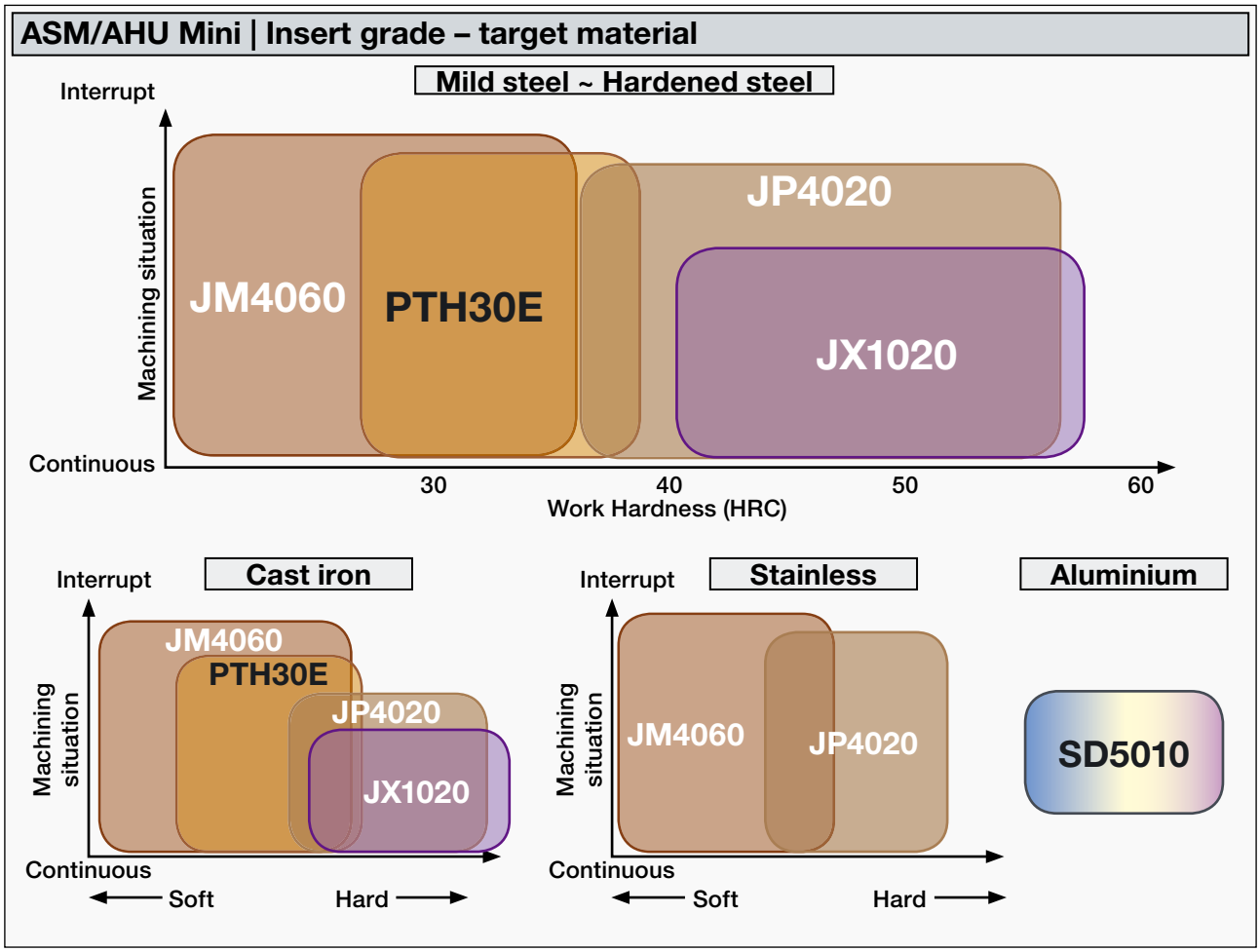
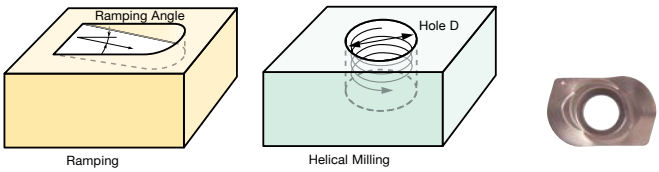
ASM/AHU Mini | Insert grade – target material



