

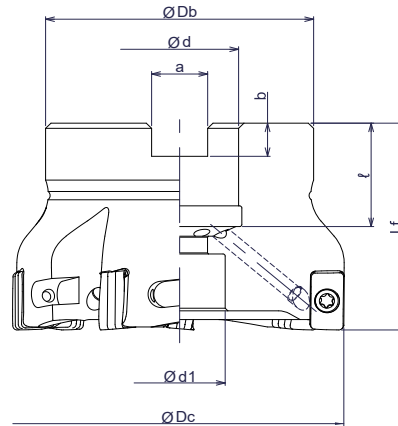
FOR HIGHER DEMANDS:
TOOLS 2021/22
EXSAP 11 & MSX 11



DIJET

EXSAP-11 Type

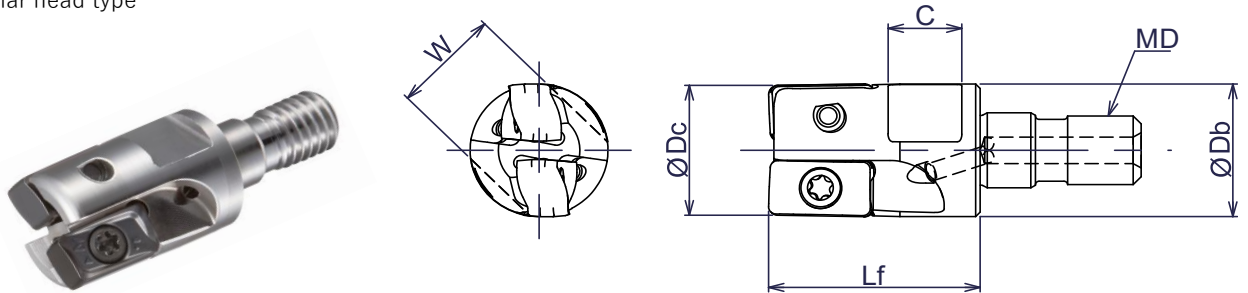
■ Facemill type



Cat. No.	Stock	No. of flutes	Dimensions(mm)									Set Bolt	Weight (Kg)	Parts	
			ϕDc	Lf	ϕDb	ϕd	$\phi d1$	a	b	ℓ	Clamp Screw			Wrench	
EXSAP-6040R-11-16	●	6	40	40	35	16	14	8.4	5.6	18	M8	0.22	TSW-307H	A-10	
EXSAP-7050R-11-22	●	7	50	40	47	22	16.5	10.4	6.3	20	M10	0.38	TSW-307H	A-10	
EXSAP-7052R-11-22	●	7	52	40	47	22	16.5	10.4	6.3	20	M10	0.39	TSW-307H	A-10	
EXSAP-7063R-11-22	●	7	63	40	50	22	16.5	10.4	6.3	20	M10	0.53	TSW-307H	A-10	
EXSAP-7063R-11-27	●	7	63	50	50	27	20	12.4	7	20	M12	0.62	TSW-307H	A-10	
EXSAP-8080R-11-27	●	8	80	50	56	27	20	12.4	7	22	M12×1.75×30	0.99	TSW-307H	A-10	

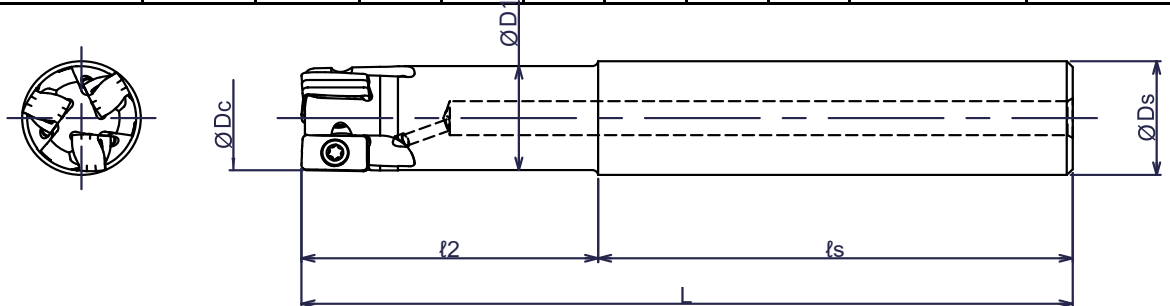
MSX-11 /EXSAP-11 Type

■Modular head type



Cat. No.	Stock	No. of flutes	Dimensions(mm)						Parts	
			ØDc	Lf	ØDb	MD	C	W	Clamp Screw	Wrench
MSX-2016-11-M8	●	2	16	23	15	M8	8	12	TSW-307H	A-10
MSX-3020-11-M10	●	3	20	30	18	M10	9	14	TSW-307H	A-10
MSX-3025-11-M12	●	3	25	35	22	M12	11	19	TSW-307H	A-10
MSX-4032-11-M16	●	4	32	43	29	M16	12	22	TSW-307H	A-10
MSX-5040-11-M16	●	5	40	43	29	M16	12	22	TSW-307H	A-10

