

QM MILL **MPM/PME Type**



Low cutting force geometry

- Unique 3D geometry insert provides stable cutting and less power consumption.
- BT30 Capable of running on low horse power & compact machines.

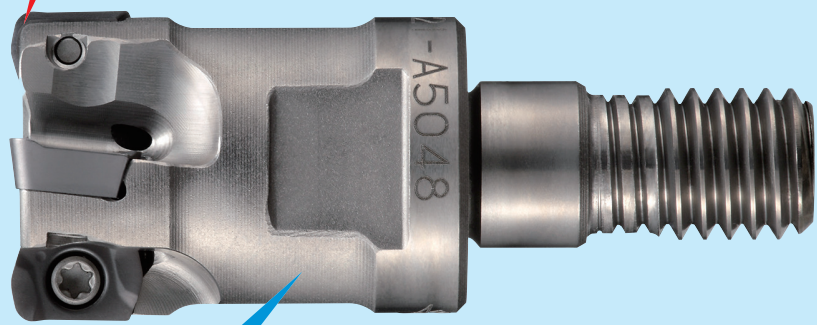
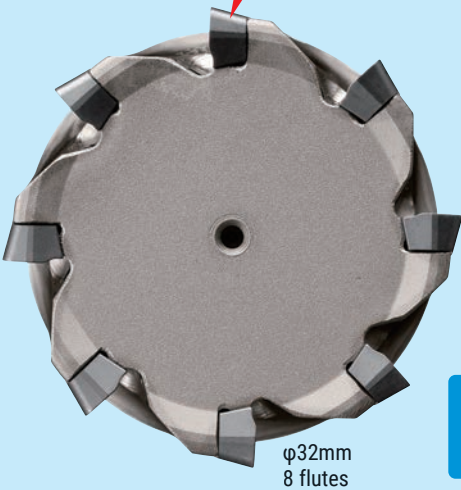
Multi - flutes specification

High speed and high efficient machining.

Vibration free

Control vibration with combination of MSN carbide shank holder for longer tool life.

Low cutting force geometry High feed machining with Multi-flutes specification



Adopted G-Body Possible to use even for finishing applications

Insert Line-Up

A variety of inserts all fit into the same body.

High feed insert



EOMT0602...ZER (R1.0, 2.0)

High feed insert for unfavorable conditions



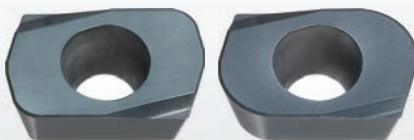
EOMW060210ZER

Shoulder insert



ZOMT0602...ZER-PL (R0.2,0.4,0.8)

For high hardened steel



EOHW0602...ZTR (R1.0, 2.0)

"Mirror Insert"
for finishing side & bottom face



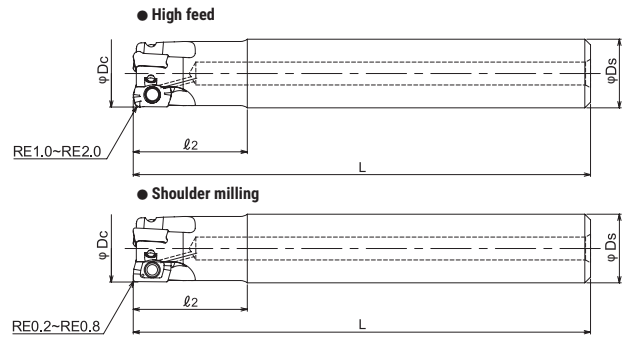
YOHW0602...ZER-12

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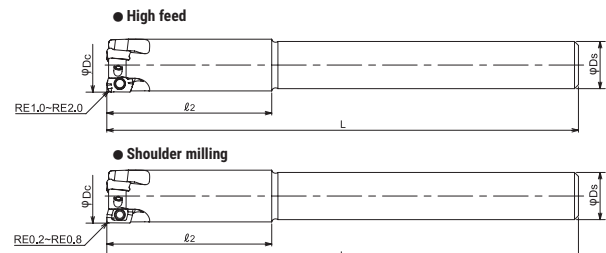
■ Endmill Shank Type



■ PME type (Through coolant hole)



■ PME-LS type (No coolant hole)

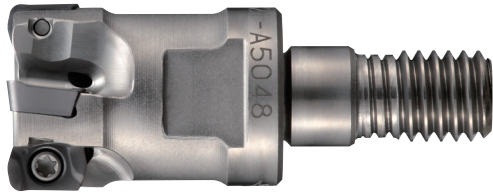
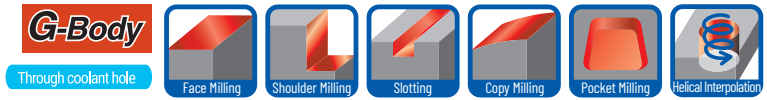


Type	Cat.No.	Stock	No. of inserts	Dimensions (mm)					Inserts	
				φDc	ℓ2	L	φD1	φDs		
Standard	PME2010S10	●	2	10	20	80	9.3	10	EO**0602**Z*R; ZOMT0602**ZER; YOHW0602**ZER-12	
	PME3012S12	●	3	12			10.3	12		
	PME3014S12	●		14			11.2			
Long shank	PME2011S10-LS	●	2	11	33	120	12.2	10		
	PME3013S12-LS	●	3	13			39	13.15		12
	PME3014S12-LS	●		14			42			

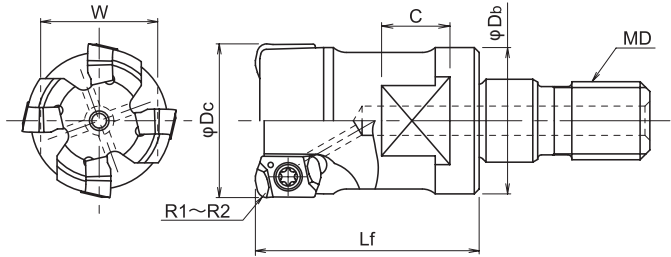
Screw	Torque(N.m)	Wrench
DSW-1840H	0.4	A-06

QM MILL **MPM/PME Type**

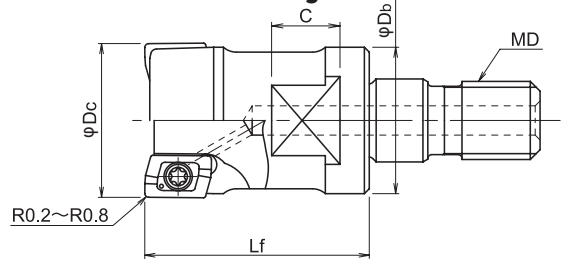
■ **Modular Head Type**



● **High feed**



● **Shoulder milling**



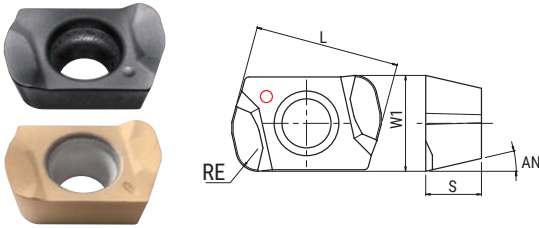
Cat.No.	Stock	No. of inserts	Dimensions (mm)						Inserts
			φD_c	L_f	φD_b	MD	C	W	
MPM-2010-M6	●	2	10	18	9.5	M6	6.5	8	EO**0602**Z*R; ZOMT0602**ZER; YOHWO602**ZER-12
MPM-2011-M6	●		11		M6				
MPM-3012-M6	●	3	12	20	11.2	M6	8	12	
MPM-3013-M6	●		13		M6				
MPM-3015-M8	●	4	15	23	14	M8	8	12	
MPM-4016-M8	●		16		M8				
MPM-4017-M8	●		17		M8				
MPM-4018-M8	●		18		M8				
MPM-5020-M10	●	5	20	30	19	M10	9	14	
MPM-5021-M10	●		21			M10			
MPM-6025-M12	●	6	25	35	23.6	M12	10	17	
MPM-7030-M16	●	7	30	43	29	M16	12	22	
MPM-8032-M16	●					8			

