ASRF/M | Recommended Cutting Conditions

ISO40 / HSK63

Work piece material		Recommend grade & Target hardness (HRC) 30	40	50	Emulsion	Mist	Air	Parameter		D 35 (Z3) Modular Q max	3D - 5D	5D - 7D	> 7D	D 42 (Z4) modular & bore type Q max	3D - 5D	5D - 7D	> 7D
I II	Carbon-Steel Alloy-Steel <30HRC	GX2140					•	V_c	m/min	200	160	130	100	200	160	130	100
								n	min^{-1}	1,820	1,460	1,180	910	1,520	1,210	990	760
		JS4060			•	•	•	f_z	mm/t	2	2	1.5	1.5	2	2	1.5	1.5
		JX1060			•	•	•	V_f	mm/min	10,910	8,730	5,320	4,090	12,130	9,700	5,910	4,550
		JS4045 *					•	a_p	mm	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75
		JX1045 ×					•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
								Q	cm^3/min	401	321	127	75	537	429	170	101
III	Alloy-Steel Tool-Steel 30~40HRC	GX2140					•	V_c	m/min	160	128	104	80	160	128	104	80
								n	min^{-1}	1,460	1,160	950	730	1,210	970	790	610
		JS4060			•	•	•	f_z	mm/t	2	2	1.5	1.5	2	2	1.5	1.5
		JX1060			•	•	•	V_f	mm/min	8,730	6,980	4,260	3,270	9,700	7,760	4,730	3,640
		JS4045 *					•	a_p	mm	1.2	1.2	0.8	0.6	1.2	1.2	0.8	0.6
		JX1045 ×					•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
			JP4020		•	•	•	Q	cm^3/min	257	205	81	48	343	275	109	64
IV	Pre-Hardened Steel Tool-Steel 40~50HRC							V_c	m/min	120	96	78	60	120	96	78	60
								n	min^{-1}	1,090	870	710	550	910	730	590	450
								f_z	mm/t	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
		JS4045 *					•	V_f	mm/min	4,910	3,930	2,550	1,960	5,460	4,370	2,840	2,180
		JX1045 ×					•	a_p	mm	1	1	0.7	0.5	1	1	0.7	0.5
			JP4020		•	•	•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
								Q	cm^3/min	120	96	41	24	161	129	54	32
V	Hardened steel Tool-Steel 50~55HRC							V_c	m/min	100	80	65	50	100	80	65	50
								n	min^{-1}	910	730	590	450	760	610	490	380
								f_z	mm/t	1	1	0.7	0.7	1	1	0.7	0.7
								V_f	mm/min	2,730	2,180	1,240	950	3,030	2,430	1,380	1,060
								a_p	mm	0.7	0.7	0.5	0.35	0.7	0.7	0.5	0.35
			JP4020		•	•	•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
				JP4005	•	•	•	Q	cm^3/min	47	37	14	8	63	50	19	11
V	Hardened steel Tool-Steel > 55HRC							V_c	m/min	80	64	52	40	80	64	52	40
								n	min^{-1}	730	580	470	360	610	490	390	300
								f_z	mm/t	0.8	0.8	0.5	0.5	0.8	0.8	0.5	0.5
								V_f	mm/min	1,750	1,400	710	550	1,940	1,550	790	610
								a_p	mm	0.5	0.5	0.3	0.25	0.5	0.5	0.3	0.25
			JP4020		•	•	•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
				JP4005	•	•	•	Q	cm^3/min	21	17	6	3	29	23	8	4
VIII	Cast-Iron GG EN-JL10** EN-GJL-***	GX2140					•	V_c	m/min	200	160	130	100	200	160	130	100
								n	min^{-1}	1,820	1,460	1,180	910	1,520	1,210	990	760
		JS4060			•	•	•	f_z	mm/t	2	2	1.5	1.5	2	2	1.5	1.5
		JX1060			•	•	•	V_f	mm/min	10,910	8,730	5,320	4,090	12,130	9,700	5,910	4,550
		JS4045 *					•	a_p	mm	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75
		JX1045 ×					•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
			JP4020		•	•	•	Q	cm^3/min	401	321	127	75	537	429	170	101
VIII	Cast-Iron GGG EN-JS10** EN-GJS-***	GX2140					•	V_c	m/min	160	128	104	80	160	128	104	80
								n	min^{-1}	1,460	1,160	950	730	1,210	970	790	610
		JS4060			•	•	•	f_z	mm/t	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
		JX1060			•	•	•	V_f	mm/min	6,550	5,240	3,410	2,620	7,280	5,820	3,780	2,910
		JS4045 *					•	a_p	mm	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75
		JX1045 ×					•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
			JP4020		•	•	•	Q	cm^3/min	241	193	81	48	322	258	109	64
VI	Stainless Steels High alloy Steels							V_c	m/min	160	128	104	80	160	128	104	80
		JM4060			•	•	•	n	min^{-1}	1,460	1,160	950	730	1,210	970	790	610
		JX1060			•	•	•	f_z	mm/t	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
		JS4045 *					•	V_f	mm/min	6,550	5,240	3,410	2,620	7,280	5,820	3,780	2,910
		JX1045 ×					•	a_p	mm	1.2	1.2	0.8	0.6	1.2	1.2	0.8	0.6
			JP4020		•	•	•	a_e	mm	24.5	24.5	24.5	24.5	29.5	29.5	29.5	29.5
								Q	cm^3/min	193	154	65	39	258	206	87	52

