

# PRODUCT NEWS

PN-E-022

SERIES EXPANSION



For High Precision & High Efficient Machining of Aluminium Alloys

## AERO-CHIPPER

"AERO-CHIPPER-MINI" AMX/MAM type

"AERO-CHIPPER" ALX/MAL type



*Aerospace Tooling*



### AMX / MAM type

- Facemill  $\phi 40$
- Modular head  $\phi 16 - 42$

### ALX / MAL type

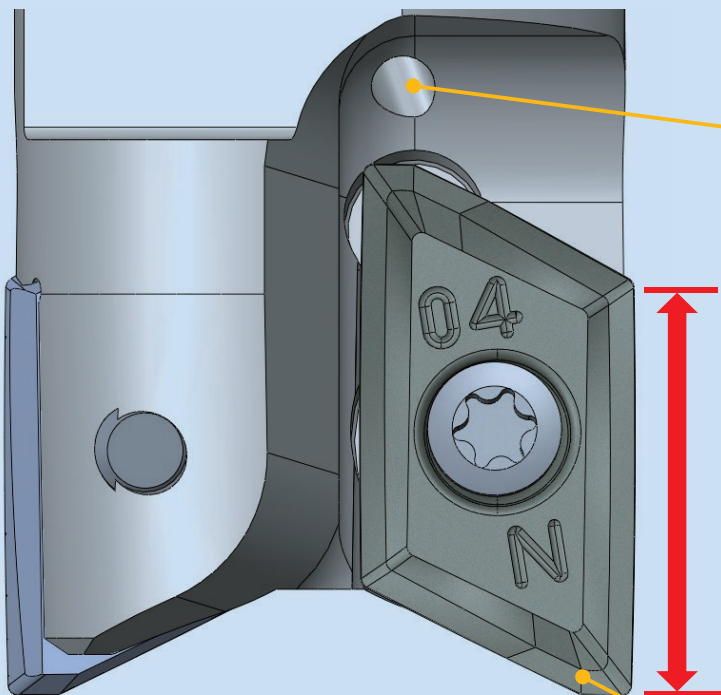
- Facemill  $\phi 50 - 63$
- Modular head  $\phi 20 - 40$
- Endmill Shank  $\phi 20 - 40$



DIJET GmbH

[www.dijet.de](http://www.dijet.de)

## High Precision & High Efficient Machining on Aerospace tooling



■ **Through coolant hole**

■ **High Precision**

- Combination of high accuracy body and ground insert gives excellent side wall finish.

■ **Multi Function**

■ **High Efficiency**

- Sharp & Unique 3D geometry insert enables high efficiency and low cutting resistance machining. Key in insert gives added security allowing high speed spindle machining.





TECHNICAL  
INFORMATION

## AMX / MAM type



- Facemill type  
φ40
- Modular Head type  
φ16 - φ42

MAX.ap = 8mm

**XOET08030..PDFR**

grade: **FZ05**

RE: 0.4 - 2.0



## ALX / MAL type



- Facemill type  
φ50 - φ63
- Modular Head type  
φ20 - φ40
- Endmill Shank type  
φ20 - φ40