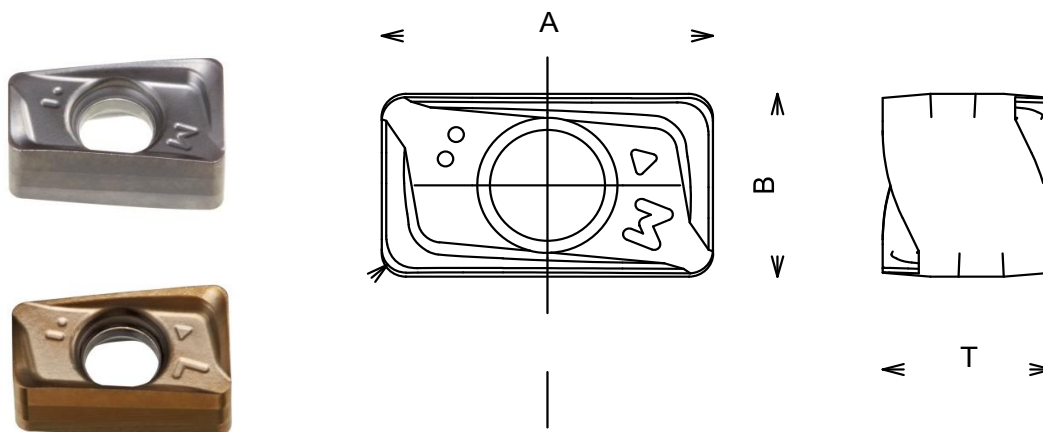
■Endmill type



Cat. No.	Stock	No. of flutes	Dimensions(mm)						Parts	
			ØDc	l2	lS	L	ØD1	ØDs	Clamp Screw	Wrench
EXSAP-2016-11-50-S16+A	◎	2	16	50	60	110	14.6	16	TSW-307H	A-10
EXSAP-3020-11-50-S20+A	◎	3	20	50	80	130	18.3	20	TSW-307H	A-10
EXSAP-3025-11-50-S25+A	◎	3	25	50	80	130	23.4	25	TSW-307H	A-10
EXSAP-4032-11-50-S32+A	◎	4	32	50	80	130	29	32	TSW-307H	A-10

Will be stocked middle to end of October.

■ Inserts



Cat. No.	Tolerance	r ε	PVD Coated			
			JC8050	JC8118	JC7550	JC7518
ZNGU110508ZER-PM	G	R0.8	●	●		
ZNGU110508ZER-SL	G	R0.8			●	●

10 inserts par case.

EXSAP-11 Type

RECOMMENDED CUTTING CONDITIONS/ EXSAP-11 FACEMILL/Shoulder milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			40					50/52				
			No. of teeth 6N					No. of teeth 7N				
			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 C50,C55 Below 250HB	PM	JC8050 (JC8118)	~150	~8	~20.0	1430	1540	~200	~8	~24.0	1150	1610
			200	~6	~6.0	1270	1220	250	~6	~7.3	1020	1290
			250	~4	~2.0	1110	930	300	~5	~2.4	890	1000
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~150	~8	~20.0	1430	1540	~200	~8	~24.0	1150	1610
			200	~6	~6.0	1270	1220	250	~6	~7.3	1020	1290
			250	~4	~2.0	1110	930	300	~5	~2.4	890	1000
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~150	~8	~20.0	1430	1540	~200	~8	~24.0	1150	1610
			200	~6	~6.0	1270	1220	250	~6	~7.3	1020	1290
			250	~4	~2.0	1110	930	300	~5	~2.4	890	1000
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~150	~8	~20.0	1030	870	~200	~8	~24.0	830	1050
			200	~6	~6.0	950	680	250	~6	~7.3	760	850
			250	~4	~2.0	880	530	300	~5	~2.4	700	690
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~150	~8	~16.0	950	800	~200	~8	~20.0	760	960
			200	~6	~4.8	840	600	250	~6	~6.0	670	750
			250	~4	~1.6	720	430	300	~5	~2.0	570	560
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~150	~5	~4.8	800	580	~200	~6	~8.0	640	540
			200	~4	~1.6	720	430	250	~5	~2.4	570	400
			250	~3	~0.5	640	310	300	~4	~0.8	510	290
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~150	~8	~22.0	1590	1720	~200	~8	~28.0	1270	1780
			200	~6	~6.7	1430	1200	250	~6	~8.5	1150	1450
			250	~4	~2.2	1270	910	300	~5	~2.8	1020	1140
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~150	~8	~22.0	1430	1370	~200	~8	~28.0	1150	1610
			200	~6	~6.7	1270	1070	250	~6	~8.5	1020	1290
			250	~4	~2.2	1110	800	300	~5	~2.8	890	1000
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~150	~8	~20.0	950	800	~200	~8	~24.0	760	960
			200	~6	~6.0	880	630	250	~6	~7.3	700	780
			250	~4	~2.0	800	480	300	~5	~2.4	640	630
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~150	~8	~20.0	1110	930	~200	~8	~24.0	890	1120
			200	~6	~6.0	950	680	250	~6	~7.3	760	850
			250	~4	~2.0	800	480	300	~5	~2.4	640	630
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~150	~8	~14.0	560	440	~200	~8	~20.0	450	410
			200	~6	~4.2	480	350	250	~6	~6.0	380	320
			250	~4	~1.4	400	260	300	~5	~2.0	320	250
Inconel 35~43HRC	SL	JC7550 (JC7518)	~150	~8	~14.0	240	140	~200	~8	~20.0	190	130
			200	~6	~4.2	200	110	250	~6	~6.0	160	100
			250	~4	~1.4	160	80	300	~5	~2.0	130	70

EXSAP-11 Type

RECOMMENDED CUTTING CONDITIONS/ EXSAP-11 FACEMILL/Shoulder milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			63/66					80				
			No. of teeth 7N					No. of teeth 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 C50,C55 Below 250HB	PM	JC8050 (JC8118)	~250	~9	~30	910	1270	~300	~9	~36.0	720	1150
			300	~7	~9.0	810	1020	~350	~7	~11.0	640	920
			350	~5	~3.0	710	800	~400	~5	~3.6	560	720
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~250	~9	~30.0	910	1270	~300	~9	~36.0	720	1150
			300	~7	~9.0	810	1020	~350	~7	~11.0	640	920
			350	~5	~3.0	710	800	~400	~5	~3.6	560	720
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~250	~9	~30	910	1270	~300	~9	~36.0	720	1150
			300	~7	~9.0	810	1020	~350	~7	~11.0	640	920
			350	~5	~3.0	710	800	~400	~5	~3.6	560	720
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~250	~9	~30.0	660	830	~300	~9	~36.0	520	750
			300	~7	~9.0	610	680	~350	~7	~11.0	480	610
			350	~5	~3.0	560	550	~400	~5	~3.6	440	490
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~250	~9	~24	610	770	~300	~9	~28.0	480	690
			300	~7	~7.3	530	590	~350	~7	~8.5	420	540
			350	~5	~2.4	450	440	~400	~5	~2.8	360	400
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~250	~9	~9.0	510	430	~300	~9	~10.0	400	380
			300	~7	~2.7	450	320	~350	~7	~3.0	360	290
			350	~5	~0.9	400	220	~400	~5	~1.0	320	200
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~250	~9	~34.0	1010	1410	~300	~9	~40.0	800	1280
			300	~7	~10.0	910	1150	~350	~7	~12.0	720	1040
			350	~5	~3.4	810	910	~400	~5	~4.0	640	820
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~250	~9	~34.0	910	1270	~300	~9	~40.0	720	1150
			300	~7	~10.0	810	1020	~350	~7	~12.0	640	920
			350	~5	~3.4	710	800	~400	~5	~4.0	560	720
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~250	~9	~30	610	770	~300	~9	~36.0	480	690
			300	~7	~9.0	560	630	~350	~7	~11.0	440	560
			350	~5	~3.0	510	500	~400	~5	~3.6	400	450
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~250	~9	~30.0	710	890	~300	~9	~36.0	560	810
			300	~7	~9.0	610	680	~350	~7	~11.0	480	610
			350	~5	~3.0	510	500	~400	~5	~3.6	400	450
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~250	~9	~26.0	350	320	~300	~9	~30.0	280	290
			300	~7	~8.0	300	250	~350	~7	~9.0	240	230
			350	~5	~2.6	250	190	~400	~5	~3.0	200	180
Inconel 35~43HRC	SL	JC7550 (JC7518)	~250	~9	~26.0	150	110	~300	~9	~30.0	120	100
			300	~7	~8.0	130	80	~350	~7	~9.0	100	70
			350	~5	~2.6	100	60	~400	~5	~3.0	80	50

