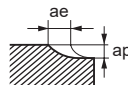


Recommended Cutting Conditions

(inch)

Workpiece Material						Hardened Steels (45—55HRC)				Hardened Steels (55—65HRC)				Hardened Steels (65—70HRC)			
						Revolution (min ⁻¹)	Feed Rate (IPM)	Depth of Cut ap	Width of Cut ae	Revolution (min ⁻¹)	Feed Rate (IPM)	Depth of Cut ap	Width of Cut ae	Revolution (min ⁻¹)	Feed Rate (IPM)	Depth of Cut ap	Width of Cut ae
Dia. DC (mm) (inch)	Corner Radius RE (mm) (inch)	Usable Length LU (mm) (inch)															
0.5	.020	0.05	.002	2	.079	25000	39.4	.0002	.004	19000	29.9	.0002	.003	13000	20.1	.0001	.003
0.5	.020	0.1	.004	2	.079	25000	39.4	.0003	.004	19000	29.9	.0002	.003	13000	20.1	.0002	.003
0.6	.024	0.05	.002	2	.079	21000	39.4	.0002	.004	16000	29.9	.0002	.003	11000	20.1	.0001	.003
0.6	.024	0.1	.004	2	.079	21000	39.4	.0003	.004	16000	29.9	.0002	.003	11000	20.1	.0002	.003
0.6	.024	0.1	.004	4	.157	18000	35.0	.0002	.004	16000	29.9	.0002	.003	11000	20.1	.0002	.003
0.6	.024	0.2	.008	2	.079	24000	43.3	.0004	.004	19000	35.0	.0003	.003	16000	29.9	.0002	.003
0.8	.031	0.05	.002	4	.157	16000	29.9	.0006	.005	12000	22.4	.0004	.004	7900	15.0	.0004	.004
0.8	.031	0.1	.004	4	.157	16000	29.9	.0008	.005	12000	22.4	.0006	.004	7900	15.0	.0004	.004
0.8	.031	0.2	.008	4	.157	20000	37.4	.0012	.005	16000	29.9	.0010	.004	12000	22.4	.0008	.004
0.8	.031	0.3	.012	4	.157	20000	37.4	.0012	.005	16000	29.9	.0010	.004	12000	22.4	.0008	.004
1	.039	0.05	.002	4	.157	13000	39.4	.0006	.006	9500	29.9	.0004	.005	6400	20.1	.0004	.005
1	.039	0.1	.004	4	.157	13000	39.4	.0008	.006	9500	29.9	.0006	.005	6400	20.1	.0006	.005
1	.039	0.1	.004	6	.236	11000	35.0	.0006	.005	6400	20.1	.0004	.004	6400	20.1	.0004	.004
1	.039	0.2	.008	4	.157	16000	51.2	.0012	.006	9500	29.9	.0010	.005	6400	20.1	.0008	.005
1	.039	0.2	.008	6	.236	13000	39.4	.0008	.005	6400	20.1	.0008	.004	6400	20.1	.0006	.004
1	.039	0.3	.012	4	.157	16000	51.2	.0012	.006	9500	29.9	.0010	.005	6400	20.1	.0008	.005
1	.039	0.4	.016	4	.157	16000	51.2	.0016	.006	9500	29.9	.0012	.005	6400	20.1	.0010	.005
1.5	.059	0.1	.004	4	.157	14000	66.9	.0010	.009	11000	36.2	.0006	.008	7200	22.4	.0004	.008
1.5	.059	0.1	.004	6	.236	11000	55.1	.0010	.007	9200	28.7	.0006	.006	5700	18.1	.0004	.006
1.5	.059	0.1	.004	10	.394	11000	55.1	.0010	.007	9200	28.7	.0006	.006	5700	18.1	.0004	.006
1.5	.059	0.2	.008	4	.157	14000	66.9	.0020	.009	11000	36.2	.0014	.008	7200	22.4	.0010	.008
