

PRODUCT NEWS

PN-E-012

SERIES EXPANSION



Shoulder milling cutter with double-sided inserts

EXTREME SAP

EXSAP/MSX type

A detailed close-up photograph of a shoulder milling cutter. The image shows the sharp, polished cutting edge of the tool, which is made of a dark, metallic material. A double-sided insert is visible, secured with a screw. The background is a blurred, warm-toned industrial setting.

High-efficiency, high-precision shoulder milling
for a wide range of applications

EXSAP-11/MSX-11

Bore type : Ø40–Ø80

Modular type : Ø16–Ø40

Shank type : Ø16–Ø40

EXSAP-17/MSX-17

Bore type : Ø50–Ø125

Modular type : Ø25–Ø40

Shank type : Ø25–Ø40

DIJET GmbH

www.dijet.de

EXTREME SAP

EXSAP/MSX type

High-Efficiency, High-Precision Shoulder Milling Cutter

Feature 1 Double-Sided Insert with Four Cutting Edges

- Double-sided insert with four cutting edges for high productivity.
- Precision-ground G-class peripheral cutting edge enables semi-finishing.



Double-sided insert with 4 cutting edges

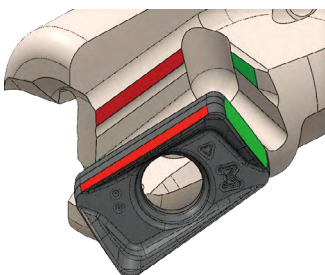
Feature 2 Arc-Shaped Cutting Edge for High-Efficiency, High-Precision Side-Wall Machining

Arc-Shaped Cutting Edge

The arc-shaped peripheral cutting edge minimizes cusp height, even at large depths of cut (a_p), enabling high-efficiency, high-precision side-wall machining.



Feature 3 Rigid Clamping System



The rigid clamping system securely holds the insert, ensuring stable, high-efficiency machining.

The unique clamping mechanism provides excellent stability during roughing operations.

Feature 4 Extensive Lineup for a Wide Range of Applications

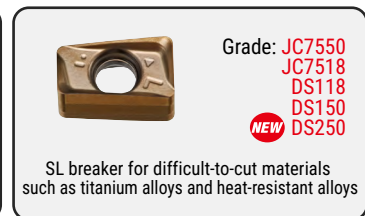
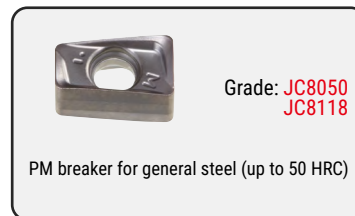
- Available in bore, modular head, and shank types.
- Suitable for a wide range of applications, including face milling, slotting, and plunging.

■ EXSAP-11 type



High-Speed Machining
with a Multi-Flute Design and Small Inserts

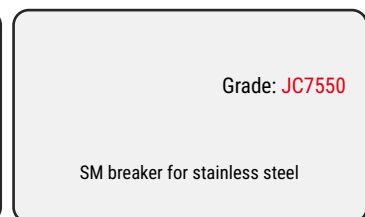
Tool diameter tolerance: +0 / -0.1 mm
Enables high-precision semi-finishing.



■ EXSAP-17 type



Max. depth of cut (ap): 15 mm
From roughing to semi-finishing.

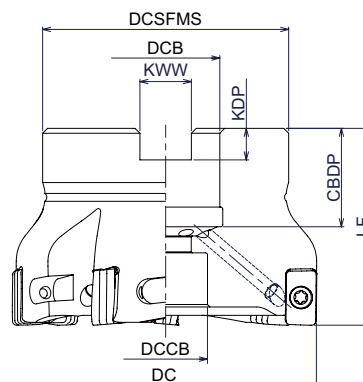


■ Insert grades

ISO	P					M					K				S			
	P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30	S01	S10	S20	S30
Range			JC8118					JC8118								DS118		
			JC8050					JC8050				JC8118				DS150		
			JC7518					JC7518								JC7518		
			JC7550					JC7550								JC7550		
								NEW DS250										

EXSAP-11 TYPE

Bore Type



Cat. No.	Stock	No. of inserts	Dimensions (mm)								Arbor set bolt	Weight (kg)	Inserts
			DC	LF	DCSFMS	DCB	DCCB	KWW	KDP	CBDP			
EXSAP-6040R-11-16	●	6	40	40	35	16	14.0	8.4	5.6	18	M8	0.22	ZNGU1105**ZER.**
EXSAP-7050R-11-22	●	7	50	40	47	22	16.5	10.4	6.3	20	M10	0.38	
EXSAP-7052R-11-22	●	7	52	40	47	22	16.5	10.4	6.3	20	M10	0.39	
EXSAP-7063R-11-22	●	7	63	40	50	22	17.0	10.4	6.3	20	M10	0.53	
EXSAP-7063R-11-27	●	7	63	50	50	27	20.0	12.4	7.0	22	M12X1.75X30★	0.62	
EXSAP-8080R-11-27	●	8	80	50	56	27	20.0	12.4	7.0	22	M12X1.75X30★	0.99	

Notes: 1. All cutter bodies are supplied without inserts, wrenches, or MOLY.