ASM/AHU | Mini | Recommended Cutting Conditions for EDMT Inserts

PLEASE NOTE:	1. The use of a machining centre and toolholder with highest precision, concentricity and rigidity	2. All components – including machine and controller – are of the latest technology	
The values in these tables are only recommended under the following conditions:			

Ramping with EDMT-type inserts



Insert	Cutting edge D (mm)	D 8	D 10	D 12	D 16	D 20	D 25	D 32
EDMT	Ramping Angle °	6.4	6.6	4.1	2.2	1.4	1	0.8
	Helical Milling / Hole Dia. (mm)	10 ~ 15	13 ~ 19	17 ~ 23	25 ~ 31	33 ~ 39	43 ~ 49	57 ~ 63

1. The ramp angle should be set within the ranges listed above. Use at ramp angles of 0.5° is recommended.
2. For hole diameters outside the ranges listed above, a pilot hole should be drilled before milling.

1. Der Rampenfräswinkel sollte innerhalb der oben aufgelisteten Bereiche sein. Empfohlen wird ein Winkel von 0,5°.
2. Für Bohrungen mit einem größeren Durchmesser als oben aufgeführt sollte vor dem Helikalfräsen eine Startbohrung durchgeführt werden.

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Indexable Milling Tools

EDMT | Recommended Cutting Conditions | Empfohlene Schnittwerte

Following values are recommended in stable situation. Please adjust V_c, f_z & a_p as necessary.

