

# PRODUCT NEWS

PN-E-008

SERIES EXPANSION

 **DIJET**<sup>®</sup>

High-Feed Milling Cutter with Double-Sided Inserts

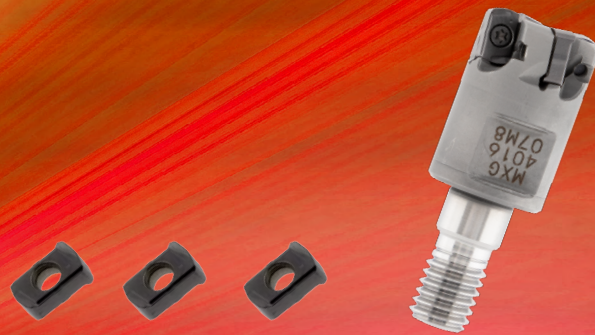
# QMM MAX GII



## GMX07/MXG07

Modular type :  $\varnothing 10$ – $\varnothing 16$

Shank type :  $\varnothing 10$ – $\varnothing 14$



## GMX10/MXG10

Bore type :  $\varnothing 40$ – $\varnothing 66$

Modular type :  $\varnothing 16$ – $\varnothing 42$

Shank type :  $\varnothing 16$ – $\varnothing 32$



**DIJET GmbH**

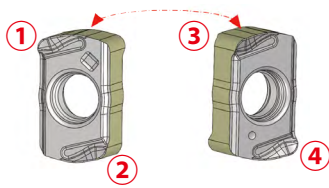
[www.dijet.de](http://www.dijet.de)

## High-Feed Milling Cutter Multi-Blade Design with **Double-Sided Compact Inserts** for High Productivity

### Feature 1

Lineup from  $\varnothing 10$ , featuring economical double-sided inserts with four cutting edges.

#### 1. Economical Double-Sided Inserts



#### 2. Lineup from $\varnothing 10$ – Insert size 07



- ✓ Tool diameter  $\varnothing 10$ – $\varnothing 16$  mm
- ✓ Max. depth of cut: **0.5 mm**
- ✓ **Modular type:**  $\varnothing 10$ – $\varnothing 16$  mm
- Shank type:**  $\varnothing 10$ – $\varnothing 14$  mm

### Feature 2

High-Rigidity Design for Stable, Reliable Machining.

#### 1. Increased insert rigidity



**NEW**

**MXG07**  
ENMU07...

MPM  
EOMT06...



#### 2. M2 Fine-Pitch Screw

**Fine-pitch**  
M2 screw



**NEW**

**MXG07**

Coarse-pitch  
M1.8 screw

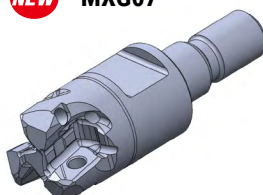


MPM  
(Conventional model)

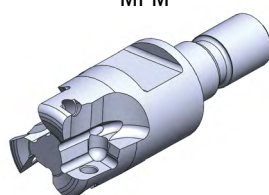
#### 3. High-Rigidity Body Design

**NEW**

**MXG07**



MPM



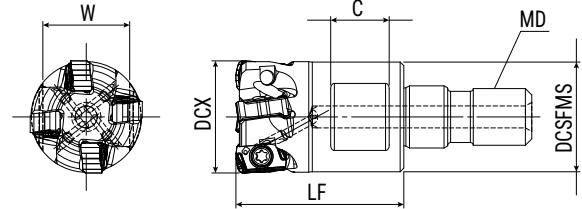
**Body rigidity improved by 44%**

Through coolant hole



**MXG07**  
TYPE

**Modular Type**



Cat.No.	Stock	No. of inserts	Dimensions (mm)						Insert
			DCX	LF	DCSFMS	MD	C	W	
MXG-2010-07-M6	●	2	10	18	9.5	M6	6.5	8	ENMU07T207ZER-PM
MXG-3012-07-M6	●	3	12	20	11.2	M6	6.5	8	
MXG-3013-07-M6	●	3	13	20	11.2	M6	6.5	8	
MXG-4016-07-M8	●	4	16	23	15	M8	8	12	

Note) All cutter bodies are supplied without Inserts, Wrench and MOLY.