× to be replaced by JS4045

NOTES

1. Make sure to use air blow to remove the thick and heavy chips produced when using this tool. Blockage of chips can result in tool breakage. The recommended method is „Spindle centre through air blast". (Pay much attention to chip removal when using vertical machining centres).
2. To maintain safe cutting conditions ensure effective chip removal before running machine unmanned.
3. To avoid tool breakage, it is important to replace the inserts when wear occurs.

BEMERKUNGEN

1. Wenn möglich, während der Bearbeitung Luft-Kühlung einsetzen, um die dicken & schweren Späne gut abzuleiten bzw. aus der Folge-Bearbeitung fernzuhalten. Verbleibende Späne könnten die WSP beschädigen. Wir empfehlen, wenn möglich, die Luft durch das Werkzeug/den Halter zu fördern. Bitte aufpassen bei vertikalen Bearbeitungen (von Zeit zu Zeit ist die Maschine zu stoppen, um Späne zu entsorgen).
2. Um den Prozess zu sichern, bitte vor der Bearbeitung die Späne-Entsorgung bedenken (eventuell horizontal spannen).
3. Um Wendeplatten-Brüche zu vermeiden, ist es wichtig, die Platten bei auftretendem Verschleiß zu wechseln/zu drehen.

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ASRF/M | Recommended Cutting Conditions