2. Items marked with ★ are supplied with a set screw for arbor mounting due to size requirements.

For all other items, use the set screw supplied with the arbor body.

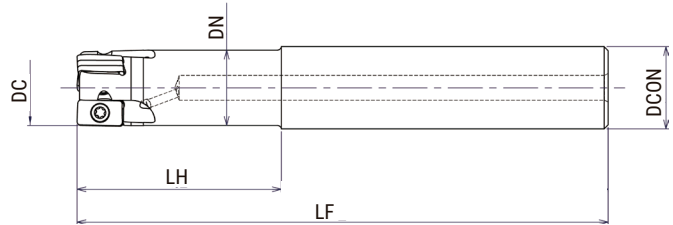
● : Stocked Items

Screw	Torque (N·m)	Wrench
TSW-307H	2.1	A-10

EXSAP-11 TYPE

Shank Type

Through
coolant
hole



Cat. No.	Stock	No. of inserts	Dimensions (mm)					Insert
			DC	LH	LF	DN	DCON	
EXSAP-2016-11-30-S16	○	2	16	30	90	14.6	16	ZNGU1105**ZER**
EXSAP-2016-11-50-S16	●	2	16	50	110	14.6	16	
EXSAP-3020-11-50-S20	●	3	20	50	130	18.3	20	
EXSAP-3020-11-80-S20	○	3	20	80	160	18.3	20	
EXSAP-3025-11-60-S25	●	3	25	60	140	23.4	25	
EXSAP-3025-11-100-S25	○	3	25	100	180	23.4	25	
EXSAP-3026-11-60-S25	○	3	26	60	140	23.4	25	
EXSAP-4030-11-70-S32	○	4	30	70	150	28.4	32	
EXSAP-4030-11-120-S32	○	4	30	120	200	28.4	32	
EXSAP-4032-11-70-S32	●	4	32	70	150	29	32	
EXSAP-4032-11-120-S32	○	4	32	120	200	29	32	
EXSAP-4033-11-70-S32	○	4	33	70	150	29	32	
EXSAP-5040-11-50-S32	○	5	40	50	150	37	32	
EXSAP-5040-11-50L-S32	○	5	40	50	200	37	32	

Note: All cutter bodies are supplied without inserts, wrenches, or MOLY.

● : Stocked Items ○ : Stock in Japan

Screw	Torque (N·m)	Wrench
TSW-307H	2.1	A-10

MSX-11 TYPE

Modular Type

Through
coolant
hole

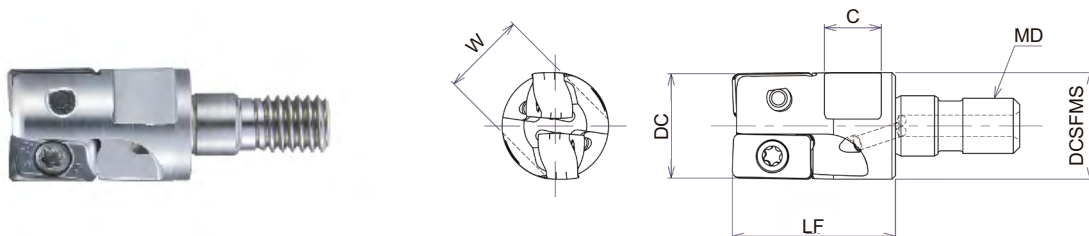
Face Milling

Shoulder Milling

Slotting

Helical Interpolation

Plunge Milling



Cat. No.	Stock	No. of inserts	Dimensions (mm)						Insert
			DC	LF	DCSFMS	MD	C	W	
MSX-2016-11-M8	●	2	16	23	15	M8	8	12	ZNGU1105**ZER**
MSX-2017-11-M8	○	2	17	23	15	M8	8	12	
MSX-2018-11-M8	○	2	18	23	15	M8	8	12	
MSX-3020-11-M10	●	3	20	30	18	M10	9	14	
MSX-3021-11-M10	○	3	21	30	18	M10	9	14	
MSX-3025-11-M12	●	3	25	35	22	M12	11	19	
MSX-3026-11-M12	○	3	26	35	22	M12	11	19	
MSX-3028-11-M12	○	3	28	35	22	M12	11	19	
MSX-4030-11-M16	○	4	30	43	29	M16	12	22	
MSX-4032-11-M16	●	4	32	43	29	M16	12	22	
MSX-4033-11-M16	○	4	33	43	29	M16	12	22	
MSX-4035-11-M16	○	4	35	43	29	M16	12	22	
MSX-5040-11-M16	●	5	40	43	29	M16	12	22	

Note: All cutter bodies are supplied without inserts, wrenches, or MOLY.

