~50	0.2	~8	1,430	1,930	35~50	0.2	~10	1,230	1,630
		50~70	0.15	~5	1,530	1,220	50~70	0.2	~7	1,270	1,520	55~70	0.2	~8	1,090	1,280
Inconel (INCO718)	JC5118 (JC8050) (JC7560)	~30	0.3	~6	950	760	~35	0.3	~8	800	960	~35	0.3	~10	680	820
		30~50	0.25	~6	850	620	35~50	0.2	~8	720	780	35~50	0.2	~10	610	660
		50~70	0.15	~5	760	610	50~70	0.2	~7	640	610	55~70	0.2	~8	550	520

ℓ: Overhung length, ap: Axial depth of cut, ae: Radial depth of cut, n: Spindle speed, Vf: Feed speed

NOTE

- 1) The cutting parameters to be adjusted according to the machine rigidity or work rigidity.
- 2) In case chatter occurs, recommend to reduce depth of cut or spindle speed with keeping feed per tooth.
- 3) If machine does not have enough power, recommend to reduce depth of cut first and reduce spindle speed and feed speed.
- 4) Use air blow to flush the chips out.