● : Stocked Items

Screw	Torque(N.m)	Wrench
TSW-2044H	0.5	A-06

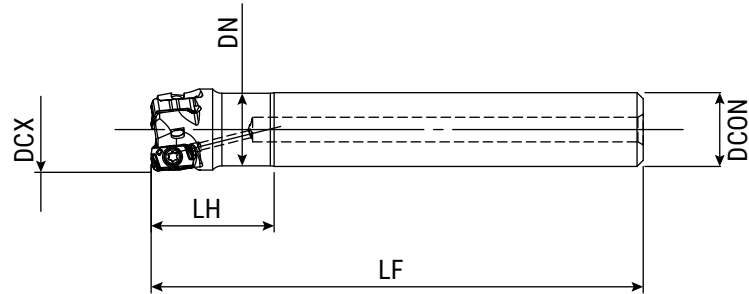
# GMX07/MXG07 type

Through coolant hole



**GMX07**  
TYPE

Shank Type



Type	Cat.No.	Stock	No. of inserts	Dimensions (mm)					Insert
				DCX	LH	LF	DN	DCON	
Standard	GMX2010-07-20-S10+A	●	2	10	20	80	9.2	10	ENMU07T207ZER-PM
	GMX3012-07-20-S12+A	●	3	12	20	80	11.2	12	
	GMX3014-07-20-S12+A	●	3	14	20	80	11.8	12	
Long shank	GMX2011-07-20-S10-LS+A	●	2	11	20	120	9.6	10	
	GMX3013-07-20-S12-LS+A	●	3	13	20	120	11.6	12	
	GMX3014-07-20-S12-LS+A	●	3	14	20	120	11.8	12	

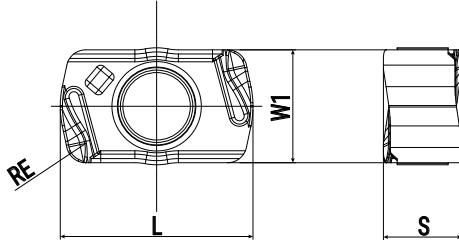
Note) All cutter bodies are supplied without Inserts, Wrench and MOLY.

● : Stocked Items

Screw	Torque(N.m)	Wrench
TSW-2044H	0.5	A-06

**GMX07/MXG07**  
TYPE

Insert



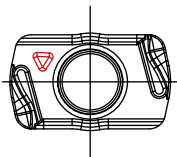
Cat.No.	Tolerance	PVD Coating		Dimensions (mm)			
		JC8050	JC8118	RE	L	W1	S
ENMU07T207ZER-PM	M	●	●	0.7	7	4.25	2.85

Note) 10 inserts per case.