● : Stocked Items ○ : Stock in Japan

Screw	Torque (N·m)	Wrench
TSW-307H	2.1	A-10

EXSAP11/MSX11 TYPE

Insert

Through
coolant
hole



Fig 1

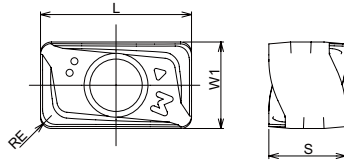
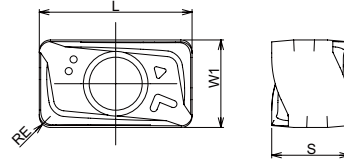


Fig 2

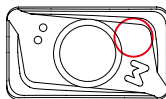


Cat. No.	Tolerance	PVD coating							Dimensions (mm)				Fig.
		DS118	DS150	NEW DS250	JC7518	JC7550	JC8050	JC8118	RE	L	W1	S	
ZNGU110504ZER-PM	G						●	●	0.4	11	6.3	5.6	1
ZNGU110508ZER-PM	G						●	●	0.8	11	6.3	5.6	1
ZNGU110512ZER-PM	G						○	○	1.2	11	6.3	5.6	1
ZNGU110516ZER-PM	G						●	●	1.6	11	6.3	5.6	1
ZNGU110504ZER-SL	G	●	●	●	●	●			0.4	11	6.3	5.6	2
ZNGU110508ZER-SL	G	●	●	●	●	●			0.8	11	6.3	5.6	2
ZNGU110516ZER-SL	G	●	●	●	●	●			1.6	11	6.3	5.6	2

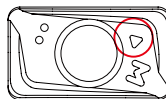
Note: 10 inserts per case.

● : Stocked Items ○ : Stock in Japan

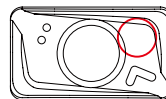
Grade markings



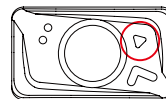
JC8118



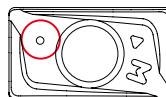
JC8050



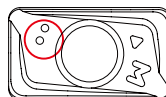
JC7518 / DS118



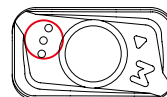
JC7550 / DS150 / DS250



ZNGU110504ZER



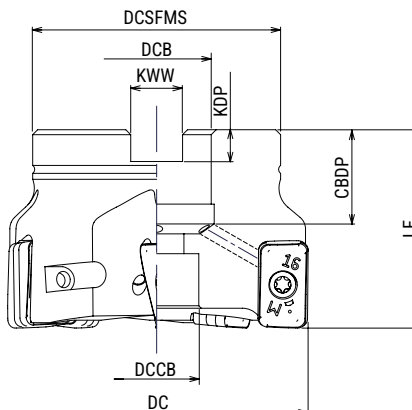
ZNGU110508ZER



ZNGU110516ZER

EXSAP-17 TYPE

Bore Type



Cat. No.	Stock	No. of inserts	Dimensions (mm)								Arbor set bolt	Weight (kg)	Insert
			DC	LF	DCSFMS	DCB	DCCB	KWW	KDP	CDBP			
EXSAP-4050R-22	●	4	50	40	47	22	17	10.4	6.3	20	M10	0.38	ZNGU1709**ZER-PM ZNGU170908ZER-SM
EXSAP-5050R-22	●	5	50	40	47	22	17	10.4	6.3	20	M10	0.38	
EXSAP-5052R-22	●	5	52	40	47	22	17	10.4	6.3	20	M10	0.41	
EXSAP-5063R-22	●	5	63	40	50	22	17	10.4	6.3	20	M10	0.58	
EXSAP-7080R-27	●	7	80	50	56	27	20	12.4	7.0	22	M12X1.75X30★	1.09	
EXSAP-7100R-32	●	7	100	50	85	32	26	14.4	8.0	25	M16X2X25★	1.93	
EXSAP-8125R-40	●	8	125	63	100	40	32	16.4	9.0	32	M20X2.5X40★	3.66	

Notes: 1. All cutter bodies are supplied without inserts, wrenches, or MOLY.

● : Stocked Items

2. Items marked with ★ are supplied with a set screw for arbor mounting due to size requirements.

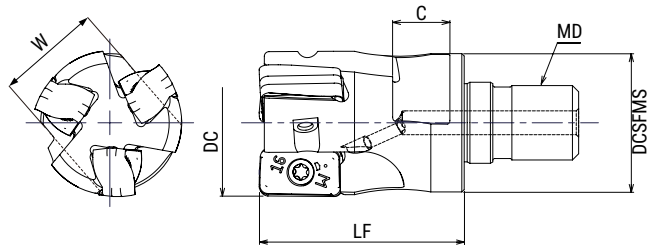
For all other items, use the set screw supplied with the arbor body.

3. When using inserts with a corner radius of RE3, machine the cutter body to R2 or C1.5.

Screw	Torque (N·m)	Wrench
TSW-410H	3.5	A-15T

MSX-17 TYPE

Modular Type



Cat. No.	Stock	No. of inserts	Dimensions (mm)						Insert
			DC	LF	DCSFMS	MD	C	W	
MSX-2025-M12	●	2	25	35	22	M12	11	19	ZNGU1709**ZER-PM ZNGU170908ZER-SM
MSX-2026-M12	○	2	26	35	22	M12	11	19	
MSX-2028-M12	○	2	28	35	22	M12	11	19	
MSX-2030-M16	○	2	30	43	29	M16	12	22	
MSX-2032-M16	●	2	32	43	29	M16	12	22	
MSX-3032-M16	●	3	32	43	29	M16	12	22	
MSX-3033-M16	○	3	33	43	29	M16	12	22	
MSX-3035-M16	○	3	35	43	29	M16	12	22	
MSX-4040-M16	●	4	40	43	29	M16	12	22	

Notes: 1. All cutter bodies are supplied without inserts, wrenches, or MOLY.