MEX-11 Type

RECOMMENDED CUTTING CONDITIONS/ MEX-11 Modular/Shoulder milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			16					20				
			No. of teeth 2N					No. of teeth 3N				
			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 C50,C55 Below 250HB	PM	JC8050 (JC8118)	~80	~5	~4.0	3580	1000	~100	~5	~5.0	2860	1370
			120	~3	~1.2	3180	760	150	~3	~1.5	2550	1070
			160	~2	~0.4	2790	560	190	~2	~0.5	2230	800
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~80	~5	~4.0	3580	1000	~100	~5	~5.0	2860	1370
			120	~3	~1.2	3180	760	150	~3	~1.5	2550	1070
			160	~2	~0.4	2790	560	190	~2	~0.5	2230	800
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~80	~5	~4.0	3580	1000	~100	~5	~5.0	2860	1370
			120	~3	~1.2	3180	760	150	~3	~1.5	2550	1070
			160	~2	~0.4	2790	560	190	~2	~0.5	2230	800
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~80	~5	~4.0	2590	620	~100	~5	~5.0	2070	870
			120	~3	~1.2	2390	480	150	~3	~1.5	1910	690
			160	~2	~0.4	2190	350	190	~2	~0.5	1750	530
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~80	~5	~3.4	2390	570	~100	~5	~4.0	1910	800
			120	~3	~1.0	2090	420	150	~3	~1.2	1670	600
			160	~2	~0.3	1790	290	190	~2	~0.4	1430	430
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~80	~3	~1.6	1990	320	~100	~3.5	~2.0	1590	480
			120	~2	~0.6	1790	250	150	~2.5	~0.6	1430	390
			160	~1	~0.2	1590	190	190	~1.5	~0.2	1270	300
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~80	~5	~5	3980	1110	~100	~5	~6.0	3180	1530
			120	~3	~1.5	3580	860	150	~3	~1.8	2860	1200
			160	~2	~0.5	3180	640	190	~2	~0.6	2550	920
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~80	~5	~5	3580	1000	~100	~5	~6.0	2860	1370
			120	~3	~1.5	3180	760	150	~3	~1.8	2550	1070
			160	~2	~0.5	2790	560	190	~2	~0.6	2230	800
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~80	~5	~4	2390	570	~100	~5	~5.0	1910	800
			120	~3	~1.2	2190	440	150	~3	~1.5	1750	630
			160	~2	~0.4	1990	320	190	~2	~0.5	1590	480
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~80	~5	~3.2	2790	670	~100	~5	~5.0	2230	940
			120	~3	~1.0	2390	480	150	~3	~1.5	1910	690
			160	~2	~0.4	1990	320	190	~2	~0.5	1590	480
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~80	~5	~3.2	1390	330	~100	~5	~4.0	1110	430
			120	~3	~1.0	1190	260	150	~3	~1.2	950	340
			160	~2	~0.3	990	200	190	~2	~0.4	800	260
Inconel 35~43HRC	SL	JC7550 (JC7518)	~80	~5	~3.2	600	110	~100	~5	~4.0	480	140
			120	~3	~1.0	500	80	150	~3	~1.2	400	110
			160	~2	~0.3	400	60	190	~2	~0.4	320	80

MEX-11 Type

RECOMMENDED CUTTING CONDITIONS/ MEX-11 Modular/Shoulder milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			25					32				
			No. of teeth 3N					No. of teeth 4N				
			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 C50,C55 Below 250HB	PM	JC8050 (JC8118)	~120	~6	~7.2	2290	1100	~160	~6	~9.8	1790	1150
			190	~4	~2.2	2040	860	240	~4	~3.0	1590	890
			235	~3	~0.7	1780	640	290	~3	~1.0	1390	670
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~120	~6	~7.2	2290	1100	~160	~6	~9.8	1790	1150
			190	~4	~2.2	2040	860	240	~4	~3.0	1590	890
			235	~3	~0.7	1780	640	290	~3	~1.0	1390	670
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~120	~6	~7.2	2290	1100	~160	~6	~9.8	1790	1150
			190	~4	~2.2	2040	860	240	~4	~3.0	1590	890
			235	~3	~0.7	1780	640	290	~3	~1.0	1390	670
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~120	~6	~7.2	1660	700	~160	~6	~9.8	1290	720
			190	~4	~2.2	1530	550	240	~4	~3.0	1190	570
			235	~3	~0.7	1400	420	290	~3	~1.0	1090	440
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~120	~6	~6.0	1530	640	~160	~6	~8.0	1190	670
			190	~4	~1.8	1340	480	240	~4	~2.4	1040	500
			235	~3	~0.6	1150	350	290	~3	~0.8	900	360
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~120	~4	~3.2	1270	380	~160	~4	~3.6	990	400
			190	~3	~1.0	1150	310	240	~3	~1.0	900	320
			235	~2	~0.3	1020	240	290	~2	~0.4	800	260
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~120	~6	~9.8	2550	1220	~160	~6	~12.0	1990	1270
			190	~4	~3.0	2290	960	240	~4	~3.6	1790	1000
			235	~3	~1.0	2040	730	290	~3	~1.2	1590	760
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~120	~6	~9.8	2290	1100	~160	~6	~12.0	1790	1150
			190	~4	~3.0	2040	860	240	~4	~3.6	1590	890
			235	~3	~1.0	1780	640	290	~3	~1.2	1390	670
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~120	~6	~7.2	1530	640	~160	~6	~9.8	1190	670
			190	~4	~2.2	1400	500	240	~4	~3.0	1090	520
			235	~3	~0.7	1270	380	290	~3	~1.0	990	400
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~120	~6	~7.2	1780	750	~160	~6	~9.8	1390	780
			190	~4	~2.2	1530	550	240	~4	~3.0	1190	570
			235	~3	~0.7	1270	380	290	~3	~1.0	990	400
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~120	~6	~6.0	890	350	~160	~6	~8.0	700	360
			190	~4	~1.8	760	270	240	~4	~2.4	600	290
			235	~3	~0.6	640	210	290	~3	~0.8	500	220
Inconel 35~43HRC	SL	JC7550 (JC7518)	~120	~6	~6.0	380	110	~160	~6	~8.0	300	120
			190	~4	~1.8	320	90	240	~4	~2.4	250	90
			235	~3	~0.6	250	60	290	~3	~0.8	200	60