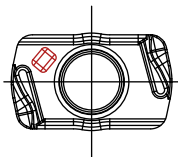
● : Stocked Items

**GRADE MARKING**

ENMU07T207ZER-PM

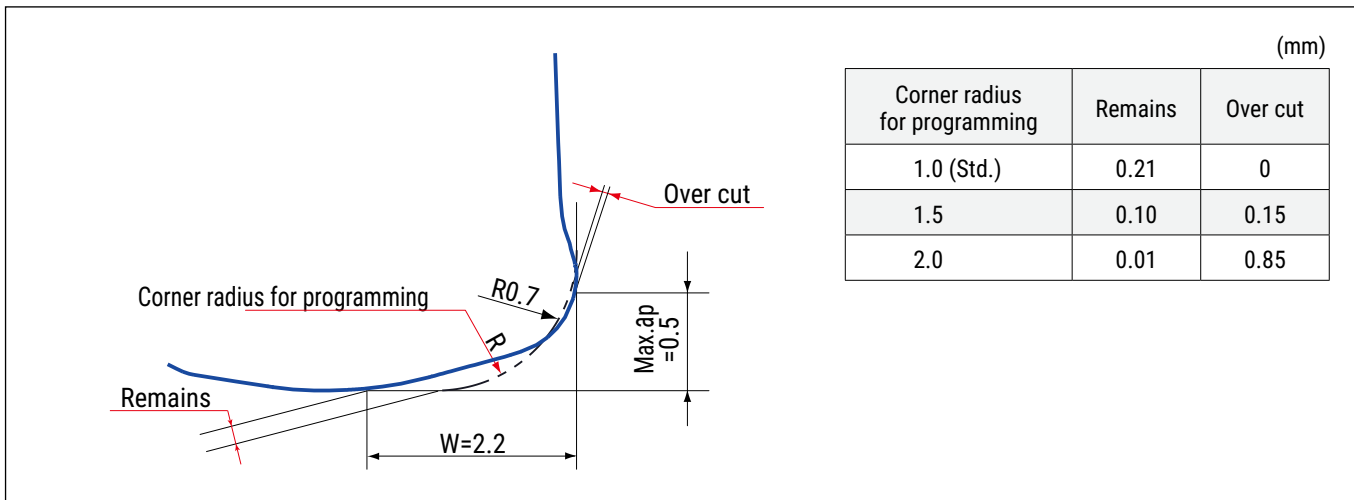


JC8118

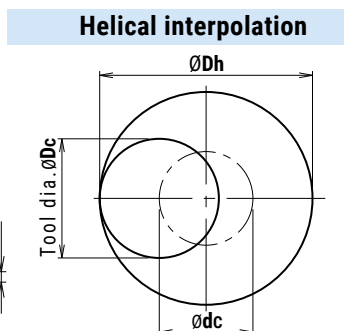
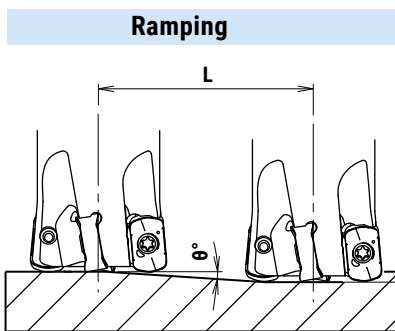


JC8050

## Definition of corner shape for programming



## Recommended Data for Profile Milling



- 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

- In case of ramping and helical interpolation, apply 70% or less feed (Vf) from standard cutting condition table
- Drilling is not recommended.

ENMU07T207ZER-PM

Tool dia. (mm)	Effective Cutting dia. (mm)	Max. depth of cut APMX (mm)	Ramping		Helical interpolation		
			Max.ramping angle RMPX θ°	Total cutting length at APMX : L(mm)	Through hole Min.bore dia. Dh (mm)	Blind hole,flat bottom Min.bore dia. Dh (mm)	Through hole Max.bore dia. Dh (mm)
10	5.5	0.5	1.1	26.0	15	16	19
12	7.5	0.5	1.2	23.9	19	20	23
13	8.4	0.5	1.1	26.0	21	22	25
16	11.4	0.5	0.9	31.8	27	28	31

■ Recommended Cutting Conditions | GMX07/MXG07 type

Material	Insert	Grade	Vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)
Carbon Steel below 250HB	ENMU07...-PM	JC8050	165	1.0	0.3	0.7 Dc
Tool & Die Steel below 255HB	ENMU07...-PM	JC8050	150	1.0	0.3	0.7 Dc
Mold Steel 30-36HRC	ENMU07...-PM	JC8050	150	1.0	0.3	0.7 Dc
Mold Steel 38-43HRC	ENMU07...-PM	JC8118	120	0.9	0.3	0.7 Dc
Hardened Die Steel 42-52HRC	ENMU07...-PM	JC8118	90	0.6	0.25	0.7 Dc
Grey Cast Iron	ENMU07...-PM	JC8118	200	1.0	0.3	0.7 Dc
Nodular Cast Iron	ENMU07...-PM	JC8118	200	1.0	0.3	0.7 Dc
Stainless Steel	ENMU07...-PM	JC8050	165	1.0	0.3	0.7 Dc