Screw	Torque(N.m)	Wrench
DSW-1840H	0.4	A-06

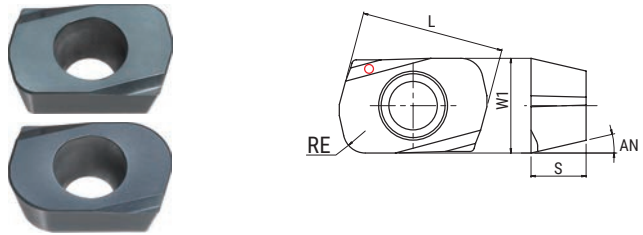
QM MILL **MPM/PME Type**

■ **Insert**

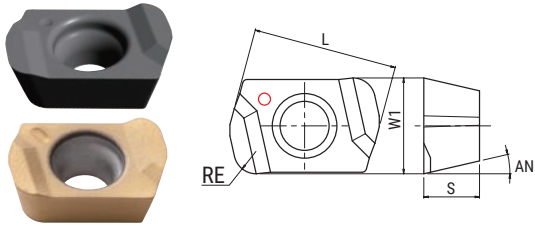
High feed insert



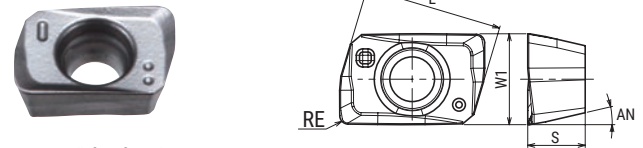
For high hardened steel



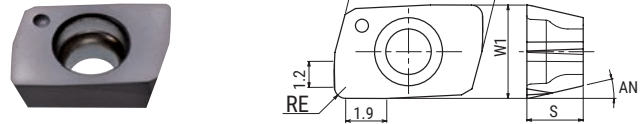
High feed insert for unfavorable conditions



Shoulder insert

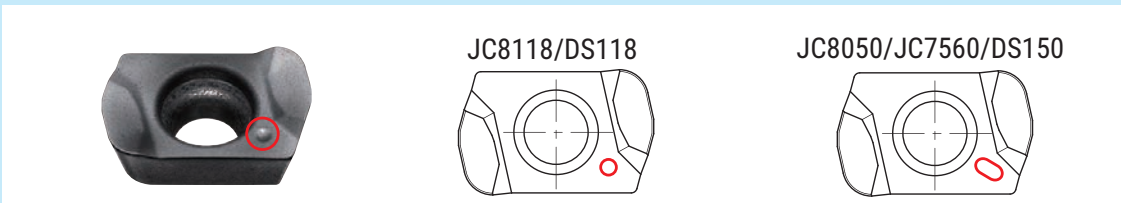


"Mirror Insert" for finishing side & bottom face



Type	Cat.No.	Tolerance	PVD Coating						Dimensions (mm)				
			DH102	DS118	DS150	JC7560	JC8015	JC8050	JC8118	RE	L	W1	S
High feed insert	EOMT060210ZER	M		●	●	●		●	●	1	6.5	2.5	13°
	EOMT060220ZER			●	●			●	●	2			
High feed insert for unfavorable conditions	EOMW060210ZER					●		●	●	1			
For high hardened steel	EOHW060210ZTR	H	●						●				
	EOHW060220ZTR		●						●	2			
shoulder insert	ZOMT060202ZER-PL	M						●	●	0.2	6.62	4.3	2.7
	ZOMT060204ZER-PL							●	●	0.4			
	ZOMT060208ZER-PL							●	●	0.8			
"Mirror Insert" for finishing side & bottom face	YOHW060203ZER-12	H	●							0.3	6.5	2.6	13°
	YOHW060205ZER-12		●				●			0.5			
	YOHW060208ZER-12		●					●		0.8			

GRADE MARKINGS



■ **MAGNETIZER**



- Magnetizing and demagnetizing a wrench can easily be done by inserting the tip into the magnetizer and rubbing lightly.
- Do not use in the vicinity of the equipment that can be influenced with magnetism.

Cat.No.	Stock
MAGNETISER	●

QM MILL **MPM/PME Type**

■ Insert selection guide

Material	Carbon steel (S50C, S55C) below 250HB						Tool & die steel # (SKD61, SKD11) below 255HB						
	Cat.No. \ Grade	JC8118	JC8050	JC7560	DH102	DS118	DS150	JC8118	JC8050	JC7560	DH102	DS118	DS150
EOMT0602*0ZER	☆	☆	☆				☆	☆	☆				
EOMW060210ZER	○	○	◎				○	○	◎				
EOHW0602*0ZTR													

Material	Mold steel (HPM7, PX5, KPM30) 30-36HRC						Mold steel (NAK80, HPM1) 38-43HRC						
	Cat.No. \ Grade	JC8118	JC8050	JC7560	DH102	DS118	DS150	JC8118	JC8050	JC7560	DH102	DS118	DS150
EOMT0602*0ZER	☆	☆	☆				☆	☆					
EOMW060210ZER	○	○	◎				◎	○					
EOHW0602*0ZTR													

Material	Hardened die steel (SKD61, DAC, DHA) 42-52HRC						Hardened die steel (SKD11, SLD, DC11) 55-62HRC						
	Cat.No. \ Grade	JC8118	JC8050	JC7560	DH102	DS118	DS150	JC8118	JC8050	JC7560	DH102	DS118	DS150
EOMT0602*0ZER	☆						x	x					
EOMW060210ZER	○	●					○						
EOHW0602*0ZTR	◎						●			◎			

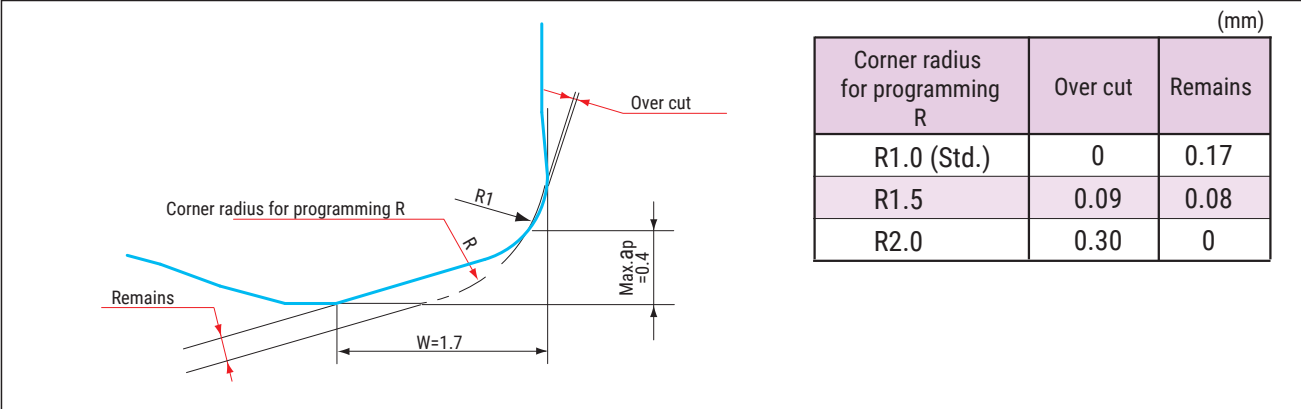
Material	Cast iron (FC, FCD) below 300HB						Stainless steel (SUS304) below 250HB						
	Cat.No. \ Grade	JC8118	JC8050	JC7560	DH102	DS118	DS150	JC8118	JC8050	JC7560	DH102	DS118	DS150
EOMT0602*0ZER	○							◎	○				
EOMW060210ZER	◎		●					●					
EOHW0602*0ZTR													

Material	Titanium alloy (Ti-6Al-4V)						Heat resistant alloy (INCO718)						
	Cat.No. \ Grade	JC8118	JC8050	JC7560	DH102	DS118	DS150	JC8118	JC8050	JC7560	DH102	DS118	DS150
EOMT0602*0ZER	○	○	◎		○	◎	◎	○	○			○	○
EOMW060210ZER			●					●					
EOHW0602*0ZTR													

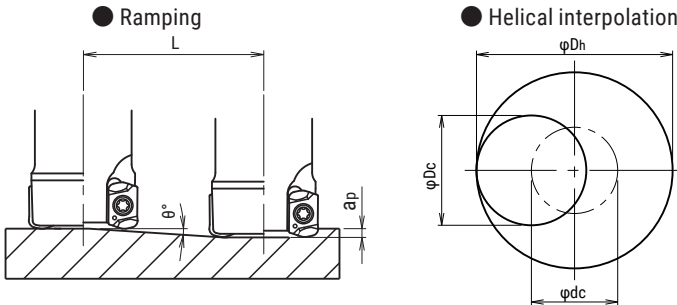
◎: First choice ○: For general milling ●: For unstable milling ☆: For light cutting force x: Not recommended

QM MILL **MPM/PME Type**

■ Definition of corner shape for programming



■ Recommended Data for Profile Milling



- Calculation of tool pass dia.
 $\varphi_{dc} = \varphi_{Dh} - \varphi_{Dc}$
 Tool pass dia. Bore dia. Tool Dia.
- Depth of cut per one circuit should not exceed max. depth of cut A_p
- Down cutting is recommended, tool pass rotation should be counterclockwise

- In case of ramping and helical interpolation, apply 70% or less feed (V_f) from standard cutting condition table
- In case of drilling, apply 50% or less Z axis feed (F) from standard cutting condition table
- Long consecutive chips may result in case of drilling, confirm safe operating conditions