1.5	.059	0.2	.008	6	.236	11000	55.1	.0020	.007	9200	28.7	.0014	.006	5700	18.1	.0010	.006
1.5	.059	0.2	.008	10	.394	11000	55.1	.0020	.007	9200	28.7	.0014	.006	5700	18.1	.0010	.006
1.5	.059	0.3	.012	4	.157	16000	74.8	.0030	.009	13000	39.4	.0020	.008	8000	25.2	.0014	.008
1.5	.059	0.3	.012	6	.236	13000	59.1	.0030	.007	10000	31.9	.0020	.006	6400	20.1	.0014	.006
1.5	.059	0.3	.012	10	.394	13000	59.1	.0030	.007	10000	31.9	.0020	.006	6400	20.1	.0014	.006
1.5	.059	0.5	.020	4	.157	16000	74.8	.0031	.009	13000	39.4	.0022	.008	8000	25.2	.0016	.008
1.5	.059	0.5	.020	6	.236	13000	59.1	.0031	.007	10000	31.9	.0022	.006	6400	20.1	.0016	.006
1.5	.059	0.5	.020	10	.394	13000	59.1	.0031	.007	10000	31.9	.0022	.006	6400	20.1	.0016	.006
2	.079	0.1	.004	6	.236	11000	66.9	.0010	.012	8600	39.4	.0008	.011	5400	25.2	.0006	.011
2	.079	0.1	.004	10	.394	8600	55.1	.0010	.009	6900	32.7	.0008	.009	4300	20.5	.0006	.009
2	.079	0.1	.004	15	.591	6400	39.4	.0008	.007	5200	24.4	.0006	.007	3200	15.4	.0004	.007
2	.079	0.2	.008	6	.236	11000	66.9	.0022	.012	8600	39.4	.0014	.011	5400	25.2	.0010	.011
2	.079	0.2	.008	10	.394	8600	55.1	.0022	.009	6900	32.7	.0014	.009	4300	20.5	.0010	.009
2	.079	0.2	.008	15	.591	6400	39.4	.0016	.007	5200	24.4	.0010	.007	3200	15.4	.0008	.006
2	.079	0.3	.012	6	.236	12000	74.8	.0031	.012	6900	43.3	.0022	.011	6000	16.5	.0016	.011
2	.079	0.3	.012	10	.394	9500	59.1	.0031	.009	7600	36.2	.0022	.009	4800	22.4	.0016	.009
2	.079	0.3	.012	15	.591	7200	43.3	.0026	.007	5700	27.2	.0018	.007	3600	16.9	.0012	.006
2	.079	0.3	.012	20	.787	7200	43.3	.0026	.007	5700	27.2	.0018	.007	3600	16.9	.0012	.006
2	.079	0.5	.020	6	.236	12000	74.8	.0033	.012	9500	43.3	.0024	.011	6000	28.3	.0016	.011
2	.079	0.5	.020	10	.394	9500	59.1	.0033	.009	7600	36.2	.0024	.009	4800	22.4	.0016	.009
2	.079	0.5	.020	15	.591	7200	43.3	.0028	.007	5700	27.2	.0018	.007	3600	16.9	.0014	.006
2	.079	0.5	.020	20	.787	7200	43.3	.0028	.007	5700	27.2	.0018	.007	3600	16.9	.0014	.006
2.5	.098	0.3	.012	8	.315	9500	74.8	.0031	.015	7600	55.1	.0022	.014	4800	33.9	.0016	.013
2.5	.098	0.3	.012	15	.591	7600	59.1	.0031	.012	6100	43.3	.0022	.011	3800	27.2	.0016	.011
2.5	.098	0.5	.020	8	.315	9500	74.8	.0035	.015	7600	55.1	.0024	.014	4800	33.9	.0016	.013
2.5	.098	0.5	.020	15	.591	7600	59.1	.0035	.012	6100	43.3	.0024	.011	3800	27.2	.0016	.011
2.5	.098	1	.039	8	.315	9500	74.8	.0059	.013	7600	55.1	.0035	.012	4800	33.9	.0026	.012