ISO50 / HSK100

Work piece material		Recommend grade & Target hardness (HRC) 30	40	50	Emulsion	Mist	Air	Parameter		D 50 (Z4) bore type Q max	3D - 5D	5D - 7D	> 7D	D 50 / D 52 (Z5) bore type Q max	3D - 5D	5D - 7D	> 7D
I II	Carbon-Steel Alloy-Steel <30HRC	GX2140					•	V_c	m/min	200	160	130	100	200	160	130	100
								n	min^{-1}	1,270	1,020	830	640	1,220	980	800	610
		JS4060			•	•	•	f_z	mm/t	2	2	1.5	1.5	2	2	1.5	1.5
		JX1060			•	•	•	V_f	mm/min	10,190	8,150	4,970	3,820	12,240	9,790	5,970	4,590
		JS4045 *					•	a_p	mm	1.5	1.2	1.1	0.9	1.5	1.5	1.0	0.75
		JX1045 ×					•	a_e	mm	35	35	35	35	37	37	37	37
								Q	cm^3/min	535	342	183	120	679	543	215	127
III	Alloy-Steel Tool-Steel 30~40HRC	GX2140					•	V_c	m/min	160	128	104	80	160	128	104	80
								n	min^{-1}	1,020	810	660	510	980	780	640	490
		JS4060			•	•	•	f_z	mm/t	2	2	1.5	1.5	2	2	1.5	1.5
		JX1060			•	•	•	V_f	mm/min	8,150	6,520	3,970	3,060	9,790	7,840	4,770	3,670
		JS4045 *					•	a_p	mm	1.2	1.0	0.8	0.7	1.2	1.2	0.8	0.6
		JX1045 ×					•	a_e	mm	35	35	35	35	37	37	37	37
		JP4020			•	•	•	Q	cm^3/min	342	219	117	77	435	348	138	81
IV	Pre-Hardened Steel Tool-Steel 40~50HRC							V_c	m/min	120	96	78	60	120	96	78	60
								n	min^{-1}	760	610	500	380	730	590	480	370
								f_z	mm/t	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
		JS4045 *					•	V_f	mm/min	4,580	3,670	2,380	1,830	5,510	4,410	2,860	2,200
		JX1045 ×					•	a_p	mm	1	0.8	0.7	0.6	1	1	0.7	0.5
		JP4020			•	•	•	a_e	mm	35	35	35	35	37	37	37	37
								Q	cm^3/min	160	103	58	38	204	163	69	41
V	Hardened steel Tool-Steel 50~55HRC							V_c	m/min	100	80	65	50	100	80	65	50
								n	min^{-1}	640	510	410	320	610	490	400	310
								f_z	mm/t	1	1	0.7	0.7	1	1	0.7	0.7
								V_f	mm/min	2,550	2,040	1,160	890	3,060	2,450	1,390	1,070
								a_p	mm	0.7	0.6	0.5	0.4	0.7	0.7	0.5	0.35
		JP4020			•	•	•	a_e	mm	35	35	35	35	37	37	37	37
			JP4005		•	•	•	Q	cm^3/min	62	40	20	13	79	63	23	14
V	Hardened steel Tool-Steel > 55HRC							V_c	m/min	80	64	52	40	80	64	52	40
								n	min^{-1}	510	410	330	250	490	390	320	240
								f_z	mm/t	0.8	0.8	0.5	0.5	0.8	0.8	0.5	0.5
								V_f	mm/min	1,630	1,300	660	510	1,960	1,570	800	610
								a_p	mm	0.5	0.4	0.35	0.3	0.5	0.5	0.3	0.25
		JP4020			•	•	•	a_e	mm	35	35	35	35	37	37	37	37
			JP4005		•	•	•	Q	cm^3/min	29	18	8	5	36	29	10	6
VIII	Cast-Iron GG EN-JL10** EN-GJL-***	GX2140					•	V_c	m/min	200	160	130	100	200	160	130	100
								n	min^{-1}	1,270	1,020	830	640	1,220	980	800	610
		JS4060			•	•	•	f_z	mm/t	2	2	1.5	1.5	2	2	1.5	1.5
		JX1060			•	•	•	V_f	mm/min	10,190	8,150	4,970	3,820	12,240	9,790	5,970	4,590
		JS4045 *					•	a_p	mm	1.5	1.2	1.1	0.9	1.5	1.5	1.0	0.75
		JX1045 ×					•	a_e	mm	35	35	35	35	37	37	37	37
		JP4020			•	•	•	Q	cm^3/min	535	342	183	120	679	543	215	127
VIII	Cast-Iron GGG EN-JS10** EN-GJS-***	GX2140					•	V_c	m/min	160	128	104	80	160	128	104	80
								n	min^{-1}	1,020	810	660	510	980	780	640	490
		JS4060			•	•	•	f_z	mm/t	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
		JX1060			•	•	•	V_f	mm/min	6,110	4,890	3,180	2,440	7,350	5,880	3,820	2,940
		JS4045 *					•	a_p	mm	1.5	1.2	1.1	0.9	1.5	1.5	1.0	0.75
		JX1045 ×					•	a_e	mm	35	35	35	35	37	37	37	37
		JP4020			•	•	•	Q	cm^3/min	321	205	117	77	408	326	138	82
VI	Stainless Steels High alloy Steels							V_c	m/min	160	128	104	80	160	128	104	80
		JM4060			•	•	•	n	min^{-1}	1,020	810	660	510	980	780	640	490
		JX1060			•	•	•	f_z	mm/t	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
		JS4045 *					•	V_f	mm/min	6,110	4,890	3,180	2,440	7,350	5,880	3,820	2,940
		JX1045 ×					•	a_p	mm	1.2	1.0	0.8	0.7	1.2	1.2	0.8	0.6
		JP4020			•	•	•	a_e	mm	35	35	35	35	37	37	37	37
								Q	cm^3/min	257	164	93	61	326	261	110	65