MAX.ap = 15mm

**XOGT1605..PDFR**

grade: **FZ05**

RE: 0.2 - 4.0

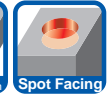


**XOGT1605..PDER**

grade: **JC5118**

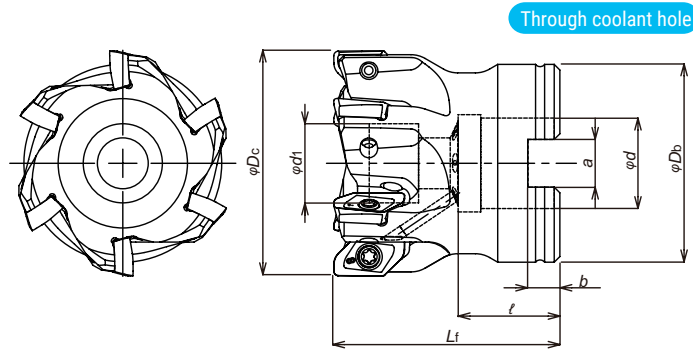
RE: 0.2 - 3.2





## AMX / MAM type

### ■ Facemill type



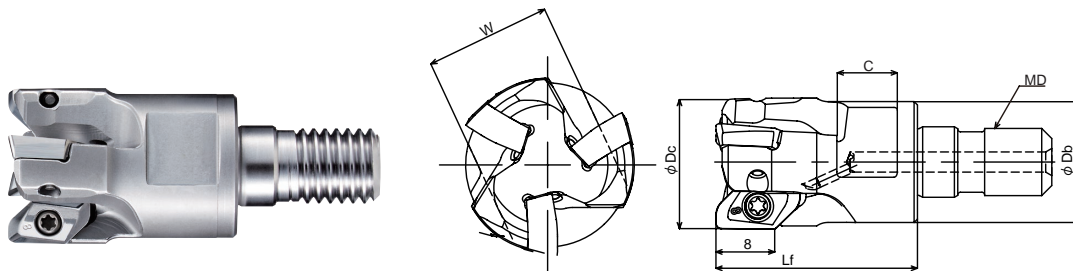
RECOMMENDED CUTTING CONDITIONS

Cat.No.	Stock	No. of inserts	Dimensions(mm)								Max. spindle speed (min <sup>-1</sup> )	Weight (kg)	Inserts
			$\phi D_c$	$L_f$	$\phi D_b$	$\phi d$	$\phi d_1$	a	b	$\ell$			
AMX-6040R-16	◎	6	40	40	35	16	14	8.4	5.6	18	28,000	0.2	XOET0803**PDFR

Note) 1. All cutters are supplied without inserts or wrenches.  
2. In case to use cutting speed over 1,000m/min, please adjust the arbor with the holder within grade G6.3 of the rotating machines-balance quality requirements of rigid rotors (JIS B 0905).

Screw	Torque(N.m)	Wrench
TSW-2567H	1.1	A-08

### ■ Modular Head type



RECOMMENDED CUTTING CONDITIONS

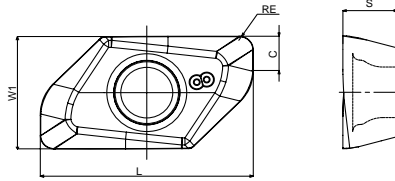
Cat.No.	Stock	No. of inserts	Dimensions(mm)						Max. spindle speed (min <sup>-1</sup> )	Inserts	Parts	
			$\phi D_c$	$L_f$	$\phi D_b$	MD	C	W			Clamp screw	Wrench
MAM-2016-M8	●	2	16	23	14	M8	8	12	40,000	XOET0803**PDFR	TSW-2556H	A-08
MAM-3020-M10	●	3	20	30	18	M10	9	14	40,000			
MAM-3025-M12	□	3	25	35	22	M12	11	19	40,000			
MAM-4025-M12	●	4	25	35	22	M12	11	19	40,000			
MAM-4028-M12	□	4	28	35	23.6	M12	11	19	36,000			
MAM-4030-M16	□	4	30	43	27	M16	12	22	34,000			
MAM-5032-M16	●	5	32	43	29	M16	12	22	33,000			
MAM-5035-M16	□	5	35	43	32	M16	14	26	31,000			
MAM-6040-M16	●	6	40	43	32	M16	14	26	28,000			
MAM-6042-M16	□	6	42	43	32	M16	14	26	27,000			

Note) 1. All cutters are supplied without inserts or wrenches.  
2. In case to use cutting speed over 1,000m/min, please adjust the arbor with the holder within grade G6.3 of the rotating machines-balance quality requirements of rigid rotors (JIS B 0905).

Screw	Torque(N.m)	Wrench
TSW-2556H	1.1	A-08
TSW-2567H		

# AMX / MAM type

## ■ Insert



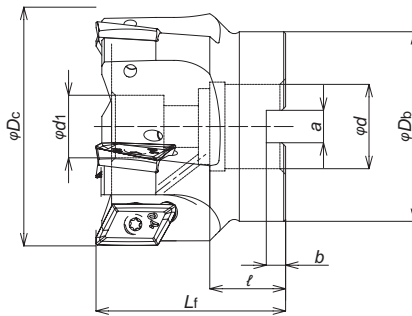
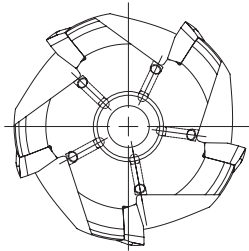
Cat.No.	Tolerance	Uncoated	Dimensions (mm)				
		FZ05	RE	L	W1	S	C
XOET080304PDFR	E	●	0.4	12.5	6.8	3.2	1.7
XOET080308PDFR		●	0.8	12.5	6.8	3.2	2
XOET080316PDFR		●	1.6	12.5	6.8	3.2	2.9
XOET080320PDFR		●	2.0	12.5	6.8	3.2	3

Note) 10 inserts per case.