Cat.No.	Tool dia. (mm)	Effective cutting dia. (mm)	Max.depth of cut: A_p (mm)	Ramping		Helical interpolation	
				Max. ramping angle θ	Max. depth of cut (A_p) Total cutting length L(mm)	Min. Bore dia. (mm)	Max. Bore dia. (mm)
MPM-2010-M6	10	6.6	0.3	2°18'	7.5	15	18
MPM-2011-M6	11	7.6	0.3	1°54'	9	17	20
MPM-3012-M6	12	8.5	0.3	1°36'	10.7	19	22
MPM-3013-M6	13	9.5	0.3	1°24'	12.3	21	24
MPM-3015-M8	15	11.5	0.4	1°12'	19.1	25	28
MPM-4016-M8	16	12.5	0.4	1°	22.9	27	30
MPM-4017-M8	17	13.5	0.4	0°54'	25.5	29	32
MPM-4018-M8	18	14.5	0.4	0°51'	27.0	31	34
MPM-5020-M10	20	16.5	0.4	0°45'	30.6	35	38
MPM-5021-M10	21	17.5	0.4	0°42'	32.7	37	40
MPM-6025-M12	25	21.5	0.4	0°30'	45.8	45	48
MPM-7030-M16	30	26.5	0.4	0°27'	50.9	55	58
MPM-8032-M16	32	28.5	0.4	0°24'	57.3	59	62
PME2010S10	10	6.6	0.3	2°18'	7.5	15	18
PME2011S10-LS	11	7.6	0.3	1°54'	9	17	20
PME3012S12	12	8.5	0.3	1°36'	10.7	19	22
PME3013S12-LS	13	9.5	0.3	1°24'	12.3	21	24
PME3014S12 (-LS)	14	10.5	0.3	1°18'	13.2	23	26

QM MILL **MPM Type**

- Recommended cutting conditions
- MPM type (EOMT/W insert)

1

Material	Grade	Tool dia.(mm)														
		10/11					12/13/14/15					16/17/18				
		2N					3N					4N				
		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) below 250HB	JC7560	50	0.3	~6	3,820	4,580	60	0.3	~8	3,180	5,720	70	0.4	~12	2,390	8,600
	(JC8050)	75	0.25	~6	3,440	3,720	80	0.25	~8	2,860	4,630	120	0.3	~12	2,150	6,970
	(JC8118)	100	0.2	~5	3,060	2,940	110	0.2	~7	2,540	3,660	160	0.25	~12	1,910	5,500
Tool & die steel (SKD61, SKD11) below 255HB	JC7560	50	0.3	~6	3,500	4,200	60	0.3	~8	2,920	5,260	70	0.4	~12	2,190	7,880
	(JC8050)	75	0.2	~6	3,150	3,400	80	0.2	~8	2,630	4,260	120	0.3	~12	1,970	6,380
	(JC8118)	100	0.15	~5	2,800	2,690	110	0.15	~7	2,340	3,370	160	0.25	~12	1,750	4,900
Mold steel (HPM7, PX5, P20) 30-36 HRC	JC8118	50	0.3	~6	3,500	4,200	60	0.3	~8	2,920	5,260	70	0.4	~12	2,190	7,880
	(JC7560)	75	0.25	~6	3,150	3,400	80	0.25	~8	2,630	4,260	120	0.3	~12	1,970	6,380
	(JC8050)	100	0.2	~5	2,800	2,690	110	0.2	~7	2,340	3,370	160	0.25	~12	1,750	4,900
Mold steel (NAK80, HPM1, P21) 38-43HRC	JC8118	50	0.3	~6	2,860	3,150	60	0.3	~8	2,390	3,940	70	0.3	~12	1,790	5,010
	(JC8050)	75	0.25	~6	2,570	2,540	80	0.25	~8	2,150	3,190	120	0.25	~12	1,610	4,060
		100	0.2	~5	2,290	2,010	110	0.2	~7	1,910	2,520	160	0.2	~12	1,430	3,200
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	JC8118	50	0.25	~6	2,230	2,230	60	0.25	~8	1,860	2,790	70	0.3	~12	1,390	3,340
	(JC8050)	75	0.15	~6	2,010	1,810	80	0.15	~8	1,670	2,250	120	0.2	~12	1,250	2,700
		100	-	-	-	-	110	-	-	-	-	160	-	-	-	-
Hardened die steel (SKD11, SL, DC11) 55-62HRC	JC8118	50	0.1	~6	950	470	60	0.1	~8	800	600	70	0.15	~12	600	600
	EOMW	75	-	-	-	-	80	-	-	-	-	120	0.1	~12	540	490
	Type	100	-	-	-	-	110	-	-	-	-	160	-	-	-	-
Grey & Nodular cast iron (FC, FCD) below 300HB	JC8118	50	0.3	~6	4,780	5,740	60	0.3	~8	3,980	7,160	70	0.4	~12	2,980	10,730
	(JC7560)	75	0.25	~6	4,300	4,640	80	0.25	~8	3,580	5,800	120	0.35	~12	2,680	8,680
		100	0.2	~6	3,820	3,670	110	0.2	~8	3,180	4,580	160	0.3	~12	2,380	6,850
Stainless steel (SUS304) below 250HB	JC8050	50	0.3	~6	3,820	4,580	60	0.3	~8	3,180	5,720	70	0.4	~12	2,390	8,600
	(JC7560)	75	0.2	~6	3,440	3,720	80	0.2	~8	2,860	4,630	120	0.3	~12	2,150	6,880
		100	0.15	~5	3,060	2,940	110	0.15	~7	2,540	3,660	160	0.25	~12	1,910	5,350
Titanium alloy (Ti-6Al-4V)	JC7560	50	0.3	~6	1,910	1,910	60	0.3	~8	1,590	2,380	70	0.3	~12	1,190	2,380
	DS150	75	0.2	~6	1,720	1,550	80	0.2	~8	1,430	1,930	120	0.25	~12	1,070	1,930
	(JC8118) (DS118) (JC8050)	100	0.15	~5	1,530	1,220	110	0.15	~7	1,270	1,520	160	0.2	~12	950	1,520
Heat resistant alloy (INCO718)	JC8118	50	0.3	~6	950	760	60	0.3	~8	800	960	70	0.3	~12	600	960
	DS118	75	0.2	~6	850	760	80	0.2	~8	720	780	120	0.25	~12	540	780
	(JC7560) (DS150) (JC8050)	100	0.15	~5	760	610	110	0.15	~7	640	610	160	0.2	~12	480	610

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce ap or rpm and keep feed per tooth.
3. ap should be reduced when using on low rigidity machine.
4. Use air blow.

QM MILL**MPM Type**

■ Recommended cutting conditions

● MPM type (EOMT/W insert)

1

Material	Grade	Tool dia.(mm)									
		20/21					25				
		5N					6N				
		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) below 250HB	JC7560	70	0.4	~14	1,910	8,600	90	0.4	~18	1,530	8,260
	(JC8050)	120	0.3	~14	1,720	6,970	140	0.3	~18	1,380	6,710
	(JC8118)	190	0.25	~14	1,530	5,510	210	0.25	~18	1,220	5,270
Tool & die steel (SKD61, SKD11) below 255HB	JC7560	70	0.4	~14	1,750	7,880	90	0.4	~18	1,400	7,560
	(JC8050)	120	0.3	~14	1,580	6,400	140	0.3	~18	1,260	6,120
	(JC8118)	190	0.25	~14	1,400	5,040	210	0.25	~18	1,120	4,840
Mold steel (HPM7, PX5, P20) 30-36 HRC	JC8118	70	0.4	~14	1,750	7,880	90	0.4	~18	1,400	7,560
	(JC7560)	120	0.3	~14	1,580	6,400	140	0.3	~18	1,260	6,120
	(JC8050)	190	0.25	~14	1,400	5,040	210	0.25	~18	1,120	4,840
Mold steel (NAK80, HPM1, P21) 38-43HRC	JC8118	70	0.3	~14	1,430	5,000	90	0.3	~18	1,150	4,830
	(JC8050)	120	0.25	~14	1,290	4,060	140	0.25	~18	1,040	3,930
		190	0.2	~14	1,140	3,190	210	0.2	~18	920	3,090
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	JC8118	70	0.3	~14	1,110	3,330	90	0.3	~18	890	3,200
	(JC8050)	120	0.2	~14	1,000	2,700	140	0.2	~18	800	2,590
		190	-	-	-	-	210	-	-	-	-
Hardened die steel (SKD11, SLD, DC11) 55-62HRC	JC8118	70	0.15	~14	480	600	90	0.15	~18	380	570
	EOMW	120	0.1	~14	430	480	140	0.1	~18	340	460
	Type	190	-	-	-	-	210	-	-	-	-
Grey & Nodular cast iron (FC, FCD) below 300HB	JC8118	70	0.4	~14	2,390	10,750	90	0.4	~18	1,910	10,310
	(JC7560)	120	0.35	~14	2,150	8,710	140	0.35	~18	1,720	8,360
		190	0.3	~14	1,910	6,880	210	0.3	~18	1,530	6,610
Stainless steel (SUS304) below 250HB	JC8050	70	0.4	~14	1,910	8,600	90	0.4	~18	1,530	8,260
	(JC7560)	120	0.3	~14	1,720	6,970	140	0.3	~18	1,380	6,710
		190	0.25	~14	1,530	5,510	210	0.25	~18	1,220	5,270
Titanium alloy (Ti-6Al-4V)	JC7560	70	0.3	~14	950	2,380	90	0.3	~18	760	2,280
	(JC8118)	120	0.25	~14	860	1,940	140	0.25	~18	680	1,840
	(DS118) (JC8050)	190	0.2	~14	760	1,520	210	0.2	~18	610	1,460
Heat resistant alloy (INCO718)	JC8118	70	0.3	~14	480	960	90	0.3	~18	380	910
	(DS118)	120	0.25	~14	430	860	140	0.25	~18	340	730
	(JC7560) (DS150) (JC8050)	190	0.2	~14	380	610	210	0.2	~18	300	580