Note:

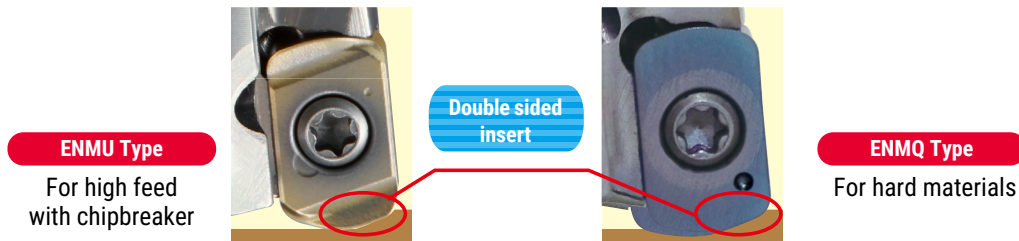
1. These parameters represent stable machining at lengths 3×D.  
Please adjust cutting conditions according to machine rigidity or work rigidity.
2. In case of chatter occurring, recommended to reduce ap or rpm and keep feed per tooth.
3. ap should be reduced when using on low rigidity machine.
4. Use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

## Achieving high metal removal rates! High efficiency machining for versatile applications



### Feature 1

Optimized cutting edge for a wide range of applications



### Feature 2

Economical double sided insert with 4 cutting edges for various types of materials;  
**Carbon steel, Hardened material <upto 62HRC>, Stainless steel, Titanium alloy**

#### ● Line up



**ENMU100412ZER-SL**

- Low cutting force
- Sharp cutting edge
- Grade C7550, **JC7518**  
DS118, DS150

**ENMU100412ZER-PH**

- For general applications
- Grade JC8118, **JC8050**, JC7560

**ENMU100312ZER-HL**

- For hardened materials up to 60HRC
- enhanced cutting edge strength but retains sharpness
- Grade DH102

**ENMQ100312ZER**

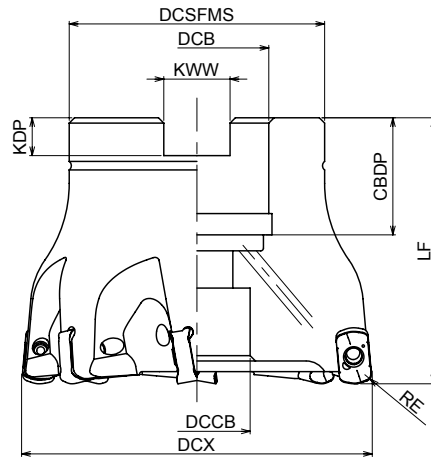
- Flat top insert
- Grade DH102
- For hardened materials over 60HRC

#### ● Insert grades

ISO	P				M				K				S				H				
	P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30	S01	S10	S20	S30	H01	H10	H20
Range																					
			JC8118					JC8118					JC8118								JC8118
			JC8050					JC8050					JC8050								JC7518
			JC7518					JC7518					JC7518								JC7518
			JC7550					JC7550					JC7550								JC7518
			JC7560					JC7560					JC7560								JC7518

**GMX  
TYPE**

**Bore Type**



Cat.No	Stock	No. of inserts	Dimensions (mm)								Weight (kg)	Inserts
			DCX	LF	DCSFMS	DCB	DCCB	KWW	KDP	CBDB		
GMX-6040R-16+A	●	6	40	45	35	16	13.5	8.4	5.6	19	0.24	ENMU100412ZER-** ENM*100312ZER-**
GMX-7050R-22	●	7	50	50	40	22	17	10.4	6.3	20	0.35	
GMX-7052R-22	●	7	52	50	40	22	17	10.4	6.3	20	0.40	
GMX-7063R-22	●	7	63	50	48	22	17	10.4	6.3	20	0.64	
GMX-7066R-27	●	7	66	50	48	27	20	12.4	7	22	0.66	

Note) All cutter bodies are supplied without Inserts, Wrench and MOLY.