Side milling standard
Low cutting depth, high feed rate

HSK63 / HSK50 / HSK40

Work piece material		Recommend grade & Target hardness (HRC)	Emulsion	Mist	Air	Parameter		D8 (Z1) Side miling	D10 (Z2) Side miling	D12 (Z3) Side miling	D16 (Z4) Side miling	D20 (Z5) Side miling	D25 (Z6) Side miling	D32 (Z8) Side miling
I	Mild steel <200HB	JM4060 / JX1020	•	•	•	V_c	m/min	200	200	200	200	200	200	200
						n	min^{-1}	7960	6370	5310	3980	3180	2550	1990
					•	f_z	mm/t	0.6	0.6	0.6	0.6	0.6	0.6	0.6
						V_f	mm/min	4770	7640	9550	9550	9550	9170	9550
						a_p	mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3
						a_e	mm	3	5	7	10	11	17	22
						Q	cm^3/min	4.3	11.5	20.1	28.7	31.5	46.8	63.0
II	Carbon-Steel Alloy-Steel <30HRC	JM4060 / JX1020				V_c	m/min	180	180	180	180	180	180	180
			•	•	•	n	min^{-1}	7160	5730	4770	3580	2860	2290	1790
					•	f_z	mm/t	0.6	0.6	0.6	0.6	0.6	0.6	0.6
						V_f	mm/min	4300	6880	8590	8590	8590	8250	8590
						a_p	mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3
						a_e	mm	3	5	7	10	11	17	22
						Q	cm^3/min	3.9	10.3	18.0	25.8	28.3	42.1	56.7
III	Alloy-Steel Tool-Steel 30~40HRC	JP4020 / JX1020				V_c	m/min	150	150	150	150	150	150	150
			•	•	•	n	min^{-1}	5970	4770	3980	2980	2390	1910	1490
					•	f_z	mm/t	0.5	0.5	0.5	0.5	0.5	0.5	0.5
						V_f	mm/min	2980	4770	5970	5970	5970	5730	5970
						a_p	mm	0.25	0.25	0.25	0.25	0.25	0.25	0.25
						a_e	mm	3	5	7	10	11	17	22
						Q	cm^3/min	2.2	6.0	10.4	14.9	16.4	24.4	32.8
IV	Hardened steel 40~50HRC	JP4020 / JX1020				V_c	m/min	120	120	120	120	120	120	120
			•	•	•	n	min^{-1}	4770	3820	3180	2390	1910	1530	1190
					•	f_z	mm/t	0.5	0.5	0.5	0.5	0.5	0.5	0.5
						V_f	mm/min	2390	3820	4770	4770	4770	4580	4770
						a_p	mm	0.2	0.2	0.2	0.2	0.2	0.2	0.2
						a_e	mm	3	5	7	10	11	17	22
						Q	cm^3/min	1.4	3.8	6.7	9.5	10.5	15.6	21.0
V	Stainless steel (wet condition)*	JM4060 / JP4020				V_c	m/min	150	150	150	150	150	150	150
			•	•	•	n	min^{-1}	5970	4770	3980	2980	2390	1910	1490
			•	•	•	f_z	mm/t	0.5	0.5	0.5	0.5	0.5	0.5	0.5
						V_f	mm/min	2980	4770	5970	5970	5970	5730	5970
						a_p	mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3
						a_e	mm	3	5	7	10	11	17	22
						Q	cm^3/min	2.7	7.2	12.5	17.9	19.7	29.2	39.4
VI	Cast-Iron GG EN-GJL	JM4060 / JX1020				V_c	m/min	180	180	180	180	180	180	180
			•	•	•	n	min^{-1}	7160	5730	4770	3580	2860	2290	1790
					•	f_z	mm/t	0.6	0.6	0.6	0.6	0.6	0.6	0.6
						V_f	mm/min	4300	6880	8590	8590	8590	8250	8590
						a_p	mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3
						a_e	mm	3	5	7	10	11	17	22
						Q	cm^3/min	3.9	10.3	18.0	25.8	28.3	42.1	56.7
VII	Cast-Iron GGG EN-GJS EN-JS	JP4020 / JX1020				V_c	m/min	150	150	150	150	150	150	150
			•	•	•	n	min^{-1}	5970	4770	3980	2980	2390	1910	1490
					•	f_z	mm/t	0.4	0.4	0.4	0.4	0.4	0.4	0.4
						V_f	mm/min	2390	3820	4770	4770	4770	4580	4770
						a_p	mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3
						a_e	mm	3	5	7	10	11	17	22
						Q	cm^3/min	2.2	5.7	10.0	14.3	15.7	23.4	31.5
VIII	Titanium	JP4020				V_c	m/min	60	60	60	60	60	60	60
			•	•	•	n	min^{-1}	2390	1910	1590	1190	950	760	600
						f_z	mm/t	0.25	0.25	0.25	0.25	0.25	0.25	0.25
		Recommend: Sharp type (EDMT070220R)				V_f	mm/min	600	950	1190	1190	1190	1150	1190
						a_p	mm	0.2	0.3	0.3	0.3	0.3	0.3	0.3
						a_e	mm	3	5	7	10	11	17	22
						Q	cm^3/min	0.4	1.4	2.5	3.6	3.9	5.9	7.9
IX	Inconel Heat resistant alloy	JP4020				V_c	m/min	40	40	40	40	40	40	40
			•	•	•	n	min^{-1}	1590	1270	1060	800	640	510	400
						f_z	mm/t	0.12	0.12	0.12	0.12	0.12	0.12	0.12
		Recommend: Sharp type (EDMT070220R)				V_f	mm/min	190	310	380	380	380	370	380
						a_p	mm	0.3	0.3	0.3	0.3	0.3	0.3	0.3
						a_e	mm	3	5	7	10	11	17	22
						Q	cm^3/min	0.2	0.5	0.8	1.1	1.3	1.9	2.5

***Comments:** We recommend to increase V_c 30% more in dry condition

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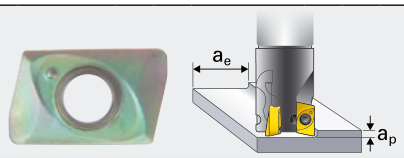
Indexable Milling Tools

JDMT | Recommended Cutting Conditions | Empfohlene Schnittwerte

Following values are recommended in stable situation. Please adjust V_c, f_z & a_p as necessary.



