

AHR | Mini – Recommended Cutting Conditions

Modular Type · Overhang < 2D – >5D



Bore Type · Overhang < 2D – >5D



Work piece material	Insert Grade	Parameter	Dia 35-z3				Dia 42-z4			
			< 2D	2D-3D	3D-4D	>5D	< 2D	2D-3D	3D-4D	>5D
I II III Carbon-Steels Alloy-Steels <30HRC Pre-Hardened Steels Alloy-Steels 30~40HRC	JP4020 JS4060 JX1015 JX1045	n min ⁻¹	1,640	1,370	1,190	820	1,370	1,140	990	690
		V _e m/min	180	150	130	90	180	150	130	90
		V _r mm/min	3,450	2,470	1,790	1,230	3,840	2,740	1,980	1,380
		f _r mm/tooth	0.7	0.6	0.5	0.5	0.7	0.6	0.5	0.5
		a _p mm	3.5	3	2	1.5	3.5	3	2	1.5
		a _e mm	25	21	21	18	29	25	25	21
		Q cm ³ /min	302	156	76	34	390	206	99	44
		n min ⁻¹	1,370	1,190	1,010	820	1,140	990	840	690
		V _e m/min	150	130	110	90	150	130	110	90
		V _r mm/min	1,650	1,430	1,220	990	1,830	1,590	1,350	1,110
IV Pre-Hardened Steels Alloy-Steels 40~50HRC	JP4020 JX1015	f _r mm/tooth	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
		a _p mm	2	2	1.5	1	2	2	1.5	1
		a _e mm	25	21	21	18	29	25	25	21
		Q cm ³ /min	83	61	39	18	107	80	51	24
		n min ⁻¹	1,140	970	820	730	950	810	690	610
		V _e m/min	125	106	90	80	125	106	90	80
		V _r mm/min	690	590	500	440	760	650	560	490
		f _r mm/tooth	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
		a _p mm	1.5	1	0.5	0.5	1.5	1	0.5	0.5
		a _e mm	25	21	21	18	29	25	25	21
V Pre-Hardened Steels Alloy steels (50-55HRC)	JX1005 JP4020 JX1015	Q cm ³ /min	26	13	6	4	34	17	7	6
		n min ⁻¹	550	550	550	550	460	460	460	460
		V _e m/min	60	60	60	60	60	60	60	60
		V _r mm/min	90	90	90	90	100	100	100	100
		f _r mm/tooth	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
		a _p mm	0.5	0.4	0.3	0.2	0.5	0.4	0.3	0.2
		a _e mm	25	21	21	18	29	25	25	21
		Q cm ³ /min	2	1	1	1	2	1	1	1
		n min ⁻¹	1,640	1,370	1,190	820	1,370	1,140	990	690
		V _e m/min	180	150	130	90	180	150	130	90
VI Pre-Hardened Steels Alloy steels (58-62HRC)	JX1005 JP4020	V _r mm/min	3,450	2,470	1,790	1,230	3,840	2,740	1,980	1,380
		f _r mm/tooth	0.7	0.6	0.5	0.5	0.7	0.6	0.5	0.5
		a _p mm	3.5	3	2	1.5	3.5	3	2	1.5
		a _e mm	25	21	21	18	29	25	25	21
		Q cm ³ /min	302	156	76	34	390	206	99	44
		n min ⁻¹	1,640	1,370	1,190	820	1,370	1,140	990	690
		V _e m/min	180	150	130	90	180	150	130	90
		V _r mm/min	3,450	2,470	1,790	1,230	3,840	2,740	1,980	1,380
		f _r mm/tooth	0.7	0.6	0.5	0.5	0.7	0.6	0.5	0.5
		a _p mm	3.5	3	2	1.5	3.5	3	2	1.5
VIII Cast-Iron FC FCD	JX1015 JX1045 JS4060	a _e mm	25	21	21	18	29	25	25	21
		Q cm ³ /min	302	156	76	34	390	206	99	44

Dia 52-z5				
< 2D	2D-3D	3D-4D	>5D	
1,110	920	800	560	
180	150	130	90	
3,890	2,760	2,000	1,400	
0.7	0.6	0.5	0.5	
3.5	3	2	1.5	
36	31	31	26	
491	257	124	55	
920	800	680	560	
150	130	110	90	
1,840	1,600	1,360	1,120	
0.4	0.4	0.4	0.4	
2	2	1.5	1	
36	31	31	26	
133	100	64	30	
770	650	560	490	
125	106	90	80	
770	650	560	490	
0.2	0.2	0.2	0.2	
1.5	1	0.5	0.5	
36	31	31	26	
42	21	9	7	
370	370	370	370	
60	60	60	60	
100	100	100	100	
0.05	0.05	0.05	0.05	
0.5	0.4	0.3	0.2	
36	31	31	26	
2	2	1	1	
1,110	920	800	560	
180	150	130	90	
3,890	2,760	2,000	1,400	
0.7	0.6	0.5	0.5	
3.5	3	2	1.5	
36	31	31	26	
491	257	124	55	