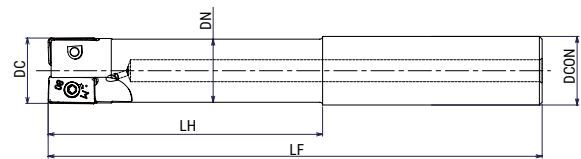
● : Stocked Items ○ : Stock in Japan

2. When using inserts with corner radius RE3, please machine the cutter body to R2 or C1.5.

Screw	Torque (N·m)	Wrench
TSW-410H	3.5	A-15

EXSAP-17 TYPE

Shank Type



Cat. No.	Stock	No. of inserts	Dimensions (mm)					Insert
			DC	LH	LF	DN	DCON	
EXSAP-2025-60-S25	●	2	25	60	140	23	25	ZNGU1709**ZER-PM ZNGU170908ZER-SM
EXSAP-2025-100-S25	○	2	25	100	180	23	25	
EXSAP-2032-70-S32	○	2	32	70	150	29	32	
EXSAP-2032-120-S32	○	2	32	120	200	29	32	
EXSAP-3032-70-S32	●	3	32	70	150	29	32	
EXSAP-3032-120-S32	○	3	32	120	200	29	32	
EXSAP-3035-40-S32	○	3	35	40	150	32	32	
EXSAP-4040-40-S32	○	4	40	40	150	37	32	

Notes: 1. All cutter bodies are supplied without inserts, wrenches, or MOLY.

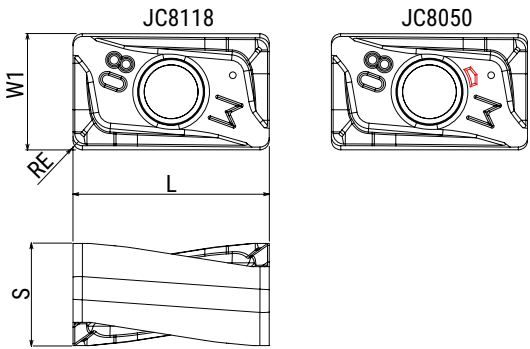
● : Stocked Items ○ : Stock in Japan

2. When using inserts with corner radius RE3, please machine the cutter body to R2 or C1.5.

Screw	Torque (N·m)	Wrench
TSW-410H	3.5	A-15

EXSAP17/MSX17
TYPE

Insert



Cat. No.	Tolerance	PVD coating			Dimensions (mm)			
		JC8050	JC8118	JC7550	RE	L	W1	S
ZNGU170904ZER-PM	G	●	●		0.4	16.9	10	8.8
ZNGU170908ZER-PM	G	●	●		0.8	16.9	10	8.8
ZNGU170916ZER-PM	G	●	●		1.6	16.9	10	8.8
ZNGU170920ZER-PM	G	●	●		2.0	16.9	10	8.8
ZNGU170930ZER-PM	G	●	●		3.0	16.9	10	8.6
ZNGU170908ZER-SM	G			●	0.8	16.9	10	8.8

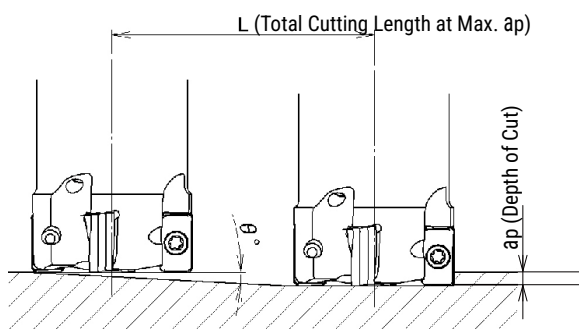
Note: 10 inserts per case.

● : Stocked Items

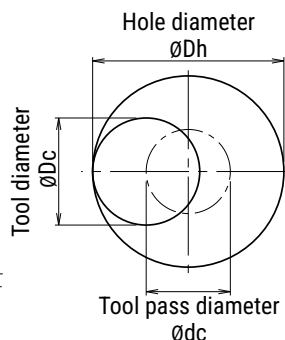
Recommended Data for Profile Milling

EXSAP-11 Type
EXSAP-17 Type

Ramping



Helical interpolation



- Calculation of tool pass dia.

$$\varnothing d_c = \varnothing D_h - \varnothing D_c$$

Tool pass dia. Hole dia. Tool Dia.

- Depth of cut per circuit should not exceed max. depth of cut (a_p).
- Down cutting is recommended, tool pass rotation should be counterclockwise.
- Effective Cutting Dia. = $\varnothing D_c - 2 \times R_E - 0.3$

- For ramping and helical interpolation, use 80% or less of the feed rate (V_f) listed in the standard cutting conditions table.
- For helical interpolation, wet cutting with through-tool coolant is recommended.