HSK63 / HSK50 / HSK40

Work piece material		Recommend grade & Target hardness (HRC) 30	40	50	Emulsion	Mist	Air	Parameter		D8 (Z1) Side miling	D10 (Z2) Side miling	D12 (Z3) Side miling	D16 (Z4) Side miling	D20 (Z5) Side miling	D25 (Z6) Side miling	D32 (Z8) Side miling
I	Mild steel <200HB	PTH30E / JM4060			•	•	•	V_c	m/min	250	250	250	250	250	250	250
								n	min^{-1}	9950	7960	6630	4970	3980	3180	2490
								f_z	mm/t	0.07	0.07	0.07	0.07	0.07	0.07	0.07
								V_f	mm/min	700	1110	1390	1390	1390	1340	1390
								a_p	mm	2	2	2	2	2	2	2
								a_e	mm	3	4	5	6	8	10	12
								Q	cm^3/min	4.2	8.9	13.9	16.7	22.2	26.8	33.4
II	Carbon-Steel Alloy-Steel <30HRC	PTH30E / JM4060			•	•	•	V_c	m/min	200	200	200	200	200	200	200
								n	min^{-1}	7960	6370	5310	3980	3180	2550	1990
								f_z	mm/t	0.06	0.06	0.06	0.06	0.06	0.06	0.06
								V_f	mm/min	480	760	950	950	950	920	950
								a_p	mm	2	2	2	2	2	2	2
								a_e	mm	3	4	5	6	8	10	12
								Q	cm^3/min	2.9	6.1	9.5	11.4	15.2	18.4	22.8
III	Alloy-Steel Tool-Steel 30~40HRC	JP4020 / JX1020			•	•	•	V_c	m/min	160	160	160	160	160	160	160
								n	min^{-1}	6370	5090	4240	3180	2550	2040	1590
							•	f_z	mm/t	0.06	0.06	0.06	0.06	0.06	0.06	0.06
								V_f	mm/min	380	610	760	760	760	730	760
								a_p	mm	2	2	2	2	2	2	2
								a_e	mm	3	4	5	6	8	10	12
								Q	cm^3/min	2.3	4.9	7.6	9.1	12.2	14.6	18.2
IV	Hardened steel 40~50HRC	JP4020			•	•	•	V_c	m/min	120	120	120	120	120	120	120
								n	min^{-1}	4770	3820	3180	2390	1910	1530	1190
								f_z	mm/t	0.05	0.05	0.05	0.05	0.05	0.05	0.05
								V_f	mm/min	240	380	480	480	480	460	480
								a_p	mm	2	2	2	2	2	2	2
								a_e	mm	3	4	5	6	8	10	12
								Q	cm^3/min	1.4	3.0	4.8	5.8	7.7	9.2	11.5
V	Stainless steel (wet condition)*	JM4060 / JP4020			•	•	•	V_c	m/min	150	150	150	150	150	150	150
								n	min^{-1}	5970	4770	3980	2980	2390	1910	1490
								f_z	mm/t	0.06	0.06	0.06	0.06	0.06	0.06	0.06
								V_f	mm/min	360	570	720	720	720	690	720
								a_p	mm	2	2	2	2	2	2	2
								a_e	mm	3	4	5	6	8	10	12
								Q	cm^3/min	2.2	4.6	7.2	8.6	11.5	13.8	17.3
VI	Cast-Iron GG EN-GJL	JM4060 / PTH30E			•	•	•	V_c	m/min	180	180	180	180	180	180	180
								n	min^{-1}	7160	5730	4770	3580	2860	2290	1790
								f_z	mm/t	0.07	0.07	0.07	0.07	0.07	0.07	0.07
								V_f	mm/min	500	800	1000	1000	1000	960	1000
								a_p	mm	2	2	2	2	2	2	2
								a_e	mm	3	4	5	6	8	10	12
								Q	cm^3/min	3.0	6.4	10.0	12.0	16.0	19.2	24.0
VII	Cast-Iron GGG EN-GJS EN-JS	JP4020 / JX1020			•	•	•	V_c	m/min	150	150	150	150	150	150	150
								n	min^{-1}	5970	4770	3980	2980	2390	1910	1490
							•	f_z	mm/t	0.06	0.06	0.06	0.06	0.06	0.06	0.06
								V_f	mm/min	360	570	720	720	720	690	720
								a_p	mm	2	2	2	2	2	2	2
								a_e	mm	3	4	5	6	8	10	12
								Q	cm^3/min	2.2	4.6	7.2	8.6	11.5	13.8	17.3

***Comments:** We recommend to increase V_c 30% more in dry condition

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JDMT | Recommended Cutting Conditions | Empfohlene Schnittwerte

Following values are recommended in stable situation. Please adjust V_c, f_z & a_p as necessary.