× to be replaced by JS4045

IMPORTANTE:

1. Questo utensile genera trucioli spessi e pesanti. Accertarsi una buona rimozione degli stessi per mezzo di aria, per evitare danni causati dal blocco dei trucioli. Il metodo raccomandato è l'adduzione interna dell'aria nel mandrino. (Porre maggior attenzione nel caso di lavorazioni in cavità con macchine ad asse verticale).
2. Prima di eseguire lavorazione non presidiate, assicurarsi che la rimozione dei trucioli e le condizioni di taglio siano garantite in sicurezza.
3. I trucioli possono causare tagli, scottature o danni agli occhi. Assicurarsi di installare una copertura di sicurezza intorno all'utensile e di indossare gli occhiali di sicurezza prima di eseguire la lavorazione.
4. Sostituire l'inserto in tempo, allo scopo di evitare che una maggiore usura possa danneggiare il corpo fresa.

OBSERVACIONES

1. Esta herramienta produce virutas gruesas y pesadas. Se debe asegurar la evacuación de la viruta para evitar roturas de placa. Se recomienda el soplado de aire a través del cabezal. (Se debe prestar especial atención a la evacuación de viruta al mecanizar cajeras en centros verticales)
2. Antes de dejar la máquina trabajando sola asegurarse de sacar las virutas y de utilizar condiciones de corte de seguridad.
3. Las virutas pueden provocar cortes, quemadas y heridas oculares. Asegurarse de tener instalada la protección de seguridad (puerta o similar.) mientras la herramienta trabaja y de llevar gafas durante las manipulaciones.
4. Sustituir las placas de forma preventiva para evitar roturas por desgaste.

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ASRF/M | Recommended Cutting Conditions