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce ap or rpm and keep feed per tooth.
3. ap should be reduced when using on low rigidity machine.
4. Use air blow.

QM MILL **MPM Type**

- Recommended cutting conditions
- MPM type (EOMT/W insert)

1

Material	Grade	Tool dia.(mm)									
		30					32				
		7N					8N				
		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) below 250HB	JC7560 (JC8050) (JC8118)	100	0.4	~22	1,270	8,000	100	0.4	~24	1,190	8,570
		150	0.3	~22	1,140	6,460	150	0.3	~24	1,070	6,930
		210	0.25	~22	1,020	5,140	210	0.25	~24	950	5,470
Tool & die steel (SKD61, SKD11) below 255HB	JC7560 (JC8050) (JC8118)	100	0.4	~22	1,170	7,370	100	0.4	~24	1,090	7,850
		150	0.3	~22	1,050	5,950	150	0.3	~24	980	6,350
		210	0.25	~22	940	5,330	210	0.25	~24	870	5,010
Mold steel (HPM7, PX5, P20) 30-36 HRC	JC8118 (JC7560) (JC8050)	100	0.4	~22	1,170	7,370	100	0.4	~24	1,090	7,850
		150	0.3	~22	1,050	5,950	150	0.3	~24	980	6,350
		210	0.25	~22	940	5,330	210	0.25	~24	870	5,010
Mold steel (NAK80, HPM1, P21) 38-43HRC	JC8118 (JC8050)	100	0.3	~22	950	4,660	100	0.3	~24	900	5,040
		150	0.25	~22	860	3,790	150	0.25	~24	810	4,080
		210	0.2	~22	760	2,980	210	0.2	~24	720	3,220
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	JC8118 (JC8050)	100	0.3	~22	740	3,110	100	0.3	~24	700	3,360
		150	0.2	~22	670	2,530	150	0.2	~24	600	2,590
		210	0.15	~22	590	1,980	210	0.15	~24	500	1,920
Hardened die steel (SKD11, SLD, DC11) 55-62HRC	EOMW Type	100	0.15	~22	320	560	100	0.15	~24	300	600
		150	0.1	~22	290	460	150	0.1	~24	270	490
		210	-	-	-	-	210	-	-	-	-
Grey & Nodular cast iron (FC, FCD) below 300HB	JC8118 (JC7560)	100	0.4	~22	1,590	10,000	100	0.4	~24	1,490	10,730
		150	0.35	~22	1,430	8,110	150	0.35	~24	1,340	8,680
		210	0.3	~22	1,270	6,400	210	0.3	~24	1,190	6,850
Stainless steel (SUS304) below 250HB	JC8050 (JC7560)	100	0.4	~22	1,270	8,000	100	0.4	~24	1,190	8,570
		150	0.3	~22	1,140	6,460	150	0.3	~24	1,070	6,930
		210	0.25	~22	1,020	5,140	210	0.25	~24	950	5,470
Titanium alloy (Ti-6Al-4V)	JC7560 DS150 (JC8118) (DS118) (JC8050)	100	0.3	~22	640	2,240	100	0.3	~24	600	2,400
		150	0.25	~22	580	1,830	150	0.25	~24	540	1,940
		210	0.2	~22	510	1,430	210	0.2	~24	480	1,540
Heat resistant alloy (INCO718)	JC8118 DS118 (JC7560) (DS150) (JC8050)	100	0.3	~22	320	900	100	0.3	~24	300	960
		150	0.25	~22	290	730	150	0.25	~24	270	780
		210	0.2	~22	260	580	210	0.2	~24	240	610

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce ap or rpm and keep feed per tooth.
3. ap should be reduced when using on low rigidity machine.
4. Use air blow.

QM MILL**MPM Type**

■ Recommended cutting conditions

● MPM type (EOMT/W insert)

②

Material	Grade	Tool dia.(mm)														
		10/11					12/13/14/15					16/17/18				
		2N					3N					4N				
		ℓ (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)	ℓ (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)	ℓ (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	JC8118	40	0.20	~6	2,860	2,860	50	0.20	~7	2,390	3,590	65	0.25	~12	1,790	4,300
		60	0.15	~6	2,570	2,060	70	0.15	~7	2,150	2,580	95	0.20	~12	1,610	3,090
		80	0.10	~6	2,290	1,370	95	0.10	~7	1,910	1,720	125	0.10	~12	1,430	2,060
Hardened die steel (SKD11, SLD, DC11) 55-62HRC	DH102	40	0.15	~6	2,550	1,530	50	0.15	~7	2,120	1,900	65	0.15	~12	1,590	1,900
		60	0.10	~6	2,300	1,240	70	0.10	~7	1,910	1,550	95	0.10	~12	1,430	1,520
		80	-	-	-	-	95	-	-	-	-	125	-	-	-	-

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce a_p or rpm and keep feed per tooth.
3. a_p should be reduced when using on low rigidity machine.
4. Use air blow.

QM MILL
MPM Type
■ Recommended cutting conditions
● MPM type (EOMT/W insert)
2

Material	Grade	Tool dia.(mm)									
		20/21					25				
		5N					6N				
		ℓ (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)	ℓ (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	JC8118	80	0.25	~14	1,430	4,290	100	0.25	~18	1,150	4,140
		120	0.2	~14	1,290	3,100	150	0.2	~18	1,040	3,000
		160	0.10	~14	1,140	2,050	200	0.10	~18	920	1,990
Hardened die steel (SKD11, SLD, DC11) 55-62HRC	DH102	80	0.15	~14	1,270	1,900	100	0.15	~18	1,020	1,840
		120	0.1	~14	1,140	1,540	150	0.1	~18	920	1,490
		160	-	-	-	-	200	-	-	-	-

Material	Grade	Tool dia.(mm)									
		30					32				
		7N					8N				
		ℓ (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)	ℓ (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	JC8118	120	0.25	~22	950	3,990	120	0.25	~24	900	4,320
		180	0.20	~22	860	2,890	180	0.20	~24	810	3,110
		240	0.10	~22	760	1,920	240	0.10	~24	720	2,070
Hardened die steel (SKD11, SLD, DC11) 55-62HRC	DH102	120	0.15	~22	850	1,780	120	0.15	~24	800	1,920
		180	0.10	~22	760	1,430	180	0.10	~24	720	1,560
		240	-	-	-	-	240	-	-	-	-

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce a_p or rpm and keep feed per tooth.
3. a_p should be reduced when using on low rigidity machine.
4. Use air blow.