MEX-11 Type

RECOMMENDED CUTTING CONDITIONS/ MEX-11 Modular/Shoulder milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			40									
			No. of teeth 5N									
ℓ (mm)	a_p (mm)	$a_p \times a_e$ (mm ²)	n (min ⁻¹)	V_f (mm/min)								
Carbon steel C50,C55 Below 250HB	PM	JC8050 (JC8118)	~160	~7	~14.0	1430	1290					
			240	~5	~4.2	1270	1020					
			290	~3	~1.4	1110	780					
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~160	~7	~14.0	1430	1290					
			240	~5	~4.2	1270	1020					
			290	~3	~1.4	1110	780					
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~160	~7	~14.0	1430	1290					
			240	~5	~4.2	1270	1020					
			290	~3	~1.4	1110	780					
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~160	~7	~14.0	1030	720					
			240	~5	~4.2	950	570					
			290	~3	~1.4	880	440					
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~160	~7	~10.0	950	670					
			240	~5	~3.0	840	500					
			290	~3	~1.0	720	360					
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~160	~4.5	~4.0	800	480					
			240	~3.5	~1.2	720	360					
			290	~2.5	~0.4	640	260					
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~160	~7	~16.0	1590	1430					
			240	~5	~4.8	1430	1000					
			290	~3	~1.6	1270	760					
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~160	~7	~16.0	1430	1140					
			240	~5	~4.8	1270	890					
			290	~3	~1.6	1110	670					
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~160	~7	~14.0	950	670					
			240	~5	~4.2	880	530					
			290	~3	~1.4	800	400					
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~160	~7	~14.0	1110	780					
			240	~5	~4.2	950	570					
			290	~3	~1.4	800	400					
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~160	~7	~10.0	560	360					
			240	~5	~3.0	480	290					
			290	~3	~1.0	400	220					
Inconel 35~43HRC	SL	JC7550 (JC7518)	~160	~7	~10.0	240	120					
			240	~5	~3.0	200	90					
			290	~3	~1.0	160	60					

EXSAP-11 Type

RECOMMENDED CUTTING CONDITIONS/ EXSAP-11 END MILL/Shoulder milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			16					20				
			No. of teeth 2N					No. of teeth 3N				
			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 C50,C55 Below 250HB	PM	JC8050 (JC8118)	~30	~5	~4.0	3580	1000	~50	~5	~5.0	2860	1370
			70	~3	~1.2	3180	760	~120	~3	~1.5	2550	1070
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~30	~5	~4.0	3580	1000	~50	~5	~5.0	2860	1370
			70	~3	~1.2	3180	760	120	~3	~1.5	2550	1070
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~30	~5	~4.0	3580	1000	~50	~5	~5.0	2860	1370
			70	~3	~1.2	3180	760	~120	~3	~1.5	2550	1070
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~30	~5	~4.0	2590	620	~50	~5	~5.0	2070	870
			70	~3	~1.2	2390	480	120	~3	~1.5	1910	690
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~30	~5	~3.4	2390	570	~50	~5	~4.0	1910	800
			70	~3	~1.0	2090	420	~120	~3	~1.2	1670	600
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~30	~3	~1.6	1990	320	~50	~3.5	~2.0	1590	480
			70	~2	~0.6	1790	250	120	~2.5	~0.6	1430	390
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~30	~5	~5	3980	1110	~50	~5	~6.0	3180	1530
			70	~3	~1.5	3580	860	~120	~3	~1.8	2860	1200
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~30	~5	~5	3580	1000	~50	~5	~6.0	2860	1370
			70	~3	~1.5	3180	760	120	~3	~1.8	2550	1070
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~30	~5	~4	2390	570	~50	~5	~5.0	1910	800
			70	~3	~1.2	2190	440	~120	~3	~1.5	1750	630
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~30	~5	~3.2	2790	670	~50	~5	~5.0	2230	940
			70	~3	~1.0	2390	480	120	~3	~1.5	1910	690
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~30	~5	~3.2	1390	330	~50	~5	~4.0	1110	430
			70	~3	~1.0	1190	260	~120	~3	~1.2	950	340
Inconel 35~43HRC	SL	JC7550 (JC7518)	~30	~5	~3.2	600	110	~50	~5	~4.0	480	140
			70	~3	~1.0	500	80	120	~3	~1.2	400	110