ISO50 / HSK100

D 63 (Z5) bore type				D 66 (Z5) bore type				D 80 (Z6) bore type				D 100 (Z8) bore type			
Q max	3D - 5D	5D - 7D	> 7D	Q max	3D - 5D	5D - 7D	> 7D	Q max	3D - 5D	5D - 7D	> 7D	Q max	3D - 5D	5D - 7D	> 7D
200	160	130	100	200	160	130	100	200	160	130	100	200	160	130	100
1,010	810	660	510	960	770	630	480	800	640	520	400	640	510	410	320
2	2	1.5	1.5	2	2	1.5	1.5	2	2	1.5	1.5	2	2	1.5	1.5
10,110	8,080	4,930	3,790	9,650	7,720	4,700	3,620	9,550	7,640	4,660	3,580	10,190	8,150	4,970	3,820
1.5	1.2	1.1	0.9	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
667	427	228	150	695	556	220	130	860	688	273	161	1,146	917	363	215
160	128	104	80	160	128	104	80	160	128	104	80	160	128	104	80
810	650	530	400	770	620	500	390	640	510	410	320	510	410	330	250
2	2	1.5	1.5	2	2	1.5	1.5	2	2	1.5	1.5	2	2	1.5	1.5
8,080	6,470	3,940	3,030	7,720	6,170	3,760	2,890	7,640	6,110	3,720	2,860	8,150	6,520	3,970	3,060
1.2	1.0	0.8	0.7	1.2	1.2	0.8	0.6	1.2	1.2	0.8	0.6	1.2	1.2	0.8	0.6
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
427	273	146	96	445	355	141	83	550	440	174	103	734	587	232	138
120	96	78	60	120	96	78	60	120	96	78	60	120	96	78	60
610	490	390	300	580	460	380	290	480	380	310	240	380	310	250	190
1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
4,550	3,640	2,360	1,820	4,340	3,470	2,260	1,740	4,300	3,440	2,230	1,720	4,580	3,670	2,380	1,830
1	0.8	0.7	0.6	1	1	0.7	0.5	1	1	0.7	0.5	1	1	0.7	0.5
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
200	128	73	48	208	167	71	42	258	206	87	52	344	275	116	69
100	80	65	50	100	80	65	50	100	80	65	50	100	80	65	50
510	400	330	250	480	390	310	240	400	320	260	200	320	250	210	160
1	1	0.7	0.7	1	1	0.7	0.7	1	1	0.7	0.7	1	1	0.7	0.7
2,530	2,020	1,150	880	2,410	1,930	1,100	840	2,390	1,910	1,090	840	2,550	2,040	1,160	890
0.7	0.6	0.5	0.4	0.7	0.7	0.5	0.35	0.7	0.7	0.5	0.35	0.7	0.7	0.5	0.35
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
78	50	25	16	81	65	24	14	100	80	30	18	134	107	40	23
80	64	52	40	80	64	52	40	80	64	52	40	80	64	52	40
400	320	260	200	390	310	250	190	320	250	210	160	250	200	170	130
0.8	0.8	0.5	0.5	0.8	0.8	0.5	0.5	0.8	0.8	0.5	0.5	0.8	0.8	0.5	0.5
1,620	1,290	660	510	1,540	1,230	630	480	1,530	1,220	620	480	1,630	1,300	660	510
0.5	0.4	0.35	0.3	0.5	0.5	0.3	0.25	0.5	0.5	0.3	0.25	0.5	0.5	0.3	0.25
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
36	23	10	7	37	30	10	6	46	37	12	7	61	49	16	10
200	160	130	100	200	160	130	100	200	160	130	100	200	160	130	100
1,010	810	660	510	960	770	630	480	800	640	520	400	640	510	410	320
2	2	1.5	1.5	2	2	1.5	1.5	2	2	1.5	1.5	2	2	1.5	1.5
10,110	8,080	4,930	3,790	9,650	7,720	4,700	3,620	9,550	7,640	4,660	3,580	10,190	8,150	4,970	3,820
1.5	1.2	1.1	0.9	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
667	427	228	150	695	556	220	130	860	688	273	161	1,146	917	363	215
160	128	104	80	160	128	104	80	160	128	104	80	160	128	104	80
810	650	530	400	770	620	500	390	640	510	410	320	510	410	330	250
1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
6,060	4,850	3,150	2,430	5,790	4,630	3,010	2,310	5,730	4,580	2,980	2,290	6,110	4,890	3,180	2,440
1.5	1.2	1.1	0.9	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75	1.5	1.5	1.0	0.75
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
400	256	146	96	417	333	141	83	516	412	174	103	687	550	233	137
160	128	104	80	160	128	104	80	160	128	104	80	160	128	104	80
810	650	530	400	770	620	500	390	640	510	410	320	510	410	330	250
1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2	1.5	1.5	1.2	1.2
6,060	4,850	3,150	2,430	5,790	4,630	3,010	2,310	5,730	4,580	2,980	2290	6,110	4,890	3,180	2,440
1.2	1.0	0.8	0.7	1.2	1.2	0.8	0.6	1.2	1.2	0.8	0.6	1.2	1.2	0.8	0.6
44	44	44	44	48	48	48	48	60	60	60	60	75	75	75	75
320	205	116	77	334	267	113	67	413	330	139	82	550	440	186	110

NOTES

1. Utilisez de l´air pour évacuer les copeaux lourds et épais quand vous usinez avec cet outil. Le ré-usinage des copeaux peut endommager l´outil. La méthode recommandée est l´utilisation d´une broche avec refroidissement par le centre. (Accordez beaucoup d´attention à l´évacuation des copeaux avec les centres verticaux)
2. Pour sauvegarder les conditions de coupe assurez vous de la bonne évacuation des copeaux avant de lancer l´usinage.
3. Pour prévenir la cassa d´outil, il est important de remplacer les plaquettes dés l´apparition de signe d´usure.

NOTAS

1. Assegure-se que usa ar na remoção das limalhas grossas e pesadas, produzidas quando se utiliza esta ferramenta. A obstrução de limalhas pode provocar a quebra da ferramenta. Recomenda-se o método de jato de ar no eixo-árvore. (Tomar especial cuidado na remoção de limalhas aquando do uso de centros de maquinação vertical).
2. Para manter condições de corte seguras, certifique-se previamente da remoção eficiente das limalhas na maquinação sem operador.
3. Para evitar quebra da ferramenta, é importante substituir as plaquetes ao primeiro sinal de desgaste.

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