QM MILL**MPM Type**

■ Recommended cutting conditions

● MPM type (ZOMT insert)

3

Material	Chipbreaker	Grade	Tool dia.(mm)														
			10/11					12/13/15					16/17/18				
			2N					3N					4N				
			ℓ (mm)	a _p (mm)	a _p ×a _e (mm ²)	n (min ⁻¹)	V _f (mm/min)	ℓ (mm)	a _p (mm)	a _p ×a _e (mm ²)	n (min ⁻¹)	V _f (mm/min)	ℓ (mm)	a _p (mm)	a _p ×a _e (mm ²)	n (min ⁻¹)	V _f (mm/min)
Carbon steel (S50C, S55C) below 250HB	PL	JC8050 (JC8118)	50	~4.0	~6.0	5,090	810	60	~4.0	~8.0	4,240	1,020	70	~5.0	~10.0	3,180	1,020
			75	~1.2	~1.8	4,580	640	80	~1.7	~2.6	3,820	800	120	~2.0	~3.0	2,860	800
			100	~0.5	~0.8	4,070	490	110	~0.6	~1.2	3,400	610	160	~0.7	~1.3	2,550	610
Tool & die steel (SKD61, SKD11) below 255HB	PL	JC8050 (JC8118)	50	~4.0	~6.0	4,770	570	60	~4.0	~8.0	3,980	720	70	~5.0	~10.0	2,980	720
			75	~1.2	~1.8	4,300	430	80	~1.7	~2.6	3,580	540	120	~2.0	~3.0	2,690	540
			100	~0.5	~0.8	3,820	310	110	~0.6	~1.2	3,180	380	160	~0.7	~1.3	2,390	380
Mold steel (HPM7, PX5, P20) 30-36 HRC	PL	JC8118 (JC8050)	50	~4.0	~6.0	4,770	480	60	~4.0	~8.0	3,980	600	70	~5.0	~10.0	2,980	600
			75	~1.2	~1.8	4,300	340	80	~1.7	~2.6	3,580	430	120	~2.0	~3.0	2,690	430
			100	~0.5	~0.8	3,820	230	110	~0.6	~1.2	3,180	290	160	~0.7	~1.3	2,390	290
Mold steel (NAK80, HPM1, P21) 38-43HRC	PL	JC8118 (JC8050)	50	~3.0	~4.0	3,820	380	60	~3.0	~4.5	3,180	480	70	~4.0	~6.0	2,390	480
			75	~1.2	~1.6	3,440	280	80	~1.3	~1.8	2,860	340	120	~1.7	~2.2	2,150	340
			100	~0.5	~0.8	3,060	180	110	~0.6	~1.0	2,550	230	160	~0.6	~1.1	1,910	230
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	PL	JC8118	50	~2.5	~3.0	3,180	320	60	~2.5	~3.5	2,650	400	70	~3.5	~5.5	1,990	400
			75	~1.0	~1.4	2,860	230	80	~1.0	~1.5	2,390	290	120	~1.4	~2.0	1,790	290
			100	~0.5	~0.6	2,550	150	110	~0.5	~0.8	2,120	190	160	~0.5	~1.0	1,590	190
Grey & Nodular cast iron (FC, FCD) below 300HB	PL	JC8118	50	~4.0	~6.0	4,770	760	60	~4.0	~8.0	3,980	960	70	~5.0	~10.0	2,980	950
			75	~1.2	~1.8	4,300	600	80	~1.7	~2.6	3,580	750	120	~2.0	~3.0	2,690	750
			100	~0.5	~0.8	3,820	460	110	~0.6	~1.2	3,180	570	160	~0.7	~1.3	2,390	570
Stainless steel (SUS304) below 250HB	PL	JC8050	50	~4.0	~6.0	4,770	570	60	~4.0	~8.0	3,980	720	70	~5.0	~10.0	2,980	720
			75	~1.2	~1.8	4,300	430	80	~1.7	~2.6	3,580	540	120	~2.0	~3.0	2,690	540
			100	~0.5	~0.8	3,820	310	110	~0.6	~1.2	3,180	380	160	~0.7	~1.3	2,390	380

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce a_p or rpm and keep feed per tooth.
3. a_p should be reduced when using on low rigidity machine.
4. Use air blow.
5. Please scan QR code for cutting conditions of ZOMT insert for side finishing or bottom finishing.



QM MILL**MPM Type**

■ Recommended cutting conditions

● MPM type (ZOMT insert)

3

Material	Chipbreaker	Grade	Tool dia.(mm)									
			20/21					25				
			5N					6N				
			ℓ (mm)	ap (mm)	ap×ae (mm ²)	n (min ⁻¹)	Vf (mm/min)	ℓ (mm)	ap (mm)	ap×ae (mm ²)	n (min ⁻¹)	Vf (mm/min)
Carbon steel (S50C, S55C) below 250HB	PL	JC8050 (JC8118)	70	~5.0	~16.0	2,550	1,020	90	~5.0	~20.0	2,040	980
			120	~4.0	~8.0	2,290	800	140	~4.0	~10.0	1,830	770
			190	~3.0	~4.0	2,040	610	210	~3.0	~8.0	1,630	590
Tool & die steel (SKD61, SKD11) below 255HB	PL	JC8050 (JC8118)	70	~5.0	~16.0	2,390	720	90	~5.0	~20.0	1,910	690
			120	~4.0	~8.0	2,150	540	140	~4.0	~10.0	1,720	520
			190	~3.0	~4.0	1,910	380	210	~3.0	~8.0	1,530	370
Mold steel (HPM7, PX5, P20) 30-36 HRC	PL	JC8118 (JC8050)	70	~5.0	~16.0	2,390	600	90	~5.0	~20.0	1,910	570
			120	~4.0	~8.0	2,150	430	140	~4.0	~10.0	1,720	410
			190	~3.0	~4.0	1,910	290	210	~3.0	~8.0	1,530	280
Mold steel (NAK80, HPM1, P21) 38-43HRC	PL	JC8118 (JC8050)	70	~4.0	~16.0	1,910	480	90	~4.0	~20.0	1,530	460
			120	~3.0	~8.0	1,720	340	140	~3.0	~10.0	1,380	330
			190	~2.0	~4.0	1,530	230	210	~2.0	~8.0	1,220	220
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	PL	JC8118	70	~3.5	~10.0	1,590	400	90	~3.5	~12.5	1,270	380
			120	~2.5	~5.0	1,430	290	140	~2.5	~6.2	1,150	280
			190	~1.2	~2.5	1,270	190	210	~1.2	~3.2	1,020	180
Grey & Nodular Cast iron (FC, FCD) below 300HB	PL	JC8118	70	~5.0	~18.0	2,390	960	90	~5.0	~25.0	1,910	920
			120	~4.0	~10.0	2,150	750	140	~4.0	~12.0	1,720	720
			190	~3.0	~5.0	1,910	570	210	~3.0	~9.0	1,530	550
Stainless steel (SUS304) below 250HB	PL	JC8050	70	~5.0	~16.0	2,390	720	90	~5.0	~20.0	1,910	690
			120	~4.0	~8.0	2,150	540	140	~4.0	~10.0	1,720	520
			190	~3.0	~4.0	1,910	380	210	~3.0	~8.0	1,530	370

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce ap or rpm and keep feed per tooth.
3. ap should be reduced when using on low rigidity machine.
4. Use air blow.
5. Please scan QR code for cutting conditions of ZOMT insert for side finishing or bottom finishing.



QM MILL**MPM Type**

■ Recommended cutting conditions

● MPM type (ZOMT insert)

3

Material	Chipbreaker	Grade	Tool dia.(mm)									
			30					32				
			7N					8N				
			l (mm)	a_p (mm)	$a_p \times a_e$ (mm ²)	n (min ⁻¹)	V_f (mm/min)	l (mm)	a_p (mm)	$a_p \times a_e$ (mm ²)	n (min ⁻¹)	V_f (mm/min)
Carbon steel (S50C, S55C) below 250HB	PL	JC8050 (JC8118)	100	~5.0	~22.0	1,700	950	100	~5.0	~22.0	1,590	1,020
			150	~4.0	~15.0	1,530	750	150	~4.0	~15.0	1,430	800
			210	~3.0	~8.0	1,360	570	210	~3.0	~8.0	1,270	610
Tool & die steel (SKD61, SKD11) below 255HB	PL	JC8050 (JC8118)	100	~5.0	~22.0	1,590	670	100	~5.0	~22.0	1,490	720
			150	~4.0	~15.0	1,430	500	150	~4.0	~15.0	1,340	540
			210	~3.0	~8.0	1,270	360	210	~3.0	~8.0	1,190	380
Mold steel (HPM7, PX5, P20) 30-36 HRC	PL	JC8118 (JC8050)	100	~5.0	~22.0	1,590	560	100	~5.0	~22.0	1,490	600
			150	~4.0	~15.0	1,430	400	150	~4.0	~15.0	1,340	430
			210	~3.0	~8.0	1,270	270	210	~3.0	~8.0	1,190	290
Mold steel (NAK80, HPM1, P21) 38-43HRC	PL	JC8118 (JC8050)	100	~5.0	~22.0	1,270	440	100	~5.0	~22.0	1,190	480
			150	~4.0	~15.0	1,150	320	150	~4.0	~15.0	1,070	340
			210	~3.0	~8.0	1,020	210	210	~3.0	~8.0	950	230
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	PL	JC8118	100	~4.0	~15.0	1,060	370	100	~4.0	~15.0	990	400
			150	~3.0	~7.5	950	270	150	~3.0	~7.5	900	290
			210	~2.0	~3.8	850	180	210	~2.0	~3.8	800	190
Grey & Nodular cast iron (FC, FCD) below 300HB	PL	JC8118	100	~5.0	~24.0	1,590	890	100	~5.0	~24.0	1,490	950
			150	~4.0	~16.0	1,430	700	150	~4.0	~16.0	1,340	750
			210	~3.0	~9.0	1,270	530	210	~3.0	~9.0	1,190	570
Stainless steel (SUS304) below 250HB	PL	JC8050	100	~5.0	~22.0	1,590	670	100	~5.0	~22.0	1,490	720
			150	~4.0	~15.0	1,430	500	150	~4.0	~15.0	1,340	540
			210	~3.0	~8.0	1,270	360	210	~3.0	~8.0	1,190	380

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce a_p or rpm and keep feed per tooth.
3. a_p should be reduced when using on low rigidity machine.
4. Use air blow.
5. Please scan QR code for cutting conditions of ZOMT insert for side finishing or bottom finishing.