● : Stocked Items

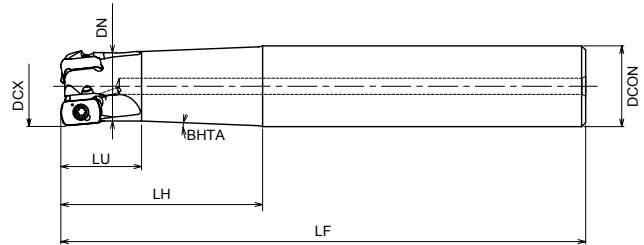
Screw	Torque(N.m)	Wrench
TSW-2567H	1.1	A-08

# GMX10/MXG10 type

**GMX**  
TYPE

Shank Type

Through  
coolant  
hole



Cat.No.	Stock	No. of inserts	Dimensions (mm)							Insert
			DCX	LU	LH	LF	DN	BHTA	DCON	
GMX-2016-30-S16	●	2	16	16	30	100	14	3.5°	16	ENMU100412ZER-** ENM*100312ZER-**
GMX-2016-50-S16	●	2	16	16	50	150	14	1.2°	16	
GMX-3020-50-S20	●	3	20	20	50	130	17.2	2.3°	20	
GMX-3020-80-S20	●	3	20	20	80	160	17.2	1°	20	
GMX-4025-60-S25	●	4	25	25	60	140	22	2°	25	
GMX-4025-100-S25	●	4	25	25	100	180	22	0.9°	25	
GMX-5032-70-S32	●	5	32	30	70	150	29	1.5°	32	
GMX-5032-120-S32	●	5	32	30	120	200	29	0.6°	32	

Note) All cutter bodies are supplied without Inserts, Wrench and MOLY.

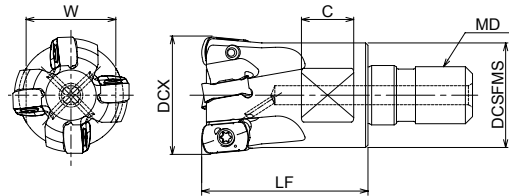
● : Stocked Items

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



**MXG  
TYPE**

**Modular Type**



Cat.No.	Stock	No. of inserts	Dimensions (mm)						Insert
			DCX	LF	DCSFMS	MD	C	W	
MXG-2016-M8	●	2	16	23	14	M8	8	12	ENMU100412ZER-** ENM*100312ZER-**
MXG-2017-M8	●	2	17	23	14	M8	8	12	
MXG-3020-M10	●	3	20	30	18	M10	9	14	
MXG-3021-M10	●	3	21	30	18	M10	9	14	
MXG-3022-M10	○	3	22	30	18	M10	9	14	
MXG-3025-M12	●	3	25	35	22	M12	11	19	
MXG-4025-M12	●	4	25	35	22	M12	11	19	
MXG-4026-M12	●	4	26	35	22.5	M12	11	19	
MXG-4028-M12	○	4	28	35	23.6	M12	11	19	
MXG-5030-M16	●	5	30	43	27	M16	12	22	
MXG-5032-M16	●	5	32	43	29	M16	12	22	
MXG-5035-M16	●	5	35	43	29	M16	12	22	
MXG-6040-M16	●	6	40	43	32	M16	14	26	
MXG-6042-M16	●	6	42	43	32	M16	14	26	

Note) All cutter bodies are supplied without Inserts, Wrench and MOLY.

● : Stocked Items ○ : Stock in Japan

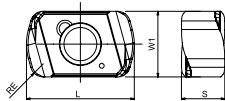
Screw	Torque(N.m)	Wrench
TSW-2567H	1.1	A-08