● ZNGU1105...ZER-**

EXSAP-11 Type

(Unit: mm)

Tool dia. $\varnothing D_c$	RE	Effective Cutting Dia.	Max. a_p	Ramping		Helical Interpolation			Max. Drilling Depth Z
				Max. ramping angle θ	L	Through hole Dh min	Flat Bottom Dh min	Through hole Dh max	
16	0.4	14.9	1.5	1.00°	85.9	22	30	31	0.15
20	0.4	18.9	1.5	0.70°	122.8	30	38	39	0.15
25	0.4	23.9	1.5	0.40°	214.9	40	48	49	0.15
32	0.4	30.9	1.5	0.30°	286.5	54	62	63	0.15
40	0.4	38.9	1.5	0.20°	429.7	70	78	79	0.15
50	0.4	48.9	1.5	0.15°	573.0	90	98	99	0.15
52	0.4	50.9	1.5	0.15°	573.0	94	102	103	0.15
63	0.4	61.9	1.5	—	—	—	—	—	0.15
80	0.4	78.9	1.5	—	—	—	—	—	0.15
16	0.8	14.1	1.5	1.00°	85.9	22	30	31	0.15
20	0.8	18.1	1.5	0.70°	122.8	30	38	39	0.15
25	0.8	23.1	1.5	0.40°	214.9	40	48	49	0.15
32	0.8	30.1	1.5	0.30°	286.5	54	62	63	0.15
40	0.8	38.1	1.5	0.20°	429.7	70	78	79	0.15
50	0.8	48.1	1.5	0.15°	573.0	90	98	99	0.15
52	0.8	50.1	1.5	0.15°	573.0	94	102	103	0.15
63	0.8	61.1	1.5	—	—	—	—	—	0.15
80	0.8	78.1	1.5	—	—	—	—	—	0.15
16	1.2	13.3	1.5	0.80°	107.4	23	29	31	0.15
20	1.2	17.3	1.5	0.60°	143.2	31	37	39	0.15
25	1.2	22.3	1.5	0.30°	286.5	41	47	49	0.15
32	1.2	29.3	1.5	0.20°	429.7	55	61	63	0.15
40	1.2	37.3	1.5	0.15°	573.0	71	77	79	0.15
50	1.2	47.3	1.5	0.10°	859.4	91	97	99	0.15
52	1.2	49.3	1.5	0.10°	859.4	95	101	103	0.15
63	1.2	60.3	1.5	—	—	—	—	—	0.15
80	1.2	77.3	1.5	—	—	—	—	—	0.15
16	1.6	12.5	1.5	0.65°	132.2	23	29	31	0.13
20	1.6	16.5	1.5	0.45°	191.0	31	37	39	0.13
25	1.6	21.5	1.5	0.25°	343.8	41	47	49	0.13
32	1.6	28.5	1.5	0.15°	573.0	55	61	63	0.13
40	1.6	36.5	1.5	—	—	—	—	—	0.13
50	1.6	46.5	1.5	—	—	—	—	—	0.13
52	1.6	48.5	1.5	—	—	—	—	—	0.13
63	1.6	59.5	1.5	—	—	—	—	—	0.13
80	1.6	76.5	1.5	—	—	—	—	—	0.13

—: Not recommended

● ZNGU1709...ZER-**

EXSAP-17 Type

(Unit: mm)

Tool dia. ØDc	RE	Effective Cutting Dia.	Max. ap	Ramping		Helical Interpolation			Max. Drilling Depth Z
				Max. ramping angle θ	L	Through hole Dh min	Flat Bottom Dh min	Through hole Dh max	
25	0.4	23.9	1.5	0.70°	122.8	35	48	49	0.2
32	0.4	30.9	1.5	0.50°	171.9	49	62	63	0.2
40	0.4	38.9	1.5	0.35°	245.6	65	78	79	0.2
50	0.4	48.9	1.5	0.25°	343.8	85	98	99	0.2
52	0.4	50.9	1.5	0.25°	343.8	89	102	103	0.2
63	0.4	61.9	1.5	0.20°	429.7	111	124	125	0.2
80	0.4	78.9	1.5	0.15°	573.0	145	158	159	0.2
100	0.4	98.9	1.5	—	—	—	—	—	0.2
125	0.4	123.9	1.5	—	—	—	—	—	0.2
25	0.8	23.1	1.5	0.70°	122.8	35	48	49	0.2
32	0.8	30.1	1.5	0.50°	171.9	49	62	63	0.2
40	0.8	38.1	1.5	0.35°	245.6	65	78	79	0.2
50	0.8	48.1	1.5	0.25°	343.8	85	98	99	0.2
52	0.8	50.1	1.5	0.25°	343.8	89	102	103	0.2
63	0.8	61.1	1.5	0.20°	429.7	111	124	125	0.2
80	0.8	78.1	1.5	0.15°	573.0	145	158	159	0.2
100	0.8	98.1	1.5	—	—	—	—	—	0.2
125	0.8	123.1	1.5	—	—	—	—	—	0.2
25	1.6	21.5	1.5	0.70°	122.8	34	46	49	0.2
32	1.6	28.5	1.5	0.50°	171.9	48	60	63	0.2
40	1.6	36.5	1.5	0.35°	245.6	64	76	79	0.2
50	1.6	46.5	1.5	0.25°	343.8	84	96	99	0.2
52	1.6	48.5	1.5	0.25°	343.8	88	100	103	0.2
63	1.6	59.5	1.5	0.20°	429.7	110	122	125	0.2
80	1.6	76.5	1.5	0.15°	573.0	144	156	159	0.2
100	1.6	96.5	1.5	—	—	—	—	—	0.2
125	1.6	121.5	1.5	—	—	—	—	—	0.2
25	2.0	20.7	1.5	0.65°	132.2	35	45	49	0.2
32	2.0	27.7	1.5	0.45°	191.0	49	59	63	0.2
40	2.0	35.7	1.5	0.30°	286.5	65	75	79	0.2
50	2.0	45.7	1.5	0.25°	343.8	85	95	99	0.2
52	2.0	47.7	1.5	0.25°	343.8	89	99	103	0.2
63	2.0	58.7	1.5	0.20°	429.7	111	121	125	0.2
80	2.0	75.7	1.5	0.15°	573.0	145	155	159	0.2
100	2.0	95.7	1.5	—	—	—	—	—	0.2
125	2.0	120.7	1.5	—	—	—	—	—	0.2
25	3.0	18.7	1.5	0.55°	156.3	37	44	49	0.18
32	3.0	25.7	1.5	0.35°	245.6	51	58	63	0.18
40	3.0	33.7	1.5	0.30°	286.5	67	74	79	0.18
50	3.0	43.7	1.5	0.20°	429.7	87	94	99	0.18
52	3.0	45.7	1.5	0.20°	429.7	91	98	103	0.18
63	3.0	56.7	1.5	0.15°	573.0	113	120	125	0.18
80	3.0	73.7	1.5	—	—	—	—	—	0.18
100	3.0	93.7	1.5	—	—	—	—	—	0.18
125	3.0	118.7	1.5	—	—	—	—	—	0.18