QM MILL**MPM Type**

- Recommended cutting conditions
 ● MPM type (YOHW insert) - Side finishing

4

Material	Grade	Tool dia.(mm)									
		10/11					12/13/14/15				
		2N					3N				
		l (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)	l (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)
Carbon steel (S50C, S55C) below 250HB	JC8015 (DH102)	~50	≤1.2	≤0.10	12,600	3,780	~60	≤1.2	≤0.10	10,600	4,770
		75	≤0.8	≤0.08	8,820	2,120	80	≤0.8	≤0.08	7,420	2,670
		100	≤0.6	≤0.08	8,820	1,760	110	≤0.6	≤0.08	7,420	2,230
Tool & die steel (SKD61, SKD11) below 255HB	JC8015 (DH102)	~50	≤1.0	≤0.10	11,400	3,420	~60	≤1.0	≤0.10	9,550	4,300
		75	≤0.7	≤0.08	7,980	1,920	80	≤0.7	≤0.08	6,690	2,400
		100	≤0.5	≤0.08	7,980	1,600	110	≤0.5	≤0.08	6,690	2,000
Mold steel (HPM7, PX5, P20) 30-36 HRC	JC8015 (DH102)	~50	≤1.0	≤0.10	11,400	3,420	~60	≤1.0	≤0.10	9,550	4,300
		75	≤0.7	≤0.08	7,980	1,920	80	≤0.7	≤0.08	6,690	2,400
		100	≤0.5	≤0.08	7,980	1,600	110	≤0.5	≤0.08	6,690	2,000
Mold steel (NAK80, HPM1, P21) 38-43HRC	DH102 (JC8015)	~50	≤1.0	≤0.10	8,880	2,130	~60	≤1.0	≤0.10	7,430	2,670
		75	≤0.7	≤0.08	6,180	1,240	80	≤0.7	≤0.08	5,200	1,560
		100	≤0.5	≤0.08	6,180	990	110	≤0.5	≤0.08	5,200	1,250
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	DH102 (JC8015)	~50	≤0.8	≤0.10	6,360	1,270	~60	≤0.8	≤0.10	5,300	1,590
		75	≤0.5	≤0.08	4,440	710	80	≤0.5	≤0.08	3,710	890
		100	—	—	—	—	110	—	—	—	—
Hardened die steel (SKD11, SLD, DC11) 55-62HRC	DH102	~50	≤0.5	≤0.10	4,740	950	~60	≤0.5	≤0.10	3,980	1,190
		75	≤0.3	≤0.08	3,300	530	80	≤0.3	≤0.08	2,790	670
		100	—	—	—	—	110	—	—	—	—
Grey & Nodular cast iron (FC, FCD) below 300HB	JC8015 (DH102)	~50	≤1.2	≤0.12	12,600	3,780	~60	≤1.2	≤0.12	10,600	4,770
		75	≤0.8	≤0.10	8,820	2,120	80	≤0.8	≤0.10	7,420	2,670
		100	≤0.6	≤0.08	8,820	1,760	110	≤0.6	≤0.08	7,420	2,230
Stainless steel (SUS304) below 250HB	JC8015 (DH102)	~50	≤1.0	≤0.10	11,400	3,420	~60	≤1.0	≤0.10	9,550	4,300
		75	≤0.7	≤0.08	7,980	1,920	80	≤0.7	≤0.08	6,690	2,400
		100	≤0.5	≤0.08	7,980	1,600	110	≤0.5	≤0.08	6,690	2,000
Titanium alloy (Ti-6Al-4V)	JC8015 (DH102)	~50	≤1.0	≤0.10	2,520	600	~60	≤1.0	≤0.10	2,120	760
		75	≤0.7	≤0.08	1,740	350	80	≤0.7	≤0.08	1,480	450
		100	≤0.5	≤0.08	1,740	280	110	≤0.5	≤0.08	1,480	360

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce a_p or rpm and keep feed per tooth.
3. a_p should be reduced when using on low rigidity machine.
4. Use air blow.

QM MILL**MPM Type**

■ Recommended cutting conditions

● MPM type (YOHW insert) - Side finishing

4

Material	Grade	Tool dia.(mm)									
		16/17/18					20/21				
		4N					5N				
		ℓ (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)	ℓ (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)
Carbon steel (S50C, S55C) below 250HB	JC8015 (DH102)	~80	≤1.2	≤0.10	7,960	4,770	~100	≤1.2	≤0.10	6,300	4,770
		120	≤0.8	≤0.08	5,560	2,670	150	≤0.8	≤0.08	4,410	2,670
		160	≤0.6	≤0.08	5,560	2,230	190	≤0.6	≤0.08	4,410	2,230
Tool & die steel (SKD61, SKD11) below 255HB	JC8015 (DH102)	~80	≤1.0	≤0.10	7,160	4,300	~100	≤1.0	≤0.10	5,700	4,300
		120	≤0.7	≤0.08	5,000	2,400	150	≤0.7	≤0.08	3,990	2,400
		160	≤0.5	≤0.08	5,000	2,000	190	≤0.5	≤0.08	3,990	2,000
Mold steel (HPM7, PX5, P20) 30-36 HRC	JC8015 (DH102)	~80	≤1.0	≤0.10	7,160	4,300	~100	≤1.0	≤0.10	5,700	4,300
		120	≤0.7	≤0.08	5,000	2,400	150	≤0.7	≤0.08	3,990	2,400
		160	≤0.5	≤0.08	5,000	2,000	190	≤0.5	≤0.08	3,990	2,000
Mold steel (NAK80, HPM1, P21) 38-43HRC	DH102 (JC8015)	~80	≤1.0	≤0.10	5,560	2,670	~100	≤1.0	≤0.10	4,440	2,670
		120	≤0.7	≤0.08	3,900	1,560	150	≤0.7	≤0.08	3,090	1,560
		160	≤0.5	≤0.08	3,900	1,250	190	≤0.5	≤0.08	3,090	1,250
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	DH102 (JC8015)	~80	≤0.8	≤0.10	3,980	1,590	~100	≤0.8	≤0.10	3,180	1,590
		120	≤0.5	≤0.08	2,780	890	150	≤0.5	≤0.08	2,220	890
		160	—	—	—	—	190	—	—	—	—
Hardened die steel (SKD11, SLD, DC11) 55-62HRC	DH102	~80	≤0.5	≤0.10	2,980	1,190	~100	≤0.5	≤0.10	2,370	1,190
		120	≤0.3	≤0.08	2,080	670	150	≤0.3	≤0.08	1,650	670
		160	—	—	—	—	190	—	—	—	—
Grey & Nodular cast iron (FC, FCD) below 300HB	JC8015 (DH102)	~80	≤1.2	≤0.12	7,960	4,770	~100	≤1.2	≤0.12	6,300	4,770
		120	≤0.8	≤0.10	5,560	2,670	150	≤0.8	≤0.10	4,410	2,670
		160	≤0.6	≤0.08	5,560	2,230	190	≤0.6	≤0.08	4,410	2,230
Stainless steel (SUS304) below 250HB	JC8015 (DH102)	~80	≤1.0	≤0.10	7,160	4,300	~100	≤1.0	≤0.10	5,700	4,300
		120	≤0.7	≤0.08	5,000	2,400	150	≤0.7	≤0.08	3,990	2,400
		160	≤0.5	≤0.08	5,000	2,000	190	≤0.5	≤0.08	3,990	2,000
Titanium alloy (Ti-6Al-4V)	JC8015 (DH102)	~80	≤1.0	≤0.10	1,600	760	~100	≤1.0	≤0.10	1,260	760
		120	≤0.7	≤0.08	1,120	450	150	≤0.7	≤0.08	870	450
		160	≤0.5	≤0.08	1,120	360	190	≤0.5	≤0.08	870	360

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce a_p or rpm and keep feed per tooth.
3. a_p should be reduced when using on low rigidity machine.
4. Use air blow.