# GMX10/MXG10 type

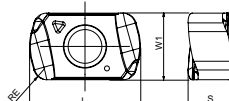
**GMX/MXG**  
TYPE

Insert

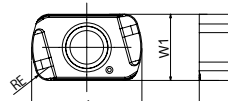
ENMU100412ZER-PH



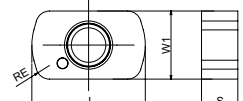
ENMU100412ZER-SL



ENMU100312ZER-HL



ENMQ100312ZER



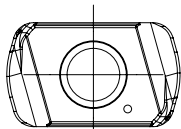
Cat.No.	Tolerance	PVD Coating								Dimensions (mm)			
		DH102	JC7518	JC7550	JC7560	JC8050	JC8118	DS118	DS150	RE	L	W1	S
ENMU100412ZER-PH	M				●	●	●			1.2	10	6	4
ENMU100412ZER-SL	M		●	●				●	●	1.2	10	6	4
ENMU100312ZER-HL	M	●								1.2	10	6	3.2
ENMQ100312ZER	M	●								1.2	10	6	3.2

Note) 10 inserts per case.

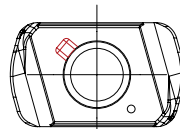
● : Stocked Items

## GRADE MARKING

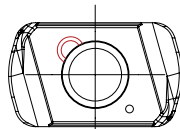
ENMU100412ZER-PH



JC8118

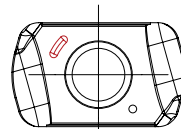


JC8050

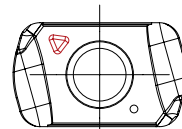


JC7560

ENMU100412ZER-SL



JC7518/DS118



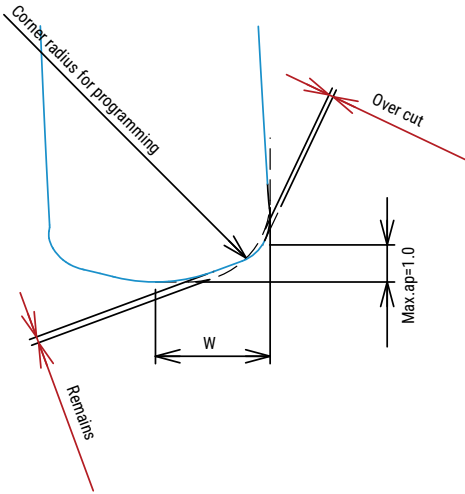
JC7550/DS150

## ■ Insert selection guide

Materials	Grade	Cat.No.			
		ENMU100412ZER-PH For general milling	ENMU100412ZER-SL Low cutting force	ENMU100312ZER-HL For Hardened materials	ENMQ100312ZER Flat top insert
Chip breaker					
Carbon steel (S50C, S55C) below 250HB	JC8118	○			
	JC8050	○			
	JC7560	●			
	JC7550				
	JC7518		☆		
	DH102				
	DS118				
	DS150				
Tool & die steel (SKD61, SKD11) below 255HB	JC8118	○			
	JC8050	○			
	JC7560	●			
	JC7550				
	JC7518		☆		
	DH102				
	DS118				
	DS150				
Mold steel (HPM7, PX5, P20) 30 - 36HRC	JC8118	○			
	JC8050	○			
	JC7560	●			
	JC7550				
	JC7518		☆		
	DH102				
	DS118				
	DS150				
Mold steel (NAK80, HPM1, P21) 38 - 43HRC	JC8118	○			
	JC8050	●			
	JC7560				
	JC7550				
	JC7518		☆		
	DH102				
	DS118				
	DS150				
Hardened die steel (SKD61, DAC, DHA) 42 - 52HRC	JC8118	○			
	JC8050				
	JC7560				
	JC7550				
	JC7518		☆		
	DH102			●	
	DS118				
	DS150				
Hardened die steel (SKD11, SLD, DC11) 55 - 62HRC	JC8118	×			
	JC8050	×			
	JC7560	×			
	JC7550		×		
	JC7518		×		
	DH102			○	○
	DS118				
	DS150				
Grey cast iron (FC, FCD) below 300HB	JC8118	○			
	JC8050	○			
	JC7560	●			
	JC7550				
	JC7518				
	DH102				
	DS118				
	DS150				
Stainless steel (SUS304) below 250HB	JC8118	●			
	JC8050				
	JC7560				
	JC7550		○		
	JC7518				
	DH102				
	DS118				
	DS150		○		
Titanium alloy (Ti-6Al-4V)	JC8118	●			
	JC8050				
	JC7560				
	JC7550		○		
	JC7518				
	DH102				
	DS118				
	DS150		○		
Heat resistant alloy (INCO718)	JC8118	●			
	JC8050				
	JC7560				
	JC7550				
	JC7518		○		
	DH102				
	DS118		○		
	DS150				