## ALX / MAL type

### ■ Facemill type



Through coolant hole



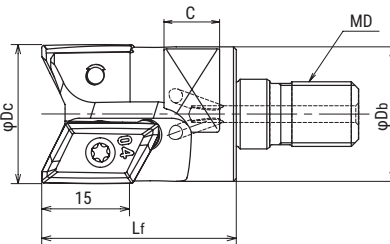
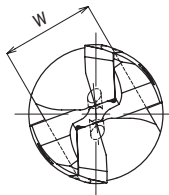
RECOMMENDED CUTTING CONDITIONS

Cat.No.	Stock	No. of inserts	Dimensions(mm)								Max. spindle speed (min <sup>-1</sup> )	Weight (kg)	Inserts
			φDc	Lf	φDb	φd	φd1	a	b	ℓ			
ALX4050R-22	●	4	50	50	45	22	16.5	10.4	6.3	20	24,000	0.4	XOGT1605**PD*R
ALX5063R-22	●	5	63		50						21,000	0.6	

- Note) 1. All cutters are supplied without inserts or wrenches.  
 2. Body must be modified to 1.5mm radius or 1.2mm chamfer at corner to use 3.0mm or 3.2mm corner radius insert.  
 3. In case to use cutting speed over 1,000m/min, please adjust the arbor with the holder within grade G6.3 of the rotating machines-balance quality requirements of rigid rotors (JIS B 0905).

Screw	Torque(N.m)	Wrench
DSW-4085	3.6	A-15

### ■ Modular Head type



Through coolant hole

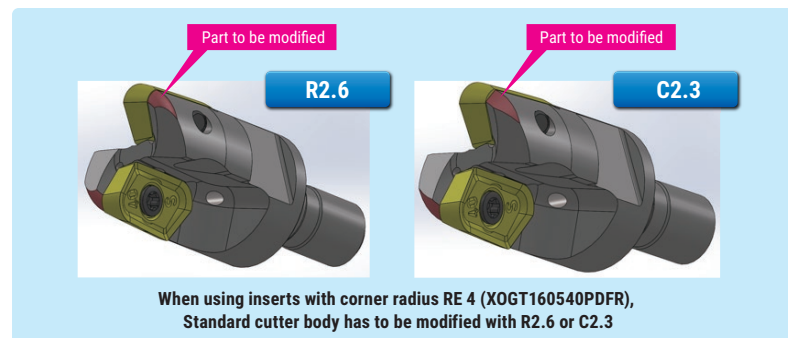


RECOMMENDED CUTTING CONDITIONS

Cat.No.	Stock	No. of inserts	Dimensions(mm)						Max. spindle speed (min <sup>-1</sup> )	Inserts
			φDc	Lf	φDb	MD	C	W		
MAL-1020-M10	●	1	20	35	19.5	M10	9	14	15,000	XOGT1605**PD*R
MAL-2025-M12	●	2	25		24	M12	10	19	40,000	
MAL-2028-M12	□		28		M12	10	19	36,000		
MAL-2030-M16	□	2	30	43	28	M16	12	22	34,000	
MAL-2032-M16	●		32		M16	33,000				
MAL-2035-M16	□		35		M16	31,000				
MAL-3040-M16	●	3	40		32	M16	14	26	28,000	

- Note) 1. All cutters are supplied without inserts or wrenches.  
 2. Body must be modified to 1.5mm radius or 1.2mm chamfer at corner to use 3.0mm or 3.2mm corner radius insert.  
 3. In case to use cutting speed over 1,000m/min, please adjust the arbor with the holder within grade G6.3 of the rotating machines-balance quality requirements of rigid rotors (JIS B 0905).