QM MILL**MPM Type**

- Recommended cutting conditions
 ● MPM type (YOHW insert) - Side finishing

4

Material	Grade	Tool dia.(mm)														
		25					30					32				
		6N					7N					8N				
		ℓ (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)	ℓ (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)	ℓ (mm)	a_p (mm)	a_e (mm)	n (min ⁻¹)	V_f (mm/min)
Carbon steel (S50C, S55C) below 250HB	JC8015 (DH102)	~120	≤1.2	≤0.10	5,090	4,580	~160	≤1.2	≤0.10	4,200	4,410	~160	≤1.2	≤0.10	3,980	4,770
		190	≤0.8	≤0.08	3,560	2,560	240	≤0.8	≤0.08	2,940	2,470	240	≤0.8	≤0.08	2,780	2,670
		235	≤0.6	≤0.08	3,560	2,140	290	≤0.6	≤0.08	2,940	2,060	290	≤0.6	≤0.08	2,780	2,230
Tool & die steel (SKD61, SKD11) below 255HB	JC8015 (DH102)	~120	≤1.0	≤0.10	4,580	4,120	~160	≤1.0	≤0.10	3,800	3,990	~160	≤1.0	≤0.10	3,580	4,300
		190	≤0.7	≤0.08	3,200	2,300	240	≤0.7	≤0.08	2,660	2,230	240	≤0.7	≤0.08	2,500	2,400
		235	≤0.5	≤0.08	3,200	1,920	290	≤0.5	≤0.08	2,660	1,860	290	≤0.5	≤0.08	2,500	2,000
Mold steel (HPM7, PX5, P20) 30-36 HRC	JC8015 (DH102)	~120	≤1.0	≤0.10	4,580	4,120	~160	≤1.0	≤0.10	3,800	3,990	~160	≤1.0	≤0.10	3,580	4,300
		190	≤0.7	≤0.08	3,200	2,300	240	≤0.7	≤0.08	2,660	2,230	240	≤0.7	≤0.08	2,500	2,400
		235	≤0.5	≤0.08	3,200	1,920	290	≤0.5	≤0.08	2,660	1,860	290	≤0.5	≤0.08	2,500	2,000
Mold steel (NAK80, HPM1, P21) 38-43HRC	DH102 (JC8015)	~120	≤1.0	≤0.10	3,560	2,560	~160	≤1.0	≤0.10	2,960	2,490	~160	≤1.0	≤0.10	2,780	2,670
		190	≤0.7	≤0.08	2,490	1,490	240	≤0.7	≤0.08	2,060	1,440	240	≤0.7	≤0.08	1,950	1,560
		235	≤0.5	≤0.08	2,490	1,200	290	≤0.5	≤0.08	2,060	1,150	290	≤0.5	≤0.08	1,950	1,250
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	DH102 (JC8015)	~120	≤0.8	≤0.10	2,550	1,530	~160	≤0.8	≤0.10	2,120	1,480	~160	≤0.8	≤0.10	1,990	1,590
		190	≤0.5	≤0.08	1,780	850	240	≤0.5	≤0.08	1,480	830	240	≤0.5	≤0.08	1,390	890
		235	—	—	—	—	290	—	—	—	—	290	—	—	—	—
Hardened die steel (SKD11, SLD, DC11) 55-62HRC	DH102	~120	≤0.5	≤0.10	1,910	1,150	~160	≤0.5	≤0.10	1,580	1,110	~160	≤0.5	≤0.10	1,490	1,190
		190	≤0.3	≤0.08	1,340	640	240	≤0.3	≤0.08	1,100	620	240	≤0.3	≤0.08	1,040	670
		235	—	—	—	—	290	—	—	—	—	290	—	—	—	—
Gery & Nodular cast iron (FC, FCD) below 300HB	JC8015 (DH102)	~120	≤1.2	≤0.12	5,090	4,580	~160	≤1.2	≤0.12	4,200	4,410	~160	≤1.2	≤0.12	3,980	4,770
		190	≤0.8	≤0.10	3,560	2,560	240	≤0.8	≤0.10	2,940	2,470	240	≤0.8	≤0.10	2,780	2,670
		235	≤0.6	≤0.08	3,560	2,140	290	≤0.6	≤0.08	2,940	2,060	290	≤0.6	≤0.08	2,780	2,230
Stainless steel (SUS304) below 250HB	JC8015 (DH102)	~120	≤1.0	≤0.10	4,580	4,120	~160	≤1.0	≤0.10	3,800	3,990	~160	≤1.0	≤0.10	3,580	4,300
		190	≤0.7	≤0.08	3,200	2,300	240	≤0.7	≤0.08	2,660	2,230	240	≤0.7	≤0.08	2,500	2,400
		235	≤0.5	≤0.08	3,200	1,920	290	≤0.5	≤0.08	2,660	1,860	290	≤0.5	≤0.08	2,500	2,000
Titanium alloy (Ti-6Al-4V)	JC8015 (DH102)	~120	≤1.0	≤0.10	1,020	730	~160	≤1.0	≤0.10	840	710	~160	≤1.0	≤0.10	800	760
		190	≤0.7	≤0.08	710	430	240	≤0.7	≤0.08	580	410	240	≤0.7	≤0.08	560	450
		235	≤0.5	≤0.08	710	340	290	≤0.5	≤0.08	580	320	290	≤0.5	≤0.08	560	360

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce a_p or rpm and keep feed per tooth.
3. a_p should be reduced when using on low rigidity machine.
4. Use air blow.

QM MILL**MPM Type**

■ Recommended cutting conditions

● MPM type (YOHV insert) - Bottom finishing

4

Material	Grade	Tool dia.(mm)									
		10/11					12/13/14/15				
		2N					3N				
		ℓ (mm)	a _p (mm)	a _e (mm)	n (min ⁻¹)	V _f (mm/min)	ℓ (mm)	a _p (mm)	a _e (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel (S50C, S55C) below 250HB	JC8015 (DH102)	~50	≤0.12	5~10	7,920	3,170	~60	≤0.12	6~12	6,630	3,980
		75	≤0.10	5~10	5,940	1,900	80	≤0.10	6~12	4,970	2,380
		100	≤0.10	5~8	5,100	1,430	110	≤0.10	6~10	4,300	1,800
Tool & die steel (SKD61, SKD11) below 255HB	JC8015 (DH102)	~50	≤0.12	5~10	7,320	2,640	~60	≤0.12	6~12	6,100	3,290
		75	≤0.10	5~10	5,460	1,580	80	≤0.10	6~12	4,580	1,980
		100	≤0.10	5~8	4,740	1,190	110	≤0.10	6~10	3,960	1,500
Mold steel (HPM7, PX5, P20) 30-36 HRC	JC8015 (DH102)	~50	≤0.12	5~10	7,320	2,640	~60	≤0.12	6~12	6,100	3,290
		75	≤0.10	5~10	5,460	1,580	80	≤0.10	6~12	4,580	1,980
		100	≤0.10	5~8	4,740	1,190	110	≤0.10	6~10	3,960	1,500
Mold steel (NAK80, HPM1, P21) 38-43HRC	DH102 (JC8015)	~50	≤0.12	5~10	6,360	1,530	~60	≤0.12	6~12	5,300	1,910
		75	≤0.10	5~10	4,800	920	80	≤0.10	6~12	3,980	1,150
		100	≤0.10	5~8	4,140	700	110	≤0.10	6~10	3,450	870
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	DH102 (JC8015)	~50	≤0.10	5~10	3,840	770	~60	≤0.10	6~12	3,180	960
		75	≤0.08	5~10	2,880	460	80	≤0.08	6~12	2,380	570
		100	—	—	—	—	110	—	—	—	—
Hardened die steel (SKD11, SLD, DC11) 55-62HRC	DH102	~50	≤0.10	5~10	2,220	350	~60	≤0.10	6~12	1,860	450
		75	≤0.08	5~10	1,680	210	80	≤0.08	6~12	1,400	270
		100	—	—	—	—	110	—	—	—	—
Grey & Nodular cast iron (FC, FCD) below 300HB	JC8015 (DH102)	~50	≤0.15	5~10	6,360	1,910	~60	≤0.15	6~12	5,300	2,380
		75	≤0.12	5~10	4,800	1,150	80	≤0.12	6~12	3,980	1,430
		100	≤0.10	5~8	4,140	810	110	≤0.10	6~10	3,450	1,010
Stainless steel (SUS304) below 250HB	JC8015 (DH102)	~50	≤0.12	5~10	7,320	2,640	~60	≤0.12	6~12	6,100	3,290
		75	≤0.10	5~10	5,460	1,580	80	≤0.10	6~12	4,580	1,980
		100	≤0.10	5~8	4,740	1,190	110	≤0.10	6~10	3,960	1,500
Titanium alloy (Ti-6Al-4V)	JC8015 (DH102)	~50	≤0.12	5~10	1,560	370	~60	≤0.12	6~12	1,330	480
		75	≤0.10	5~10	1,200	230	80	≤0.10	6~12	1,000	290
		100	≤0.10	5~8	1,020	170	110	≤0.10	6~10	860	220

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce a_p or rpm and keep feed per tooth.
3. a_p should be reduced when using on low rigidity machine.
4. Use air blow.