EXSAP-11 Type

RECOMMENDED CUTTING CONDITIONS/ EXSAP-11 END MILL/Shoulder milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			25					32				
			No. of teeth 3N					No. of teeth 4N				
			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 C50,C55 Below 250HB	PM	JC8050 (JC8118)	~70	~6	~7.2	2290	1100	~70	~6	~9.8	1790	1150
			120	~4	~2.2	2040	860	120	~4	~3.0	1590	890
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~70	~6	~7.2	2290	1100	~70	~6	~9.8	1790	1150
			120	~4	~2.2	2040	860	120	~4	~3.0	1590	890
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~70	~6	~7.2	2290	1100	~70	~6	~9.8	1790	1150
			120	~4	~2.2	2040	860	120	~4	~3.0	1590	890
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~70	~6	~7.2	1660	700	~70	~6	~9.8	1290	720
			120	~4	~2.2	1530	550	120	~4	~3.0	1190	570
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~70	~6	~6.0	1530	640	~70	~6	~8.0	1190	670
			120	~4	~1.8	1340	480	120	~4	~2.4	1040	500
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~70	~4	~3.2	1270	380	~70	~4	~3.6	990	400
			120	~3	~1.0	1150	310	120	~3	~1.0	900	320
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~70	~6	~9.8	2550	1220	~70	~6	~12.0	1990	1270
			120	~4	~3.0	2290	960	120	~4	~3.6	1790	1000
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~70	~6	~9.8	2290	1100	~70	~6	~12.0	1790	1150
			120	~4	~3.0	2040	860	120	~4	~3.6	1590	890
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~70	~6	~7.2	1530	640	~70	~6	~9.8	1190	670
			120	~4	~2.2	1400	500	120	~4	~3.0	1090	520
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~70	~6	~7.2	1780	750	~70	~6	~9.8	1390	780
			120	~4	~2.2	1530	550	120	~4	~3.0	1190	570
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~70	~6	~6.0	890	350	~70	~6	~8.0	700	360
			120	~4	~1.8	760	270	120	~4	~2.4	600	290
Inconel 35~43HRC	SL	JC7550 (JC7518)	~70	~6	~6.0	380	110	~70	~6	~8.0	300	120
			120	~4	~1.8	320	90	120	~4	~2.4	250	90

EXSAP-11 Type

RECOMMENDED CUTTING CONDITIONS/ EXSAP-11 END MILL/Shoulder milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			40									
			No. of teeth 5N									
			ℓ (mm)	a_p (mm)	$a_p \times a_e$ (mm ²)	n (min ⁻¹)	V_f (mm/min)					
Carbon steel C50,C55 Below 250HB	PM	JC8050 (JC8118)	~70	~7	~14.0	1430	1290					
			170	~5	~4.2	1270	1020					
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~70	~7	~14.0	1430	1290					
			170	~5	~4.2	1270	1020					
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~70	~7	~14.0	1430	1290					
			170	~5	~4.2	1270	1020					
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~70	~7	~14.0	1030	720					
			170	~5	~4.2	950	570					
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~70	~7	~10.0	950	670					
			170	~5	~3.0	840	500					
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~70	~4.5	~4.0	800	480					
			170	~3.5	~1.2	720	360					
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~70	~7	~16.0	1590	1430					
			170	~5	~4.8	1430	1000					
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~70	~7	~16.0	1430	1140					
			170	~5	~4.8	1270	890					
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~70	~7	~14.0	950	670					
			170	~5	~4.2	880	530					
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~70	~7	~14.0	1110	780					
			170	~5	~4.2	950	570					
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~70	~7	~10.0	560	360					
			170	~5	~3.0	480	290					
Inconel 35~43HRC	SL	JC7550 (JC7518)	~70	~7	~10.0	240	120					
			170	~5	~3.0	200	90					

EXSAP-11 Type

RECOMMENDED CUTTING CONDITIONS/ EXSAP-11 FACEMILL/Face milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			40					50/52				
			No. of teeth 6N					No. of teeth 7N				
			ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)	ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)
Carbon steel C50,C55 Below 250HB	PM	JC8050 (JC8118)	~150	~2.0	~24	1430	1720	~200	~2.0	~30	1150	1610
			200	~1.2	~24	1270	1300	250	~1.2	~30	1020	1210
			250	~0.5	~24	1110	930	300	~0.5	~30	890	870
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~150	~2.0	~24	1430	1720	~200	~2.0	~30	1150	1610
			200	~1.2	~24	1270	1300	250	~1.2	~30	1020	1210
			250	~0.5	~24	1110	930	300	~0.5	~30	890	870
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~150	~2.0	~24	1430	1720	~200	~2.0	~30	1150	1610
			200	~1.2	~24	1270	1300	250	~1.2	~30	1020	1210
			250	~0.5	~24	1110	930	300	~0.5	~30	890	870
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~150	~2.0	~24	1030	1110	~200	~2.0	~30	830	1050
			200	~1.2	~24	950	860	250	~1.2	~30	760	800
			250	~0.5	~24	880	630	300	~0.5	~30	700	590
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~150	~1.8	~24	950	910	~200	~1.8	~30	760	850
			200	~1.0	~24	840	660	250	~1.0	~30	670	610
			250	~0.5	~24	720	430	300	~0.5	~30	570	400
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~150	~1.0	~16	800	580	~200	~1.0	~20	640	540
			200	~0.5	~16	720	430	250	~0.5	~20	570	400
			250	~0.3	~16	640	310	300	~0.3	~20	510	290
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~150	~2.0	~24	1590	1910	~200	~2.0	~30	1270	1780
			200	~1.2	~24	1430	1460	250	~1.2	~30	1150	1370
			250	~0.5	~24	1270	1070	300	~0.5	~30	1020	1000
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~150	~2.0	~24	1430	1720	~200	~2.0	~30	1150	1610
			200	~1.2	~24	1270	1300	250	~1.2	~30	1020	1210
			250	~0.5	~24	1110	930	300	~0.5	~30	890	870
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~150	~2.0	~16	950	1030	~200	~2.0	~20	760	960
			200	~1.2	~16	880	900	250	~1.2	~20	700	830
			250	~0.5	~16	800	670	300	~0.5	~20	640	630
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~150	~2.0	~24	1110	1200	~200	~2.0	~30	890	1120
			200	~1.2	~24	950	970	250	~1.2	~30	760	900
			250	~0.5	~24	800	670	300	~0.5	~30	640	630
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~150	~1.8	~16	560	400	~200	~1.8	~20	450	380
			200	~1.0	~16	480	290	250	~1.0	~20	380	270
			250	~0.4	~16	400	190	300	~0.4	~20	320	180
Inconel 35~43HRC	SL	JC7550 (JC7518)	~150	~1.8	~16	240	160	~200	~1.8	~20	190	150
			200	~1.0	~16	200	110	250	~1.0	~20	160	100
			250	~0.4	~16	160	70	300	~0.4	~20	130	60