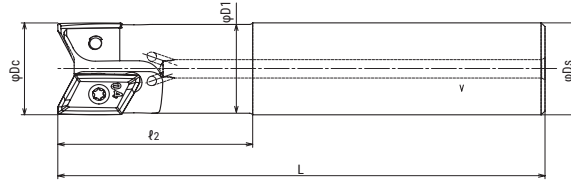
Screw	Torque(N.m)	Wrench
DSW-4085	3.6	A-15



# ALX / MAL type

## ■ Endmill Shank type

Through coolant hole



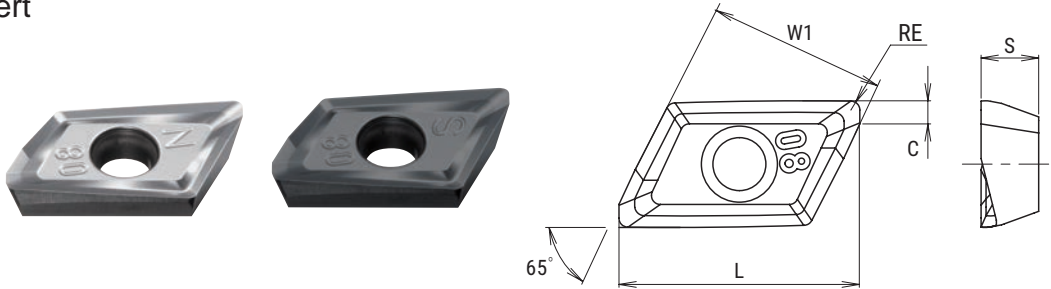
RECOMMENDED CUTTING CONDITIONS

Cat.No.	Stock	No. of inserts	Dimensions(mm)					Max. spindle speed(min <sup>-1</sup> )	Parts		Inserts
			φDc	ℓ <sub>2</sub>	L	φD1	φDs		Screw	Wrench	
ALXM1020S20	●	1	20	35	110	19.18	20	15,000	DSW-4075H	A-15	XOGT1605**PD*R
ALXM2025S25	●	2	25	50	125	24	25	40,000	DSW-4085		
ALXM2028S25	●		28					26.87			
ALXM2032S32	●		32		30.5	33,000					
ALXM2035S32	□		35		33.32	31,000					
ALXM3040S32	●	3	40	80	170	37.96	28,000				

- Note ) 1. All cutters are supplied without inserts or wrenches.  
 2. Body must be modified to 1.5mm radius or 1.2mm chamfer at corner to use 3.0mm or 3.2mm corner radius insert.  
 3. In case to use cutting speed over 1,000m/min, please adjust the arbor with the holder within grade G6.3 of the rotating machines-balance quality requirements of rigid rotors (JIS B 0905).

Screw	Torque(N.m)
DSW-4075H	3.6
DSW-4085	3.6

## ■ Insert



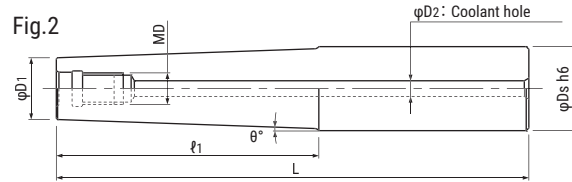
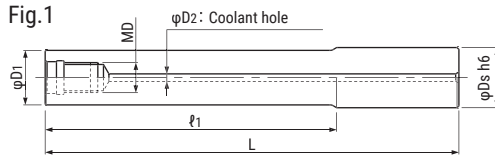
Cat.No.	Tolerance	PVD Coating	Uncoated	Dimensions (mm)						
		JC5118	FZ05	RE	L	W1	S	C		
XOGT160502PDFR	G	●	●	0.2	20.8	16.35	5	2.5		
XOGT160504PDFR				0.4	21.0			2.4		
XOGT160508PDFR				0.8				2.5		
XOGT160512PDFR				1.2	20.9			2.6		
XOGT160516PDFR				1.6	20.7			2.8		
XOGT160520PDFR				2.0	20.6			3		
XOGT160525PDFR				2.5	20.3			3.3		
XOGT160530PDFR				3.0	20.1			3.5		
XOGT160532PDFR				3.2	19.9			4.3		
XOGT160540PDFR				4.0	19.2			2.5		
XOGT160502PDER				●	●			0.2	20.8	2.5
XOGT160504PDER				●	●			0.4	21.0	2.4
XOGT160508PDER				●	●			0.8		2.5
XOGT160512PDER				●	●			1.2	20.9	2.6
XOGT160516PDER				●	●			1.6	20.7	2.8
XOGT160520PDER				●	●			2.0	20.6	3
XOGT160530PDER				●	●			3.0	20.1	3.3
XOGT160532PDER				●	●			3.2	19.9	3.5

Note) 10 inserts per case.