○ : First choice   ○ : For general milling   ● : For unstable milling   ☆ : For light cutting resistance   × : Not recommended

## Definition of Corner Shape for Programming



Cat.No.	W	Corner radius for programming	Remains	Over cut
ENMU100412ZER-PH	3.1	1.0	0.51	0
ENMU100412ZER-SL		1.5 (Standard)	0.36	0
		2.0	0.22	0.05

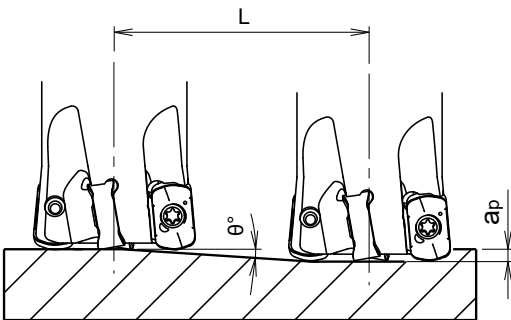
(mm)

Cat.No.	W	Corner radius for programming	Remains	Over cut
ENMU100312ZER-HL	3.3	1.0	0.55	0
ENMQ100312ZER		1.5 (Standard)	0.41	0
		2.0	0.26	0.04

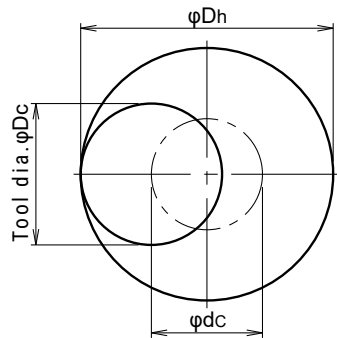
(mm)

## Recommended Data for Profile Milling

### Ramping



### 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  $A_p$
- 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.	Effective Cutting dia.		Max. depth of cut: ap	Ramping	
		Insert			Ramping Max. ramping Angle $\theta$	Max. depth of cut (ap) Total cutting length: L (mm)
		ENMU100412ZER-***	ENM***100312ZER-***			
MXG-2016-M8	16	10.1	9.6	0.7	1°36'	25.1
MXG-2017-M8	17	11	10.5	0.7	1°36'	25.1
MXG-3020-M10	20	13.9	13.5	1	1°30'	38.2
MXG-3021-M10	21	14.9	14.5	1	1°30'	38.2
MXG-*025-M12	25	18.9	18.4	1	1°12'	47.7
MXG-4026-M12	26	19.9	19.4	1	1°12'	47.7
MXG-5030-M16	30	23.9	23.4	1	0°54'	63.6
MXG-5032-M16	32	25.8	25.4	1	0°54'	63.6
MXG-5035-M16	35	28.8	28.4	1	0°42'	81.8
MXG-6040-M16	40	33.8	33.4	1	0°30'	114.5
MXG-6042-M16	42	35.8	35.4	1	0°30'	114.5
GMX-2016-**-S16	16	10.1	9.6	0.7	1°36'	25.1
GMX-3020-**-S20	20	13.9	13.5	1	1°30'	38.2
GMX-4025-**-S25	25	18.9	18.4	1	1°12'	47.7
GMX-5032-**-S32	32	25.8	25.4	1	0°54'	63.6
GMX-7050R-**-	50	43.8	43.4	1	0°24'	143.2
GMX-7052R-22	52	45.8	45.4	1	0°24'	143.2
GMX-7063R-**-	63	56.8	56.4	1	0°18'	190.9
GMX-7066R-**-	66	59.8	59.4	1	0°18'	190.9