—: Not recommended

■ Recommended Cutting Conditions | Side Milling | EXSAP-11/MSX-11 Type

Material	Grade	Vc (m/min)	fz (mm/t)		Tool dia. (mm)							
					16	20	25	32	40	50	63	80
Carbon Steel below 250 HB	JC8050 (JC8118)	140-180	0.14-0.20	ap (mm)	~5	~5	~6	~6	~7	~8	~9	~9
				ap × ae (mm ²)	~4	~5	~7.2	~9.8	~14	~24	~30	~36
Cast Steel below 285 HB	JC8050 (JC8118)	140-180	0.14-0.20	ap (mm)	~5	~5	~6	~6	~7	~8	~9	~9
				ap × ae (mm ²)	~4	~5	~7.2	~9.8	~14	~24	~30	~36
Tool & Die Steel below 255 HB	JC8050 (JC8118)	140-180	0.14-0.20	ap (mm)	~5	~5	~6	~6	~7	~8	~9	~9
				ap × ae (mm ²)	~4	~5	~7.2	~9.8	~14	~24	~30	~36
Mold Steel 30-36 HRC	JC8118 (JC8050)	110-130	0.10-0.18	ap (mm)	~5	~5	~6	~6	~7	~8	~9	~9
				ap × ae (mm ²)	~4	~5	~7.2	~9.8	~14	~24	~30	~36
Mold Steel 38-43 HRC	JC8118 (JC8050)	90-120	0.10-0.18	ap (mm)	~5	~5	~6	~6	~7	~8	~9	~9
				ap × ae (mm ²)	~3.4	~4	~6	~8	~10	~20	~24	~28
Hardened Die Steel 42-52 HRC	JC8118	80-100	0.07-0.12	ap (mm)	~3	~3.5	~4	~4	~4.5	~6	~9	~9
				ap × ae (mm ²)	~1.6	~2	~3.2	~3.6	~4	~8	~9	~10
Grey Cast Iron 160-260 HB	JC8118 (JC8050)	160-200	0.14-0.20	ap (mm)	~5	~5	~6	~6	~7	~8	~9	~9
				ap × ae (mm ²)	~5	~6	~9.8	~12	~16	~28	~34	~40
Nodular Cast Iron 170-300 HB	JC8118 (JC8050)	140-180	0.12-0.20	ap (mm)	~5	~5	~6	~6	~7	~8	~9	~9
				ap × ae (mm ²)	~5	~6	~9.8	~12	~16	~28	~34	~40
Austenitic Stainless Steel	JC8050 (JC7550)	100-120	0.10-0.18	ap (mm)	~5	~5	~6	~6	~7	~8	~9	~9
				ap × ae (mm ²)	~4	~5	~7.2	~9.8	~14	~24	~30	~36
Martensitic Stainless Steel	JC8050 (JC7550)	100-140	0.10-0.18	ap (mm)	~5	~5	~6	~6	~7	~8	~9	~9
				ap × ae (mm ²)	~3.2	~5	~7.2	~9.8	~14	~24	~30	~36
Titanium Alloy	DS150 (JC7550)	50-70	0.11-0.13	ap (mm)	~5	~5	~6	~6	~7	~8	~9	~9
				ap × ae (mm ²)	~3.2	~4	~6	~8	~10	~20	~26	~30
Heat Resistant Alloy	JC7518 (JC8118)	20-30	0.08-0.10	ap (mm)	~5	~5	~6	~6	~7	~8	~9	~9
				ap × ae (mm ²)	~3.2	~4	~6	~8	~10	~20	~26	~30

Notes:

1. Please adjust cutting conditions according to machine and workpiece rigidity.
2. If chatter occurs, reduce ap or rpm while maintaining the feed per tooth.
3. Reduce ap when machining under low-rigidity conditions.
4. Use air blow.