HSK63 / HSK50 / HSK40

Work piece material		Recommend grade & Target hardness (HRC)	Emulsion	Mist	Air	Parameter		D8 (Z1)	D10 (Z2)	D12 (Z3)	D16 (Z4)	D20 (Z5)	D25 (Z6)	D32 (Z8)
		30 40 50						Side miling	Side miling	Side miling	Side miling	Side miling	Side miling	Side miling
VIII	Titanium	JP4020	•	•	•	V_c	m/min	50	50	50	50	50	50	50
						n	min^{-1}	1990	1590	1330	990	800	640	500
						f_z	mm/t	0.05	0.05	0.05	0.05	0.05	0.05	0.05
						V_f	mm/min	100	160	200	200	200	190	200
						a_p	mm	2	2	2	2	2	2	2
						a_e	mm	3	4	5	6	8	10	12
						Q	cm^3/min	0.6	1.3	2.0	2.4	3.2	3.8	4.8
IX	Inconel Heat resistant alloy	JP4020	•	•	•	V_c	m/min	30	30	30	30	30	30	30
						n	min^{-1}	1190	950	800	600	480	380	300
						f_z	mm/t	0.08	0.08	0.08	0.08	0.08	0.08	0.08
						V_f	mm/min	100	150	190	190	190	180	190
						a_p	mm	2	2	2	2	2	2	2
						a_e	mm	3	4	5	6	8	10	12
						Q	cm^3/min	0.6	1.2	1.9	2.3	3.0	3.6	4.6
X	Aluminium (Wet condition)	SD5010	•	•	•	V_c	m/min	500	500	500	500	500	500	500
						n	min^{-1}	19890	15920	13260	9950	7960	6370	4970
						f_z	mm/t	0.08	0.08	0.08	0.08	0.08	0.08	0.08
						V_f	mm/min	1590	2550	3180	3180	3180	3060	3180
						a_p	mm	2	2	2	2	2	2	2
						a_e	mm	4	5	6	8	10	12.5	16
						Q	cm^3/min	13	26	38	51	64	77	102
	Cast Aluminium (Wet condition)	SD5010	•	•	•	V_c	m/min	450	450	450	450	450	450	450
						n	min^{-1}	17900	14320	11940	8950	7160	5730	4480
						f_z	mm/t	0.08	0.08	0.08	0.08	0.08	0.08	0.08
						V_f	mm/min	1430	2290	2860	2860	2860	2750	2860
						a_p	mm	2	2	2	2	2	2	2
						a_e	mm	4	5	6	8	10	12.5	16
						Q	cm^3/min	11	23	34	46	57	69	92
	Pure Copper (Wet condition)	SD5010	•	•	•	V_c	m/min	300	300	300	300	300	300	300
						n	min^{-1}	11940	9550	7960	5970	4770	3820	2980
						f_z	mm/t	0.08	0.08	0.08	0.08	0.08	0.08	0.08
						V_f	mm/min	950	1530	1910	1910	1910	1830	1910
						a_p	mm	2	2	2	2	2	2	2
						a_e	mm	4	5	6	8	10	12.5	16
						Q	cm^3/min	8	15	23	31	38	46	61

***Comments:** We recommend to increase V_c 30% more in dry condition

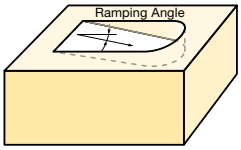
ASM/AHU | Mini | Recommended Cutting Conditions for **JDMT** Inserts

PLEASE NOTE:

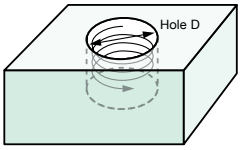
The values in these tables are only recommended under the following conditions:

1. The use of a machining centre and toolholder with highest precision, concentricity and rigidity
2. All components – including machine and controller – are of the latest technology

Ramping with JDMT-type inserts



Ramping



Helical Milling

Insert	Cutting edge D (mm)	D8	D10	D12	D16	D20	D25	D32
JDMT	Ramping Angle °	8.3	7.3	5	2.9	2	1.5	1
	Helical Milling / Hole Dia. (mm)	10 ~ 15	13 ~ 19	17 ~ 23	25 ~ 31	33 ~ 39	43 ~ 49	57 ~ 63

1. The ramp angle should be set within the ranges listed above. Use at ramp angles of 1° is recommended.
2. For hole diameters outside the ranges listed above, a pilot hole should be drilled before milling.

1. Der Rampenfräswinkel sollte innerhalb der oben aufgelisteten Bereiche sein. Empfohlen wird ein Winkel von 1°.
2. Für Bohrungen mit einem größeren Durchmesser als oben aufgeführt sollte vor dem Helikalfräsen eine Startbohrung durchgeführt werden.

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