Cat.No.	Tool dia.	Helical interpolation			Max.drilling depth :Z	
		Min.Bore dia.		Max. Bore dia.	Insert	
		Insert			ENMU100412ZER-***	ENM***100312ZER-***
		ENMU100412ZER-***	ENM***100312ZER-***		ENMU100412ZER-***	ENM***100312ZER-***
MXG-2016-M8	16	22	21	30	0.3	0.2
MXG-2017-M8	17	24	23	32	0.3	0.2
MXG-3020-M10	20	30	29	38	0.4	0.2
MXG-3021-M10	21	32	31	40	0.4	0.2
MXG-*025-M12	25	40	39	48	0.5	0.3
MXG-4026-M12	26	42	41	50	0.5	0.3
MXG-5030-M16	30	50	49	58	0.6	0.4
MXG-5032-M16	32	54	53	62	0.6	0.4
MXG-5035-M16	35	60	59	68	0.6	0.4
MXG-6040-M16	40	70	69	78	0.7	0.5
MXG-6042-M16	42	74	73	82	0.7	0.5
GMX-2016-**-S16	16	22	21	30	0.3	0.2
GMX-3020-**-S20	20	30	29	38	0.4	0.2
GMX-4025-**-S25	25	40	39	48	0.5	0.3
GMX-5032-**-S32	32	54	53	62	0.6	0.4
GMX-7050R-**-	50	90	89	98	0.8	0.6
GMX-7052R-22	52	94	93	102	0.8	0.6
GMX-7063R-**-	63	116	115	124	0.8	0.6
GMX-7066R-**-	66	122	121	130	0.8	0.6

## ■ Recommended Cutting Conditions | GMX / MXG type

Material	Insert	Grade	Vc (m/min)	fz (mm/t)	ap (mm)	ae (mm)
Carbon Steel below 250HB	-PH	JC8050 (JC7560)	180 (130-180)	1.2	0.4-1.0	0.7 Dc
Tool & Die Steel below 255HB	-PH	JC8050 (JC7560)	180 (130-180)	1.2	0.4-1.0	0.7 Dc
Mold Steel 30-36HRC	-PH	JC8050 (JC7560)	160 (130-160)	1.2	0.4-1.0	0.7 Dc
Mold Steel 38-43HRC	-PH	JC8118 (JC8050)	100 (70-100)	1.1 (0.8-1.1)	0.3-0.8	0.7 Dc
Hardened Die Steel 42-52HRC	-PH (-SL)	JC8118 (JC7518)	90 (70-90)	1.1 (0.8-1.1)	0.1-0.6	0.6 Dc
Hardened Die Steel 55-62HRC	ENMQ.. (ENMU..-HL)	DH102	80 (60-80)	0.3 (0.25-0.3)	0.1-0.2	0.4 Dc
Grey Cast Iron	-PH	JC8118 (JC8050)	200 (150-200)	1.5 (1.2-1.5)	0.4-1.0	0.7 Dc
Nodular Cast Iron	-PH	JC8118 (JC8050)	200 (150-200)	1.5 (1.2-1.5)	0.4-1.0	0.7 Dc
Austenitic Stainless Steel	-SL	JC7550 (JC7518)	120 (100-120)	1.0 (0.8-1.0)	0.3-0.8	0.6 Dc
Precipitationhardening Stainless Steel	-SL (-PH)	JC7550 (JC8050)	100 (90-100)	0.7 (0.6-0.7)	0.2-0.6	0.6 Dc
Duplex Stainless Steel	-SL (-PH)	JC7550 (JC8050)	100 (90-100)	0.3 (0.2-0.3)	0.3-0.8	0.6 Dc
Titanium Alloy	-SL	DS150 (DS118)	60 (50-60)	0.7 (0.6-0.7)	0.3-0.7	0.6 Dc
Heat Resistant Alloy	-SL	JC7518 (JC7550)	30 (20-30)	0.3	0.2~0.7	0.6 Dc

### Note

1. Please adjust cutting conditions according to machine rigidity or work rigidity. (the above table is guide for cutting on a BT50 machine.)
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.

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JQA-2089



JQA-EM1580

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