EXSAP-11 Type

RECOMMENDED CUTTING CONDITIONS/ EXSAP-11 FACEMILL/Face milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			63/66					80				
			No. of teeth 7N					No. of teeth 8N				
			ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)	ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)
Carbon steel C50,C55 Below 250HB	PM	JC8050 (JC8118)	~250	~2.0	~38	910	1270	~300	~2.0	~48	720	1150
			300	~1.2	~38	810	960	~350	~1.2	~48	640	870
			350	~0.5	~38	710	700	~400	~0.5	~48	560	630
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~250	~2.0	~38	660	830	~300	~2.0	~48	520	750
			300	~1.2	~38	610	640	~350	~1.2	~48	480	580
			350	~0.5	~38	560	470	~400	~0.5	~48	440	420
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~250	~1.8	~38	610	680	~300	~1.8	~48	480	610
			300	~1.0	~38	530	480	~350	~1.0	~48	420	440
			350	~0.5	~38	450	320	~400	~0.5	~48	360	290
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~250	~1.0	~25	510	430	~300	~1.0	~32	400	380
			300	~0.5	~25	450	320	~350	~0.5	~32	360	290
			350	~0.3	~25	400	220	~400	~0.3	~32	320	200
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~250	~2.0	~38	1010	1410	~300	~2.0	~48	800	1280
			300	~1.2	~38	910	1080	~350	~1.2	~48	720	980
			350	~0.5	~38	810	790	~400	~0.5	~48	640	720
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~250	~2.0	~38	910	1270	~300	~2.0	~48	720	1150
			300	~1.2	~38	810	960	~350	~1.2	~48	640	870
			350	~0.5	~38	710	700	~400	~0.5	~48	560	630
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~250	~2.0	~25	610	770	~300	~2.0	~32	480	690
			300	~1.2	~25	560	670	~350	~1.2	~32	440	600
			350	~0.5	~25	510	500	~400	~0.5	~32	400	450
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~250	~2.0	~38	710	890	~300	~2.0	~48	560	810
			300	~1.2	~38	610	730	~350	~1.2	~48	480	650
			350	~0.5	~38	510	500	~400	~0.5	~48	400	450
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~250	~1.8	~25	350	290	~300	~1.8	~32	280	270
			300	~1.0	~25	300	210	~350	~1.0	~32	240	190
			350	~0.4	~25	250	140	~400	~0.4	~32	200	130
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~250	~1.8	~25	150	120	~300	~1.8	~32	120	110
			300	~1.0	~25	130	80	~350	~1.0	~32	100	70
			350	~0.4	~25	100	50	~400	~0.4	~32	80	40
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~150	~8	~14.0	560	440	~200	~8	~20.0	450	410
			200	~6	~4.2	480	350	250	~6	~6.0	380	320
			250	~4	~1.4	400	260	300	~5	~2.0	320	250
Inconel 35~43HRC	SL	JC7550 (JC7518)	~150	~8	~14.0	240	140	~200	~8	~20.0	190	130
			200	~6	~4.2	200	110	250	~6	~6.0	160	100
			250	~4	~1.4	160	80	300	~5	~2.0	130	70

MEX-11 Type

RECOMMENDED CUTTING CONDITIONS/ MEX-11 Modular/Face milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			16					20				
			No. of teeth 2N					No. of teeth 3N				
			ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)	ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)
Carbon steel C50,C55 Below 250HB	PM	JC8050 (JC8118)	~80	~1.0	~10	2980	830	~100	~1.2	~12	2390	1150
			120	~0.5	~10	2590	570	150	~0.6	~12	2070	810
			160	~0.2	~10	2190	350	190	~0.3	~12	1750	530
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~80	~1.0	~10	2980	830	~100	~1.2	~12	2390	1150
			120	~0.5	~10	2590	570	150	~0.6	~12	2070	810
			160	~0.2	~10	2190	350	190	~0.3	~12	1750	530
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~80	~1.0	~10	2980	830	~100	~1.2	~12	2390	1150
			120	~0.5	~10	2590	570	150	~0.6	~12	2070	810
			160	~0.2	~10	2190	350	190	~0.3	~12	1750	530
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~80	~1.0	~10	2590	670	~100	~1.2	~12	2070	930
			120	~0.5	~10	2390	480	150	~0.6	~12	1910	690
			160	~0.2	~10	2190	310	190	~0.3	~12	1750	470
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~80	~0.8	~10	2190	530	~100	~1.0	~12	1750	740
			120	~0.4	~10	1990	360	150	~0.5	~12	1590	520
			160	~0.2	~10	1790	210	190	~0.3	~12	1430	340
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~80	~0.4	~6	1790	360	~100	~0.5	~8	1430	430
			120	~0.3	~6	1590	250	150	~0.4	~8	1270	300
			160	~0.2	~6	1390	170	190	~0.2	~8	1110	200
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~80	~1.0	~10	3580	1000	~100	~1.2	~12	2860	1370
			120	~0.5	~10	3180	700	150	~0.6	~12	2550	990
			160	~0.2	~10	2790	450	190	~0.3	~12	2230	670
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~80	~1.0	~10	2790	780	~100	~1.2	~12	2230	1070
			120	~0.5	~10	2590	570	150	~0.6	~12	2070	810
			160	~0.2	~10	2390	380	190	~0.3	~12	1910	570
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~80	~1.0	~6	2190	610	~100	~1.2	~8	1750	840
			120	~0.5	~6	1990	440	150	~0.6	~8	1590	620
			160	~0.2	~6	1790	290	190	~0.3	~8	1430	430
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~80	~1.0	~10	2980	830	~100	~1.2	~12	2390	1150
			120	~0.5	~10	2590	570	150	~0.6	~12	2070	810
			160	~0.2	~10	2190	350	190	~0.3	~12	1750	530
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~80	~0.8	~6	1190	240	~100	~1.0	~8	950	290
			120	~0.4	~6	990	160	150	~0.5	~8	800	190
			160	~0.2	~6	800	100	190	~0.3	~8	640	120
Inconel 35~43HRC	SL	JC7550 (JC7518)	~80	~0.8	~6	600	110	~100	~1.0	~8	480	130
			120	~0.4	~6	500	70	150	~0.5	~8	400	80
			160	~0.2	~6	400	40	190	~0.3	~8	320	50