Depth of Cut



- Note 1) The cutting conditions above are a guide only to machining with cutting edges with a corner radius. When machining with peripheral cutting edges, use the minimum feed rate as a guide.
- Note 2) If depth of cut is shallow, the revolution and feed rate can be increased.
- Note 3) For profile machining such as moulds, machining conditions may differ considerably depending on the workpiece geometry, machining methods and depth of cut. Reduce the feed rate especially when machining the corner sections of workpiece.
- Note 4) If the rigidity of the machine or the workpiece installation is very low, or chattering and noise are generated, reduce the revolution and feed rate proportionately.

(inch)

Workpiece Material						Hardened Steels (45—55HRC)				Hardened Steels (55—65HRC)				Hardened Steels (65—70HRC)			
						Revolution (min ⁻¹)	Feed Rate (IPM)	Depth of Cut ap	Width of Cut ae	Revolution (min ⁻¹)	Feed Rate (IPM)	Depth of Cut ap	Width of Cut ae	Revolution (min ⁻¹)	Feed Rate (IPM)	Depth of Cut ap	Width of Cut ae
Dia. DC (mm)	Corner Radius RE (mm)	Usable Length LU (mm)	DC (inch)	RE (inch)	LU (inch)												
3	.118	0.1	.004	10	.394	8100	74.8	.0010	.024	6500	47.2	.0008	.022	4100	28.7	.0006	.022
3	.118	0.1	.004	15	.591	6500	63.0	.0010	.019	5200	37.0	.0008	.017	3200	22.8	.0006	.017
3	.118	0.2	.008	10	.394	8100	74.8	.0022	.024	6500	47.2	.0016	.022	4100	28.7	.0010	.022
3	.118	0.2	.008	15	.591	6500	63.0	.0022	.019	5200	37.0	.0016	.017	3200	22.8	.0010	.017
3	.118	0.2	.008	20	.787	6500	63.0	.0022	.019	5200	37.0	.0016	.017	3200	22.8	.0010	.017
3	.118	0.3	.012	10	.394	9000	86.6	.0033	.024	7200	51.2	.0022	.022	4500	31.9	.0016	.022
3	.118	0.3	.012	15	.591	7200	66.9	.0033	.019	5800	39.4	.0022	.017	3600	25.6	.0016	.017
3	.118	0.3	.012	20	.787	7200	66.9	.0033	.019	5800	39.4	.0022	.017	3600	25.6	.0016	.017
3	.118	0.5	.020	10	.394	9000	86.6	.0035	.024	7200	51.2	.0024	.022	4500	31.9	.0018	.022
3	.118	0.5	.020	15	.591	7200	66.9	.0035	.019	5800	39.4	.0024	.017	3600	25.6	.0018	.017
3	.118	0.5	.020	20	.787	7200	66.9	.0035	.019	5800	39.4	.0024	.017	3600	25.6	.0018	.017
3	.118	1	.039	10	.394	9000	86.6	.0059	.021	7200	51.2	.0039	.020	4500	31.9	.0028	.020
3	.118	1	.039	15	.591	7200	66.9	.0059	.017	5800	39.4	.0039	.016	3600	25.6	.0028	.016
3	.118	1	.039	20	.787	7200	78.7	.0059	.017	5800	39.4	.0039	.016	3600	25.6	.0028	.016
4	.157	0.1	.004	12	.472	6100	66.9	.0098	.031	4900	38.2	.0008	.029	3000	24.0	.0006	.029
4	.157	0.1	.004	20	.787	4900	55.1	.0098	.024	3900	30.7	.0008	.024	2400	19.3	.0006	.023
4	.157	0.2	.008	12	.472	6100	66.9	.0022	.031	4900	38.2	.0016	.029	3000	24.0	.0010	.029
4	.157	0.2	.008	20	.787	4900	55.1	.0022	.024	3900	30.7	.0016	.024	2400	19.3	.0010	.023