● : Standard stock items    □ : Stock in Japan    ◎ : Soon to be stocked

Through coolant hole

### ■ Endmill Shank type



Cat.No.	Stock	Dimensions(mm)							Weight (kg)	Fig.
		φDs	ℓ1	L	φD1	θ°	MD	φD2		
MSN-M8-20-S16C	●	16	20	75	15.5	-	M8	4	0.17	1
MSN-M8-40-S16C	●	16	40	95	15.5	-			0.22	1
MSN-M8-40T-S20C	●	20	40	100	14.5	3°30'			0.36	2
MSN-M8-77T-S20C	●	20	77	143	14.5	1°45'			0.49	2
MSN-M8-80-S16C	●	16	80	135	15.5	-			0.32	1
MSN-M8-120-S16C	●	16	120	175	15.5	-			0.42	1
MSN-M8-152-S16C	●	16	152	207	15.5	-			0.51	1
MSN-M10-20-S20C	●	20	20	80	19.5	-			M10	4
MSN-M10-40-S20C	●	20	40	100	19.5	-	0.39	1		
MSN-M10-40T-S20C	●	20	40	100	18.5	0°43'	0.39	2		
MSN-M10-70-S20C	●	20	70	130	19.5	-	0.50	1		
MSN-M10-85T-S25C	●	25	85	161	18.5	2°	0.90	2		
MSN-M10-90-S20C	●	20	90	150	19.5	-	0.60	1		
MSN-M10-90T-S20C	●	20	90	150	18.5	0°19'	0.58	2		
MSN-M10-140-S20C	●	20	140	200	19.5	-	0.80	1		
MSN-M10-140T-S20C	●	20	140	200	18.5	0°12'	0.77	2		
MSN-M10-160-S20C	●	20	160	220	19.5	-	0.87	1		
MSN-M10-210-S20C	●	20	210	270	19.5	-	1.07	1		
MSN-M12-25-S25C	●	25	25	90	24	-	M12	6	0.53	1
MSN-M12-55-S25C	●	25	55	120	24	-			0.72	1
MSN-M12-100T-S32C	●	32	100	180	23.5	2°			1.61	2
MSN-M12-105-S25C	●	25	105	170	24	-			1.03	1
MSN-M12-135-S25C	●	25	135	215	24	-			1.30	1
MSN-M12-155-S25C	●	25	155	220	24	-			1.34	1
MSN-M12-200-S25C	●	25	200	265	24	1°30'			1.58	1
MSN-M16-25-S32C	●	32	25	90	29	-			M16	8
MSN-M16-55-S32C	●	32	55	120	29	-	1.13	1		
MSN-M16-77-S32C	●	32	77	157	29	-	1.47	1		
MSN-M16-97-S32C	●	32	97	177	29	-	1.64	1		
MSN-M16-105-S32C	●	32	105	170	29	-	1.59	1		
MSN-M16-117T-S32C	●	32	117	197	29	0°38'	1.88	2		
MSN-M16-127-S32C	●	32	127	207	29	-	1.89	1		
MSN-M16-127T-S32C	●	32	127	207	29	0°30'	2.23	2		
MSN-M16-155-S32C	●	32	155	220	29	-	2.04	1		
MSN-M16-177-S32C	●	32	177	257	29	-	2.32	1		
MSN-M16-177T-S32C	●	32	177	257	29	0°23'	2.78	2		
MSN-M16-195-S32C	●	32	195	260	29	-	2.40	1		
MSN-M16-197T-S32C	●	32	197	277	29	0°23'	3.00	2		
MSN-M16-225-S32C	●	32	225	290	29	-	2.57	1		
MSN-M16-245-S32C	●	32	245	310	29	-	2.74	1		
MSN-M16-295-S32C	●	32	295	360	29	-	3.17	1		