MEX-11 Type

■ RECOMMENDED CUTTING CONDITIONS/ MEX-11 Modular/Face milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			25					32				
			No. of teeth 3N					No. of teeth 4N				
			ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)	ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)
Carbon steel C50,C55 Below 250HB	PM	JC8050 (JC8118)	~120	~1.2	~15	1910	920	~160	~1.5	~18	1590	1020
			190	~0.6	~15	1660	650	240	~0.8	~18	1380	720
			235	~0.3	~15	1400	420	290	~0.3	~18	1170	470
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~120	~1.2	~15	1910	920	~160	~1.5	~18	1590	1020
			190	~0.6	~15	1660	650	240	~0.8	~18	1380	720
			235	~0.3	~15	1400	420	290	~0.3	~18	1170	470
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~120	~1.2	~15	1910	920	~160	~1.5	~18	1590	1020
			190	~0.6	~15	1660	650	240	~0.8	~18	1380	720
			235	~0.3	~15	1400	420	290	~0.3	~18	1170	470
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~120	~1.2	~15	1660	750	~160	~1.5	~18	1380	830
			190	~0.6	~15	1530	550	240	~0.8	~18	1270	610
			235	~0.3	~15	1400	380	290	~0.3	~18	1170	420
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~120	~1.0	~15	1400	590	~160	~1.2	~18	1170	660
			190	~0.5	~15	1270	420	240	~0.6	~18	1060	470
			235	~0.3	~15	1150	280	290	~0.3	~18	950	300
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~120	~0.5	~10	1150	350	~160	~0.6	~12	950	380
			190	~0.4	~10	1020	240	240	~0.4	~12	850	270
			235	~0.2	~10	890	160	290	~0.2	~12	740	180
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~120	~1.2	~15	2290	1100	~160	~1.5	~18	1910	1220
			190	~0.6	~15	2040	800	240	~0.8	~18	1700	880
			235	~0.3	~15	1780	530	290	~0.3	~18	1490	600
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~120	~1.2	~15	1780	850	~160	~1.5	~18	1490	950
			190	~0.6	~15	1660	650	240	~0.8	~18	1380	720
			235	~0.3	~15	1530	460	290	~0.3	~18	1270	510
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~120	~1.2	~10	1400	670	~160	~1.5	~12	1170	750
			190	~0.6	~10	1270	500	240	~0.8	~12	1060	550
			235	~0.3	~10	1150	350	290	~0.3	~12	950	380
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~120	~1.2	~15	1910	920	~160	~1.5	~18	1590	1020
			190	~0.6	~15	1660	650	240	~0.8	~18	1380	720
			235	~0.3	~15	1400	420	290	~0.3	~18	1170	470
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~120	~1.0	~10	760	230	~160	~0.8	~12	640	260
			190	~0.5	~10	640	150	240	~0.5	~12	530	170
			235	~0.3	~10	510	90	290	~0.2	~12	420	100
Inconel 35~43HRC	SL	JC7550 (JC7518)	~120	~1.0	~10	380	110	~160	~0.8	~12	320	130
			190	~0.5	~10	320	80	240	~0.5	~12	270	90
			235	~0.3	~10	250	50	290	~0.2	~12	210	50

MEX-11 Type

RECOMMENDED CUTTING CONDITIONS/ MEX-11 Modular/Face milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			40									
			No. of teeth 5N									
ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)								
Carbon steel C50,C55 Below 250HB	PM	JC8050 (JC8118)	~160	~1.6	~24	1430	1290					
			240	~1.0	~24	1270	950					
			290	~0.4	~24	1110	670					
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~160	~1.6	~24	1430	1290					
			240	~1.0	~24	1270	950					
			290	~0.4	~24	1110	670					
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~160	~1.6	~24	1030	820					
			240	~1.0	~24	950	620					
			290	~0.4	~24	880	440					
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~160	~1.4	~24	950	710					
			240	~0.8	~24	840	500					
			290	~0.4	~24	720	320					
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~160	~0.8	~16	800	440					
			240	~0.4	~16	720	320					
			290	~0.2	~16	640	220					
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~160	~1.6	~24	1590	1430					
			240	~1.0	~24	1430	1070					
			290	~0.4	~24	1270	760					
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~160	~1.6	~24	1430	5720					
			240	~1.0	~24	1270	640					
			290	~0.4	~24	1110	670					
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~160	~1.6	~16	950	860					
			240	~1.0	~16	880	660					
			290	~0.4	~16	800	480					
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~160	~1.6	~24	1110	1000					
			240	~1.0	~24	950	710					
			290	~0.4	~24	800	480					
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~160	~1.4	~16	560	310					
			240	~0.8	~16	480	220					
			290	~0.3	~16	400	140					
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~160	~1.4	~16	240	120					
			240	~0.8	~16	200	80					
			290	~0.3	~16	160	50					
Inconel 35~43HRC	SL	JC7550 (JC7518)	~120	~1.0	~10	380	110					
			190	~0.5	~10	320	80					
			235	~0.3	~10	250	50					