Bore Type · Overhang < 2D – >5D



Bore Type · Overhang < 1D – 3D



Work piece material	Insert Grade	Parameter	Dia 66-z6				Dia 80-z7			Dia 100-z8			Dia 125-z9		
			< 2D	2D-3D	3D-4D	>5D	< 1D	1D-2D	2D-3D	< 1D	1D-2D	2D-3D	< 1D	1D-2D	2D-3D
I II III Carbon-Steels Alloy-Steels <30HRC Pre-Hardened Steels Alloy-Steels 30~40HRC	JP4020 JS4060 JX1015 JX1045	n min ⁻¹	870	730	630	440	720	520	360	580	420	290	460	340	230
		V _e m/min	180	150	130	90	180	130	90	180	130	90	180	130	90
		V _r mm/min	3,660	2,630	1,890	1,320	3,530	1,820	1,260	3,250	1,680	1,160	2,900	1,530	1,040
		f _r mm/tooth	0.7	0.6	0.5	0.5	0.7	0.5	0.5	0.7	0.5	0.5	0.7	0.5	0.5
		a _p mm	5	4	2	1.5	5	4	3	5	4	3	5	4	3
		a _e mm	46	40	40	33	55	50	40	70	60	50	90	75	65
		Q cm ³ /min	842	421	152	65	971	364	152	1,138	404	174	1,305	459	203
		n min ⁻¹	730	630	540	440	600	440	360	480	360	290	390	290	230
		V _e m/min	150	130	110	90	150	110	90	150	110	90	150	110	90
		V _r mm/min	1,760	1,520	1,300	1,060	1,680	1,240	1,010	1,540	1,160	930	1,410	1,050	830
IV Pre-Harden Steels Alloy-Steels 40~50HRC	JP4020 JX1015	f _r mm/tooth	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
		a _p mm	3	2.5	1	1	3	2	2	3	2	2	3	2	2
		a _e mm	46	40	40	33	55	50	40	70	60	50	90	75	65
		Q cm ³ /min	243	152	52	35	278	124	81	324	140	93	381	158	108
		n min ⁻¹	610	520	440	390	500	360	320	400	290	260	320	230	210
		V _e m/min	125	106	90	80	125	90	80	125	90	80	125	90	80
		V _r mm/min	740	630	530	470	700	510	450	640	470	420	580	420	380
		f _r mm/tooth	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
		a _p mm	2	1.5	1.0	0.5	2	1.5	1	2	1.5	1	2	1.5	1
		a _e mm	46	40	40	33	55	50	40	70	60	50	90	75	65
V Pre-Hardened Steels Alloy steels (50-55HRC)	JX1005 JP4020 JX1015	Q cm ³ /min	69	38	22	8	77	39	18	90	43	21	105	48	25
		n min ⁻¹	290	290	290	290	240	240	240	200	200	200	160	160	160
		V _e m/min	60	60	60	60	60	60	60	60	60	60	60	60	60
		V _r mm/min	90	90	90	90	90	90	90	80	80	80	80	80	80
		f _r mm/tooth	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
		a _p mm	0.5	0.4	0.3	0.2	0.5	0.3	0.2	0.5	0.3	0.2	0.5	0.3	0.2
		a _e mm	46	40	40	33	55	50	40	70	60	50	90	75	65
		Q cm ³ /min	3	2	2	1	3	2	1	3	2	1	4	2	2
		n min ⁻¹	870	730	630	440	720	520	360	580	420	290	460	340	230
		V _e m/min	180	150	130	90	180	130	90	180	130	90	180	130	90
VIII Cast-Iron FC FCD	JX1015 JX1045 JS4060	V _r mm/min	3,660	2,630	1,890	1,320	3,530	1,820	1,260	3,250	1,680	1,160	2,900	1,530	1,040
		f _r mm/tooth	0.7	0.6	0.5	0.5	0.7	0.5	0.5	0.7	0.5	0.5	0.7	0.5	0.5
		a _p mm	5	4	3	2	5	4	3	5	4	3	5	4	3
		a _e mm	46	40	40	33	55	50	40	70	60	50	90	75	65
		Q cm ³ /min	842	421	227	88	971	364	152	1,138	404	174	1,305	459	203

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