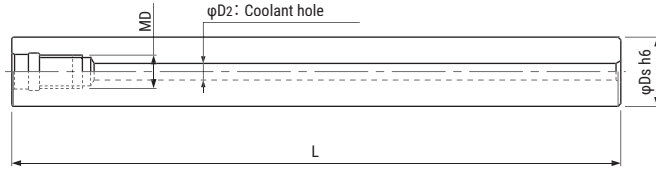


# Carbide Modular Head Holder

## MSN type

Through coolant hole

### ■ Straight type



Cat.No.	Stock	Dimensions(mm)				Weight (kg)
		φDs	L	MD	φD2	
MSN-M8-87S-S14C	●	14	87	M8	4	0.16
MSN-M8-137S-S14C	●	14	137		4	0.26
MSN-M8-97S-S15C	●	15	97		4	0.21
MSN-M8-147S-S15C	●	15	147		4	0.33
MSN-M8-197S-S15C	●	15	197		4	0.44
MSN-M8-107S-S16C	●	16	107		4	0.27
MSN-M8-157S-S16C	●	16	157		4	0.40
MSN-M10-130S-S18C	●	18	130		M10	4
MSN-M10-190S-S18C	●	18	190	4		0.62
MSN-M10-240S-S18C	●	18	240	4		0.89
MSN-M10-130S-S20C	●	20	130	4		0.53
MSN-M10-190S-S20C	●	20	190	4		0.78
MSN-M10-250S-S20C	●	20	250	4	1.02	
MSN-M12-185S-S23C	●	23	185	M12	6	0.98
MSN-M12-265S-S23C	●	23	265		6	1.42
MSN-M12-185S-S24C	●	24	185		6	1.07
MSN-M12-265S-S24C	●	24	265		6	1.54
MSN-M12-145S-S25C	●	25	145		6	0.91
MSN-M12-215S-S25C	●	25	215		6	1.36
MSN-M12-285S-S25C	●	25	285	6	1.80	
MSN-M16-160S-S28C	●	28	160	M16	8	1.22
MSN-M16-230S-S28C	●	28	230		8	1.77
MSN-M16-310S-S28C	●	28	310		8	2.41
MSN-M16-157S-S32C	●	32	157		8	1.61
MSN-M16-217S-S32C	●	32	217		8	2.22
MSN-M16-287S-S32C	●	32	287		8	2.94
MSN-M16-357S-S32C	●	32	357		8	3.66



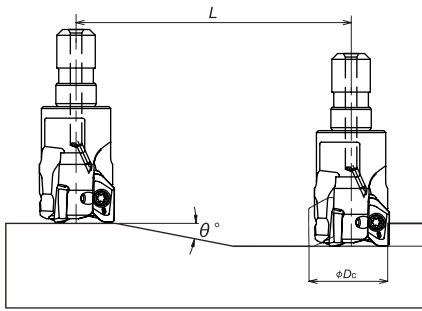
ATTENTION

## AMX / MAM type

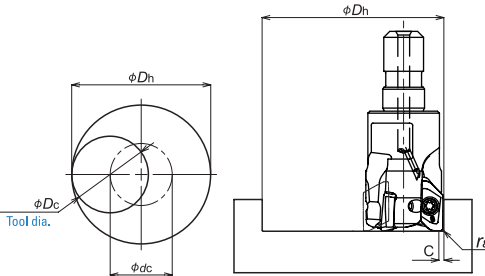
### Recommended Data for Profile Milling

#### Ramping

Tool cutting length  
 $L = ap(\text{Max. depth of cut}) / \tan \theta$



#### Helical interpolation



● 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 ap.

- Down cutting is recommended, so tool pass rotation should be counterclockwise.