EXSAP-11 Type

RECOMMENDED CUTTING CONDITIONS/ EXSAP-11 END MILL/Face milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			16					20				
			No. of teeth 2N					No. of teeth 3N				
			ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)	ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)
Carbon steel C50,C55 Below 250HB	PM	JC8050 (JC8118)	~30	~1.0	~10	2980	830	~70	~1.2	~12	2390	1150
			70	~0.5	~10	2590	570	120	~0.6	~12	2070	810
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~30	~1.0	~10	2980	830	~70	~1.2	~12	2390	1150
			70	~0.5	~10	2590	570	120	~0.6	~12	2070	810
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~30	~1.0	~10	2980	830	~70	~1.2	~12	2390	1150
			70	~0.5	~10	2590	570	120	~0.6	~12	2070	810
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~30	~1.0	~10	2590	670	~70	~1.2	~12	2070	930
			70	~0.5	~10	2390	480	120	~0.6	~12	1910	690
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~30	~0.8	~10	2190	530	~70	~1.0	~12	1750	740
			70	~0.4	~10	1990	360	120	~0.5	~12	1590	520
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~30	~0.4	~6	1790	360	~70	~0.5	~8	1430	430
			70	~0.3	~6	1590	250	120	~0.4	~8	1270	300
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~30	~1.0	~10	3580	1000	~70	~1.2	~12	2860	1370
			70	~0.5	~10	3180	700	120	~0.6	~12	2550	990
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~30	~1.0	~10	2790	780	~70	~1.2	~12	2230	1070
			70	~0.5	~10	2590	570	120	~0.6	~12	2070	810
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~30	~1.0	~6	2190	610	~70	~1.2	~8	1750	840
			70	~0.5	~6	1990	440	120	~0.6	~8	1590	620
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~30	~1.0	~10	2980	830	~70	~1.2	~12	2390	1150
			70	~0.5	~10	2590	570	120	~0.6	~12	2070	810
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~30	~0.8	~6	1190	240	~70	~1.0	~8	950	290
			70	~0.4	~6	990	160	120	~0.5	~8	800	190
Inconel 35~43HRC	SL	JC7550 (JC7518)	~30	~0.8	~6	600	110	~70	~1.0	~8	480	130
			70	~0.4	~6	500	70	120	~0.5	~8	400	80

EXSAP-11 Type

RECOMMENDED CUTTING CONDITIONS/ EXSAP-11 END MILL/Face milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			25					32				
			No. of teeth 3N					No. of teeth 4N				
			ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)	ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)
Carbon steel C50,C55 Below 250HB	PM	JC8050 (JC8118)	~70	~1.2	~15	1910	920	~70	~1.5	~18	1590	1020
			120	~0.6	~15	1660	650	120	~0.8	~18	1380	720
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~70	~1.2	~15	1910	920	~70	~1.5	~18	1590	1020
			120	~0.6	~15	1660	650	120	~0.8	~18	1380	720
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~70	~1.2	~15	1910	920	~70	~1.5	~18	1590	1020
			120	~0.6	~15	1660	650	120	~0.8	~18	1380	720
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~70	~1.2	~15	1660	750	~70	~1.5	~18	1380	830
			120	~0.6	~15	1530	550	120	~0.8	~18	1270	610
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~70	~1.0	~15	1400	590	~70	~1.2	~18	1170	660
			120	~0.5	~15	1270	420	120	~0.6	~18	1060	470
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~70	~0.5	~10	1150	350	~70	~0.6	~12	950	380
			120	~0.4	~10	1020	240	120	~0.4	~12	850	270
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~70	~1.2	~15	2290	1100	~70	~1.5	~18	1910	1220
			120	~0.6	~15	2040	800	120	~0.8	~18	1700	880
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~70	~1.2	~15	1780	850	~70	~1.5	~18	1490	950
			120	~0.6	~15	1660	650	120	~0.8	~18	1380	720
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~70	~1.2	~10	1400	670	~70	~1.5	~12	1170	750
			120	~0.6	~10	1270	500	120	~0.8	~12	1060	550
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~70	~1.2	~15	1910	920	~70	~1.5	~18	1590	1020
			120	~0.6	~15	1660	650	120	~0.8	~18	1380	720
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~70	~1.0	~10	760	230	~70	~0.8	~12	640	260
			120	~0.5	~10	640	150	120	~0.5	~12	530	170
Inconel 35~43HRC	SL	JC7550 (JC7518)	~70	~1.0	~10	380	110	~70	~0.8	~12	320	130
			120	~0.5	~10	320	80	120	~0.5	~12	270	90

EXSAP-11 Type

RECOMMENDED CUTTING CONDITIONS/ EXSAP-11 END MILL/Face milling

Work Materials	Insert Type	Insert Grades	Tool dia. (mm)									
			40									
			No. of teeth 5N									
			ℓ (mm)	a_p (mm)	a_e (mm ²)	n (min ⁻¹)	V_f (mm/min)					
Carbon steel C50,C55 Below 250HB	PM	JC8050 (JC8118)	~70	~1.6	~24	1430	1290					
			170	~1.0	~24	1270	950					
Cast steel 1.7225 Below 285HB	PM	JC8050 (JC8118)	~70	~1.6	~24	1430	1290					
			170	~1.0	~24	1270	950					
Die steel 1.2344,1.2379 Below 255HB	PM	JC8050 (JC8118)	~70	~1.6	~24	1430	1290					
			170	~1.0	~24	1270	950					
Mold steel 1.2311,P20 30~36HRC	PM	JC8118 (JC8050)	~70	~1.6	~24	1030	820					
			170	~1.0	~24	950	620					
Mold Steel 1.2311,P21 38~43HRC	PM	JC8118 (JC8050)	~70	~1.4	~24	950	710					
			170	~0.8	~24	840	500					
Hardened die steel 1.2344,1.2379 42~52HRC	PM	JC8118	~70	~0.8	~16	800	440					
			170	~0.4	~16	720	320					
Cast iron GG25 160~260HB	PM	JC8118 (JC8050)	~70	~1.6	~24	1590	1430					
			170	~1.0	~24	1430	1070					
Nodular cast iron GGG70 170~300HB	PM	JC8118 (JC8050)	~70	~1.6	~24	1430	5720					
			170	~1.0	~24	1270	640					
Stainless steel Austenitic AISI 304,316,317	PM (SL)	JC8050 (JC7550)	~70	~1.6	~16	950	860					
			170	~1.0	~16	880	660					
Stainless steel Ferritic/Martensitic AISI 403,420J2,430	PM	JC8050 (JC7560)	~70	~1.6	~24	1110	1000					
			170	~1.0	~24	950	710					
Titanium alloy 35~43HRC	SL	JC7550 (JC7518)	~70	~1.4	~16	560	310					
			170	~0.8	~16	480	220					
Inconel 35~43HRC	SL	JC7550 (JC7518)	~70	~1.4	~16	240	120					
			170	~0.8	~16	200	80					