4	.157	0.3	.012	12	.472	6800	74.8	.0033	.031	5400	43.3	.0022	.030	3400	26.8	.0016	.029
4	.157	0.3	.012	20	.787	5400	59.1	.0033	.024	4300	34.3	.0022	.024	2700	21.3	.0016	.023
4	.157	0.3	.012	30	1.181	4100	43.3	.0026	.020	3200	25.6	.0018	.018	2000	16.1	.0014	.017
4	.157	0.5	.020	12	.472	6800	74.8	.0035	.031	5400	43.3	.0024	.030	3400	26.8	.0018	.029
4	.157	0.5	.020	20	.787	5400	59.1	.0035	.026	4300	34.3	.0024	.024	2700	21.3	.0018	.023
4	.157	0.5	.020	30	1.181	4100	43.3	.0030	.020	3200	25.6	.0020	.018	2000	16.1	.0014	.017
4	.157	1	.039	12	.472	6800	74.8	.0059	.028	5400	43.3	.0039	.026	3400	26.8	.0028	.026
4	.157	1	.039	20	.787	5400	59.1	.0059	.022	4300	34.3	.0039	.021	2700	21.3	.0028	.021
4	.157	1	.039	30	1.181	4100	43.3	.0039	.016	3200	25.6	.0030	.016	2000	16.1	.0022	.016
5	.197	0.5	.020	15	.591	6400	70.9	.0039	.051	5100	39.4	.0026	.047	3200	25.2	.0018	.043
5	.197	1	.039	15	.591	6400	70.9	.0059	.043	5100	39.4	.0039	.039	3200	25.2	.0030	.039
6	.236	0.1	.004	18	.709	4800	59.1	.0012	.059	3800	36.2	.0008	.055	2400	22.4	.0006	.051
6	.236	0.2	.008	18	.709	4800	59.1	.0024	.059	3800	36.2	.0016	.055	2400	22.4	.0012	.051
6	.236	0.3	.012	18	.709	5300	66.9	.0035	.059	4200	39.4	.0024	.055	2700	25.2	.0018	.051
6	.236	0.5	.020	18	.709	5300	66.9	.0039	.059	4200	39.4	.0026	.055	2700	25.2	.0018	.051
6	.236	1	.039	18	.709	5300	66.9	.0059	.055	4200	39.4	.0039	.047	2700	25.2	.0030	.047
6	.236	2	.079	18	.709	5300	66.9	.0118	.051	4200	39.4	.0079	.043	2700	25.2	.0059	.043
8	.315	0.2	.008	24	.945	3600	43.3	.0024	.079	2900	27.2	.0016	.071	1800	16.9	.0012	.071
8	.315	0.3	.012	24	.945	4000	51.2	.0035	.079	3200	29.9	.0024	.071	2000	18.9	.0018	.071
8	.315	0.5	.020	24	.945	4000	51.2	.0037	.079	3200	29.9	.0026	.071	2000	18.9	.0018	.071
8	.315	1	.039	24	.945	4000	51.2	.0059	.071	3200	29.9	.0039	.067	2000	18.9	.0030	.063
8	.315	2	.079	24	.945	4000	51.2	.0118	.067	3200	29.9	.0079	.063	2000	18.9	.0059	.059
10	.394	0.3	.012	30	1.181	3200	39.4	.0035	.098	2500	24.0	.0024	.091	1600	15.0	.0018	.091
10	.394	0.5	.020	30	1.181	3200	39.4	.0037	.098	2500	24.0	.0026	.091	1600	15.0	.0018	.091
10	.394	1	.039	30	1.181	3200	39.4	.0059	.091	2500	24.0	.0039	.083	1600	15.0	.0030	.079
10	.394	2	.079	30	1.181	3200	39.4	.0118	.083	2500	24.0	.0079	.079	1600	15.0	.0059	.075
10	.394	3	.118	30	1.181	3200	39.4	.0177	.075	2500	24.0	.0118	.067	1600	15.0	.0079	.067
12	.472	0.5	.020	36	1.417	2700	37.4	.0039	.118	2100	20.1	.0026	.110	1300	12.6	.0020	.106
12	.472	1	.039	36	1.417	2700	37.4	.0059	.106	2100	20.1	.0039	.098	1300	12.6	.0030	.094
12	.472	2	.079	36	1.417	2700	37.4	.0118	.102	2100	20.1	.0079	.094	1300	12.6	.0059	.091
12	.472	3	.118	36	1.417	2700	37.4	.0177	.091	2100	20.1	.0118	.083	1300	12.6	.0079	.079

Depth of Cut