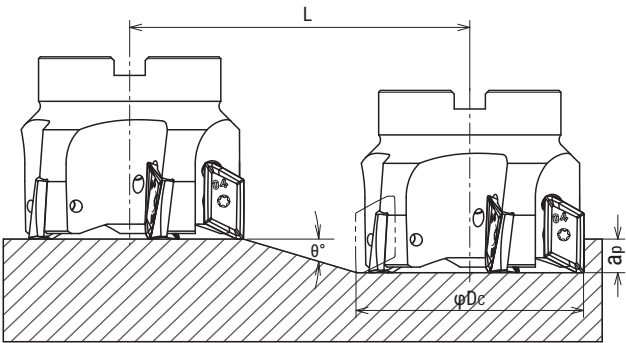
Cat.No.	Tool dia.	RE	Eff.Cutting dia. (mm)	Max. Depth of cut (mm) ap	Ramping		Helical interpolation			Max. Drilling Depth (mm)
					Max. ramping angle $\theta^\circ$	Total cutting length at Max.ap L (mm)	Through hole Min. bore dia. Dh min (mm)	Flat bottom Min.bore dia. Df min (mm)	Through hole Max. bore dia. phi Dh max (mm)	
MAM-2016-M8	16	0.4	15.1	5	18	15.4	20	29.0	31	2.5
MAM-2016-M8	16	0.8	14.3	5	18	15.4	20	28.5	31	2.5
MAM-2016-M8	16	1.6	12.7	5	18	15.4	20	27.0	31	2.5
MAM-2016-M8	16	2.0	11.9	5	18	15.4	20	26.5	31	2.5
MAM-3020-M10	20	0.4	19.1	5	14	20.1	28	37.0	39	2.5
MAM-3020-M10	20	0.8	18.3	5	14	20.1	28	36.5	39	2.5
MAM-3020-M10	20	1.6	16.7	5	14	20.1	28	35.0	39	2.5
MAM-3020-M10	20	2.0	15.9	5	14	20.1	28	34.5	39	2.5
MAM-3025... / MAM-4025...	25	0.4	24.1	5	10	28.4	38	47.0	49	2.5
MAM-3025... / MAM-4025...	25	0.8	23.3	5	10	28.4	38	46.5	49	2.5
MAM-3025... / MAM-4025...	25	1.6	21.7	5	10	28.4	38	45.0	49	2.5
MAM-3025... / MAM-4025...	25	2.0	20.9	5	10	28.4	38	44.5	49	2.5
MAM-4028-M12	28	0.4	27.1	5	8.5	33.5	44	53.0	55	2.5
MAM-4028-M12	28	0.8	26.3	5	8.5	33.5	44	52.5	55	2.5
MAM-4028-M12	28	1.6	24.7	5	8.5	33.5	44	51.0	55	2.5
MAM-4028-M12	28	2.0	23.9	5	8.5	33.5	44	50.5	55	2.5
MAM-4030-M16	30	0.4	29.1	5	7.5	38.0	48	57.0	59	2.5
MAM-4030-M16	30	0.8	28.3	5	7.5	38.0	48	56.5	59	2.5
MAM-4030-M16	30	1.6	26.7	5	7.5	38.0	48	55.0	59	2.5
MAM-4030-M16	30	2.0	25.9	5	7.5	38.0	48	54.5	59	2.5
MAM-5032-M16	32	0.4	31.1	5	7	40.7	52	61.0	63	2.5
MAM-5032-M16	32	0.8	30.3	5	7	40.7	52	60.5	63	2.5
MAM-5032-M16	32	1.6	28.7	5	7	40.7	52	59.0	63	2.5
MAM-5032-M16	32	2.0	27.9	5	7	40.7	52	58.5	63	2.5
MAM-5035-M16	35	0.4	34.1	5	6	47.6	58	67.0	69	2.5
MAM-5035-M16	35	0.8	33.3	5	6	47.6	58	66.5	69	2.5
MAM-5035-M16	35	1.6	31.7	5	6	47.6	58	65.0	69	2.5
MAM-5035-M16	35	2.0	30.9	5	6	47.6	58	64.5	69	2.5
MAM-6040... / AMX-6040...	40	0.4	39.1	5	5	57.2	68	77.0	79	2.5
MAM-6040... / AMX-6040...	40	0.8	38.3	5	5	57.2	68	76.5	79	2.5
MAM-6040... / AMX-6040...	40	1.6	36.7	5	5	57.2	68	75.0	79	2.5
MAM-6040... / AMX-6040...	40	2.0	35.9	5	5	57.2	68	74.5	79	2.5
MAM-6042-M16	42	0.4	41.1	5	5	57.2	72	81.0	83	2.5
MAM-6042-M16	42	0.8	40.3	5	5	57.2	72	80.5	83	2.5
MAM-6042-M16	42	1.6	38.7	5	5	57.2	72	79.0	83	2.5
MAM-6042-M16	42	2.0	37.9	5	5	57.2	72	78.5	83	2.5

1. In case of ramping, apply 70% or less feed (Vf) from standard cutting condition table.  
 2. Wet cutting is recommended.