■ Recommended Cutting Conditions | Face Milling | EXSAP-11/MSX-11 Type

Material	Grade	Vc (m/min)	fz (mm/t)		Tool dia. (mm)							
					16	20	25	32	40	50	63	80
Carbon Steel below 250 HB	JC8050 (JC8118)	130-180	0.11-0.2	ap (mm)	~1	~1.2	~1.2	~1.5	~1.8	~2	~2	~2
				ae (mm)	~10	~12	~15	~18	~24	~30	~30	~48
Cast Steel below 285 HB	JC8050 (JC8118)	130-180	0.11-0.2	ap (mm)	~1	~1.2	~1.2	~1.5	~1.8	~2	~2	~2
				ae (mm)	~10	~12	~15	~18	~24	~30	~30	~48
Tool & Die Steel below 255 HB	JC8050 (JC8118)	130-180	0.11-0.2	ap (mm)	~1	~1.2	~1.2	~1.5	~1.8	~2	~2	~2
				ae (mm)	~10	~12	~15	~18	~24	~30	~30	~48
Mold Steel 30-36 HRC	JC8118 (JC8050)	110-130	0.1-0.18	ap (mm)	~1	~1.2	~1.2	~1.5	~1.8	~2	~2	~2
				ae (mm)	~10	~12	~15	~18	~24	~30	~30	~48
Mold Steel 38-43 HRC	JC8118 (JC8050)	90-120	0.1-0.16	ap (mm)	~0.8	~1	~1	~1.2	~1.4	~1.8	~1.8	~1.8
				ae (mm)	~10	~12	~15	~18	~24	~30	~30	~48
Hardened Die Steel 42-52 HRC	JC8118	80-100	0.08-0.12	ap (mm)	~0.4	~0.5	~0.5	~0.6	~0.8	~1	~1	~1
				ae (mm)	~8	~8	~10	~12	~16	~20	~25	~32
Grey Cast Iron 160-260 HB	JC8118 (JC8050)	160-200	0.11-0.2	ap (mm)	~1	~1.2	~1.2	~1.5	~1.8	~2	~2	~2
				ae (mm)	~10	~12	~15	~18	~24	~30	~30	~48
Nodular Cast Iron 170-300 HB	JC8118 (JC8050)	130-180	0.11-0.2	ap (mm)	~1	~1.2	~1.2	~1.5	~1.8	~2	~2	~2
				ae (mm)	~10	~12	~15	~18	~24	~30	~30	~48
Austenitic Stainless Steel	JC8050 (JC7550)	100-120	0.11-0.18	ap (mm)	~1	~1.2	~1.2	~1.5	~1.8	~2	~2	~2
				ae (mm)	~6	~8	~10	~12	~16	~20	~25	~32
Martensitic Stainless Steel	JC8050 (JC7550)	100-150	0.11-0.18	ap (mm)	~1	~1.2	~1.2	~1.5	~1.8	~2	~2	~2
				ae (mm)	~10	~12	~15	~18	~24	~30	~30	~48
Titanium Alloy	DS150 (JC7550)	50-70	0.08-0.12	ap (mm)	~0.8	~1	~1	~0.8	~1.4	~1.8	~1.8	~1.8
				ae (mm)	~6	~8	~10	~12	~16	~20	~25	~32
Heat Resistant Alloy	JC7518 (JC8118)	20-30	0.06-0.11	ap (mm)	~0.8	~1	~1	~0.8	~1.4	~1.8	~1.8	~1.8
				ae (mm)	~6	~8	~10	~12	~16	~20	~25	~32

Notes:

1. Please adjust cutting conditions according to machine and workpiece rigidity.
2. If chatter occurs, reduce ap or rpm while maintaining the feed per tooth.
3. Reduce ap when machining under low-rigidity conditions.
4. Use air blow.
5. For slot milling, use 50% or less of the standard feed rate (Vf).