QM MILL**MPM Type**

■ Recommended cutting conditions

● MPM type (YOHW insert) - Bottom finishing

4

Material	Grade	Tool dia.(mm)									
		16/17/18					20/21				
		4N					5N				
		ℓ (mm)	a _p (mm)	a _e (mm)	n (min ⁻¹)	V _f (mm/min)	ℓ (mm)	a _p (mm)	a _e (mm)	n (min ⁻¹)	V _f (mm/min)
Carbon steel (S50C, S55C) below 250HB	JC8015 (DH102)	~80	≤0.12	8~16	4,980	3,980	~100	≤0.12	10~20	3,960	3,980
		120	≤0.10	8~16	3,740	2,380	150	≤0.10	10~20	2,970	2,380
		160	≤0.10	8~13	3,240	1,800	190	≤0.10	10~16	2,550	1,800
Tool & die steel (SKD61, SKD11) below 255HB	JC8015 (DH102)	~80	≤0.12	8~16	4,580	3,290	~100	≤0.12	10~20	3,660	3,290
		120	≤0.10	8~16	3,440	1,980	150	≤0.10	10~20	2,730	1,980
		160	≤0.10	8~13	2,980	1,500	190	≤0.10	10~16	2,370	1,500
Mold steel (HPM7, PX5, P20) 30-36 HRC	JC8015 (DH102)	~80	≤0.12	8~16	4,580	3,290	~100	≤0.12	10~20	3,660	3,290
		120	≤0.10	8~16	3,440	1,980	150	≤0.10	10~20	2,730	1,980
		160	≤0.10	8~13	2,980	1,500	190	≤0.10	10~16	2,370	1,500
Mold steel (NAK80, HPM1, P21) 38-43HRC	DH102 (JC8015)	~80	≤0.12	8~16	3,980	1,910	~100	≤0.12	10~20	3,180	1,910
		120	≤0.10	8~16	2,980	1,150	150	≤0.10	10~20	2,400	1,150
		160	≤0.10	8~13	2,580	870	190	≤0.10	10~16	2,070	870
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	DH102 (JC8015)	~80	≤0.10	8~16	2,380	960	~100	≤0.10	10~20	1,920	960
		120	≤0.08	8~16	1,780	570	150	≤0.08	10~20	1,440	570
		160	—	—	—	—	190	—	—	—	—
Hardened die steel (SKD11, SLD, DC11) 55-62HRC	DH102	~80	≤0.10	8~16	1,400	450	~100	≤0.10	10~20	1,110	450
		120	≤0.08	8~16	1,040	270	150	≤0.08	10~20	840	270
		160	—	—	—	—	190	—	—	—	—
Grey & Nodular cast iron (FC, FCD) below 300HB	JC8015 (DH102)	~80	≤0.15	8~16	3,980	2,380	~100	≤0.15	10~20	3,180	2,380
		120	≤0.12	8~16	2,980	1,430	150	≤0.12	10~20	2,400	1,430
		160	≤0.10	8~13	2,580	1,010	190	≤0.10	10~16	2,070	1,010
Stainless steel (SUS304) below 250HB	JC8015 (DH102)	~80	≤0.12	8~16	4,580	3,290	~100	≤0.12	10~20	3,660	3,290
		120	≤0.10	8~16	3,440	1,980	150	≤0.10	10~20	2,730	1,980
		160	≤0.10	8~13	2,980	1,500	190	≤0.10	10~16	2,370	1,500
Titanium alloy (Ti-6Al-4V)	JC8015 (DH102)	~80	≤0.12	8~16	1,000	480	~100	≤0.12	10~20	780	480
		120	≤0.10	8~16	740	290	150	≤0.10	10~20	600	290
		160	≤0.10	8~13	640	220	190	≤0.10	10~16	510	220

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce a_p or rpm and keep feed per tooth.
3. a_p should be reduced when using on low rigidity machine.
4. Use air blow.

QM MILL**MPM Type**

- Recommended cutting conditions
- MPM type (YOHW insert) - Bottom finishing

4

Material	Grade	Tool dia.(mm)														
		25					30					32				
		6N					7N					8N				
		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) below 250HB	JC8015 (DH102)	~120	≤0.12	12~25	3,180	3,820	~160	≤0.12	15~30	2,640	3,700	~160	≤0.12	16~32	2,490	3,980
		190	≤0.10	12~25	2,380	2,280	240	≤0.10	15~30	1,980	2,220	240	≤0.10	16~32	1,870	2,380
		235	≤0.06	12~20	2,070	1,740	290	≤0.06	15~24	1,700	1,670	290	≤0.06	16~26	1,620	1,800
Tool & die steel (SKD61, SKD11) below 255HB	JC8015 (DH102)	~120	≤0.12	12~25	2,930	3,160	~160	≤0.12	15~30	2,440	3,070	~160	≤0.12	16~32	2,290	3,290
		190	≤0.10	12~25	2,200	1,900	240	≤0.10	15~30	1,820	1,830	240	≤0.10	16~32	1,720	1,980
		235	≤0.06	12~20	1,900	1,440	290	≤0.06	15~24	1,580	1,390	290	≤0.06	16~26	1,490	1,500
Mold steel (HPM7, PX5, P20) 30-36 HRC	JC8015 (DH102)	~120	≤0.12	12~25	2,930	3,160	~160	≤0.12	15~30	2,440	3,070	~160	≤0.12	16~32	2,290	3,290
		190	≤0.10	12~25	2,200	1,900	240	≤0.10	15~30	1,820	1,830	240	≤0.10	16~32	1,720	1,980
		235	≤0.06	12~20	1,900	1,440	290	≤0.06	15~24	1,590	1,390	290	≤0.06	16~26	1,490	1,500
Mold steel (NAK80, HPM1, P21) 38-43HRC	DH102 (JC8015)	~120	≤0.12	12~25	2,550	1,840	~160	≤0.12	15~30	2,120	1,780	~160	≤0.12	16~32	1,990	1,910
		190	≤0.10	12~25	1,910	1,100	240	≤0.10	15~30	1,600	1,080	240	≤0.10	16~32	1,490	1,150
		235	≤0.06	12~20	1,660	840	290	≤0.06	15~24	1,380	810	290	≤0.06	16~26	1,290	870
Hardened die steel (SKD61, DAC, DHA) 42-52HRC	DH102 (JC8015)	~120	≤0.10	12~25	1,530	920	~160	≤0.10	15~30	1,280	900	~160	≤0.10	16~32	1,190	960
		190	≤0.08	12~25	1,150	550	240	≤0.08	15~30	960	540	240	≤0.08	16~32	890	570
		235	—	—	—	—	290	—	—	—	—	290	—	—	—	—
Hardened die steel (SKD11, SLD, DC11) 55-62HRC	DH102	~120	≤0.10	12~25	890	430	~160	≤0.10	15~30	740	410	~160	≤0.10	16~32	700	450
		190	≤0.08	12~25	670	260	240	≤0.08	15~30	560	250	240	≤0.08	16~32	520	270
		235	—	—	—	—	290	—	—	—	—	290	—	—	—	—
Grey & Nodular cast iron (FC, FCD) below 300HB	JC8015 (DH102)	~120	≤0.15	12~25	2,550	2,300	~160	≤0.15	15~30	2,120	2,230	~160	≤0.15	16~32	1,990	2,380
		190	≤0.12	12~25	1,910	1,380	240	≤0.12	15~30	1,600	1,340	240	≤0.12	16~32	1,490	1,430
		235	≤0.10	12~20	1,660	970	290	≤0.10	15~24	1,380	940	290	≤0.10	16~26	1,290	1,010
Stainless steel (SUS304) below 250HB	JC8015 (DH102)	~120	≤0.12	12~25	2,930	3,160	~160	≤0.12	15~30	2,440	3,070	~160	≤0.12	16~32	2,290	3,290
		190	≤0.12	12~25	2,200	1,900	240	≤0.12	15~30	1,820	1,830	240	≤0.12	16~32	1,720	1,980
		235	≤0.10	12~20	1,900	1,440	290	≤0.10	15~24	1,590	1,390	290	≤0.10	16~26	1,490	1,500
Titanium alloy (Ti-6Al-4V)	JC8015 (DH102)	~120	≤0.12	12~25	640	460	~160	≤0.12	15~30	520	440	~160	≤0.12	16~32	500	480
		190	≤0.10	12~25	480	280	240	≤0.10	15~30	400	270	240	≤0.10	16~32	370	290
		235	≤0.06	12~20	420	210	290	≤0.06	15~24	340	200	290	≤0.06	16~26	320	220

Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce ap or rpm and keep feed per tooth.
3. ap should be reduced when using on low rigidity machine.
4. Use air blow.