# ALX / MAL type

## Recommended Data for Profile Milling

### Ramping

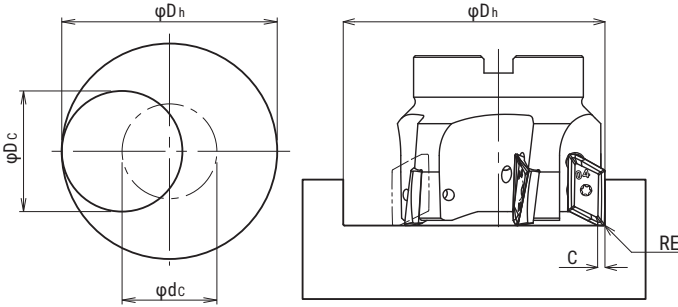


Tool dia. (mm)	Aluminium		Stainless steel		Titanium alloy		Max. Depth of cut (mm)
	Max. ramping angle (°)	Cutting length (mm)	Max. ramping angle (°)	Cutting length (mm)	Max. ramping angle (°)	Cutting length (mm)	
φDc	θ°	L	θ°	L	θ°	L	ap
20	16	28	10	45	10	45	8
25	11	41	9	51	9	51	8
28	9	51	7	65	7	65	8
30	8	57	6	76	6	76	8
32	7	65	6	76	6	76	8
35	6	76	6	76	6	76	8
40	5	91	5	91	5	91	8
50	4	114	4	114	4	114	8
63	3	153	3	153	3	153	8

**Note**

1. In case of ramping, apply 70% or less feed (Vf) from standard cutting condition table.
2. When cutting Titanium/Stainless steel, apply 0.005mm or less (fz) from standard cutting condition table.
3. Wet cutting is recommended.

### Helical interpolation



- Calculation of tool pass dia.  

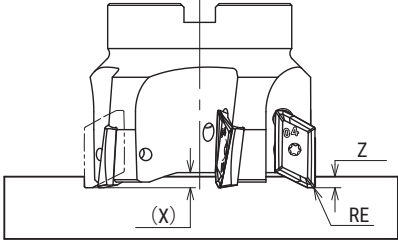
$$\phi_{dc} = \phi_{Dh} - \phi_{Dc}$$
Tool pass dia.    Bore dia.    Tool dia.
- Depth of cut per one circuit should not exceed max. depth of cut Ap
- Down cutting is recommended, tool pass rotation should be counterclockwise

Tool dia. (mm)	Min. bore dia. (mm)	Max. Bore dia. (mm)	Max. Depth of cut (mm)		
			Aluminium	Stainless steel	Titanium alloy
φDc	φDh min.	φDh max.			
20	35.8	38.6	15	9	9
25	45.8	48.6	13	11	11
28	51.8	54.6	12	10	10
30	55.8	58.6	11	10	10
32	59.8	62.6	11	10	10
35	65.8	68.6	11	11	11
40	75.8	78.6	10	10	10
50	96.8	98.6	10	10	10
63	122.8	124.6	10	10	10

**Note**

1. In case of helical interpolation, apply 70% or less feed (Vf) from standard cutting condition table.
2. When cutting Titanium/Stainless steel, apply 0.005mm or less (fz) from standard cutting condition table.
3. Wet cutting is recommended.

### Drilling



Coner radius R (mm)	Max. depth of cut: Z (mm)
RE	Z
R2.5 or below	3
R3 / R3.2	2
R4	1.5

**Note**

1. Do not combine drilling and ramping together.
2. In case of drilling, apply 50% or less feed (Vf) from standard cutting condition table.
3. Long chips may come out in case of drilling, confirm safe operating conditions.

## HEADQUARTER

DIJET Industrial Co.Ltd.

2-1-18, Kami-Higashi,

Hirano-ku, Osaka 547-0002, Japan

PHONE +81-6-6791-6781

FAX +81-6-6793-1221

[www.dijet.co.jp](http://www.dijet.co.jp)



JQA-2089



JQA-EM1580

## MAIN OFFICE EUROPE

DIJET GmbH

Immermannstraße 9

40210 Düsseldorf, Germany

PHONE +49-211-50088820

FAX +49-211-50088823

[www.dijet.de](http://www.dijet.de)



DIJET EUROPE



Web : [www.dijet.de](http://www.dijet.de)