■ Recommended Cutting Conditions | Side Milling | EXSAP-17/MSX-17 Type

Material	Grade	Vc (m/min)	fz (mm/t)		Tool dia. (mm)							
					25	32	40	50	63	80	100	125
Carbon Steel below 250 HB	JC8050	150-200	0.2-0.35	ap (mm)	~10	~12	~15	~15	~15	~15	~15	~15
				ap × ae (mm ²)	~15	~24	~30	~40	~45	~45	~45	~45
Cast Steel below 285 HB	JC8050	130-180	0.2-0.35	ap (mm)	~10	~12	~15	~15	~15	~15	~15	~15
				ap × ae (mm ²)	~15	~24	~30	~40	~45	~45	~45	~45
Tool & Die Steel below 255 HB	JC8050	150-200	0.2-0.35	ap (mm)	~10	~12	~15	~15	~15	~15	~15	~15
				ap × ae (mm ²)	~15	~24	~30	~40	~45	~45	~45	~45
Mold Steel 30-36 HRC	JC8118	110-150	0.2-0.35	ap (mm)	~10	~12	~15	~15	~15	~15	~15	~15
				ap × ae (mm ²)	~15	~24	~30	~40	~45	~45	~45	~45
Mold Steel 38-43 HRC	JC8118	90-120	0.15-0.25	ap (mm)	~10	~12	~15	~15	~15	~15	~15	~15
				ap × ae (mm ²)	~12	~18	~20	~30	~30	~30	~30	~30
Hardened Die Steel 42-52 HRC	JC8118	80-100	0.1-0.2	ap (mm)	~10	~12	~12	~15	~15	~15	~15	~15
				ap × ae (mm ²)	~7	~8	~12	~18	~25	~25	~25	~25
Grey Cast Iron 160-260 HB	JC8118	200-250	0.2-0.35	ap (mm)	~10	~12	~15	~15	~15	~15	~15	~15
				ap × ae (mm ²)	~15	~24	~30	~40	~45	~45	~45	~45
Nodular Cast Iron 170-300 HB	JC8118	110-150	0.15-0.3	ap (mm)	~10	~12	~15	~15	~15	~15	~15	~15
				ap × ae (mm ²)	~15	~24	~30	~40	~45	~45	~45	~45
Austenitic Stainless Steel	JC8050 (JC7550)	100-120	0.1-0.2	ap (mm)	~10	~12	~15	~15	~15	~15	~15	~15
				ap × ae (mm ²)	~15	~24	~30	~40	~45	~45	~45	~45
Martensitic Stainless Steel	JC8118	130-180	0.15-0.3	ap (mm)	~10	~12	~15	~15	~15	~15	~15	~15
				ap × ae (mm ²)	~15	~24	~30	~40	~45	~45	~45	~45

Notes:

1. Please adjust cutting conditions according to machine and workpiece rigidity.
2. If chatter occurs, reduce ap or rpm while maintaining the feed per tooth.
3. Reduce ap when machining under low-rigidity conditions.
4. Use air blow.

Recommended Cutting Conditions | Face Milling | EXSAP-17/MSX-17 Type

Material	Grade	Vc (m/min)	fz (mm/t)		Tool dia. (mm)							
					25	32	40	50	63	80	100	125
Carbon Steel below 250 HB	JC8050	110-150	0.20-0.30	ap (mm)	~3	~3.5	~3.5	~4	~4	~4	~4	~4
				ae (mm)	~25	~32	~40	~50	~63	~80	~100	~125
Cast Steel below 285 HB	JC8050	110-150	0.20-0.30	ap (mm)	~3	~3.5	~3.5	~4	~4	~4	~4	~4
				ae (mm)	~25	~32	~40	~50	~63	~80	~100	~125
Tool & Die Steel below 255 HB	JC8050	110-150	0.15-0.25	ap (mm)	~3	~3.5	~3.5	~4	~4	~4	~4	~4
				ae (mm)	~25	~32	~40	~50	~63	~80	~100	~125
Mold Steel 30-36 HRC	JC8118	110-130	0.15-0.25	ap (mm)	~3	~3.5	~3.5	~4	~4	~4	~4	~4
				ae (mm)	~25	~32	~40	~50	~63	~80	~100	~125
Mold Steel 38-43 HRC	JC8118	90-110	0.15-0.25	ap (mm)	~2	~2.5	~2.5	~3	~3	~3	~4	~4
				ae (mm)	~25	~32	~40	~50	~63	~80	~100	~125
Hardened Die Steel 42-52 HRC	JC8118	70-90	0.10-0.20	ap (mm)	~1	~2	~2	~2.5	~2.5	~2.5	~4	~4
				ae (mm)	~20	~25	~32	~40	~55	~65	~80	~100
Grey Cast Iron 160-260 HB	JC8118	130-180	0.20-0.30	ap (mm)	~5	~5.5	~5.5	~6	~6	~6	~4	~4
				ae (mm)	~25	~32	~40	~50	~63	~80	~100	~125
Nodular Cast Iron 170-300 HB	JC8118	110-130	0.15-0.25	ap (mm)	~3	~3.5	~3.5	~4	~4	~4	~4	~4
				ae (mm)	~25	~32	~40	~50	~63	~80	~100	~125
Austenitic Stainless Steel	JC8050 (JC7550)	90-110	0.10-0.20	ap (mm)	~3	~3.5	~3.5	~4	~4	~4	~4	~4
				ae (mm)	~20	~25	~32	~40	~55	~65	~80	~100
Martensitic Stainless Steel	JC8118	110-150	0.15-0.25	ap (mm)	~3	~3.5	~3.5	~4	~4	~4	~4	~4
				ae (mm)	~25	~32	~40	~50	~63	~80	~100	~125

Notes:

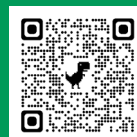
1. Please adjust cutting conditions according to machine and workpiece rigidity.
2. If chatter occurs, reduce ap or rpm while maintaining the feed per tooth.
3. Reduce ap when machining under low-rigidity conditions.
4. Use air blow.
5. For slot milling, use 50% or less of the standard feed rate (Vf).

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