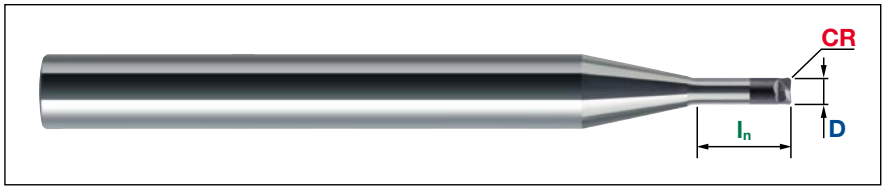
CBN-EPSR | Epoch CBN Radius End Mill | Recommended Cutting Conditions

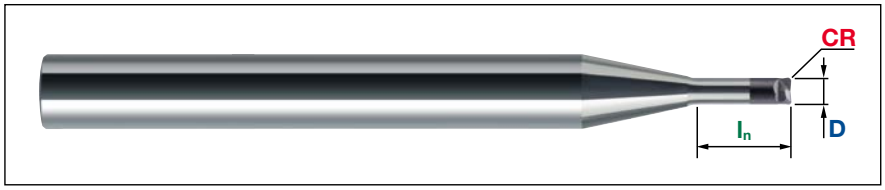


Material			Hardened steels ~55HRC · STAVAX, 1.2344, 1.2379											
Parameter			Roughing (efficiency)						Finishing (surface, tool life)					
D	CR	l_n	a_p (mm)	a_e (mm)	n (min^{-1})	V_c (m/min)	f_z (mm/t)	V_f (mm/min)	a_p (mm)	a_e (mm)	n (min^{-1})	V_c (m/min)	f_z (mm/t)	V_f (mm/min)
0.2	0.05	0.5	0.005	0.050	43,000	27	0.015	1,320	0.005	0.005 ~ 0.015	52,000	33	0.0125	1,300
		1	0.004	0.050	39,000	25	0.015	1,190	0.005	0.005 ~ 0.015	47,000	30	0.0125	1,180
0.3		0.75	0.008	0.100	42,000	40	0.015	1,290	0.005	0.005 ~ 0.015	53,000	50	0.0125	1,330
		1.5	0.006	0.100	38,000	36	0.015	1,160	0.005	0.005 ~ 0.015	48,000	45	0.0125	1,200
0.4		1	0.011	0.150	39,000	49	0.020	1,590	0.005	0.005 ~ 0.015	49,000	61	0.0125	1,230
		2	0.009	0.150	35,000	44	0.020	1,430	0.005	0.005 ~ 0.015	44,000	55	0.0125	1,100
0.5	0.1	1.5	0.019	0.150	39,000	61	0.023	1,790	0.008	0.008 ~ 0.024	49,000	77	0.0200	1,960
		3	0.015	0.150	35,000	55	0.023	1,610	0.008	0.008 ~ 0.024	44,000	68	0.0200	1,760
0.6		1.5	0.023	0.200	36,000	68	0.026	1,840	0.008	0.008 ~ 0.024	43,000	82	0.0200	1,720
		3	0.019	0.200	32,000	61	0.026	1,630	0.008	0.008 ~ 0.024	39,000	74	0.0200	1,560
0.8		2.5	0.030	0.300	36,000	89	0.028	2,020	0.008	0.008 ~ 0.024	43,000	108	0.0300	2,580
		5	0.024	0.300	32,000	81	0.028	1,800	0.008	0.008 ~ 0.024	39,000	97	0.0300	2,340
1	0.2	2.5	0.038	0.300	32,500	102	0.031	1,990	0.010	0.010 ~ 0.030	40,000	125	0.0300	2,400
		5	0.030	0.300	29,200	92	0.031	1,790	0.010	0.010 ~ 0.030	36,000	113	0.0300	2,160
		10	0.008	0.300	22,700	71	0.025	1,120	0.010	0.010 ~ 0.030	28,000	87	0.0240	1,340
1.5		5	0.053	0.550	27,200	128	0.034	1,850	0.010	0.010 ~ 0.030	34,000	162	0.0400	2,720
		10	0.015	0.550	19,100	90	0.027	1,040	0.010	0.010 ~ 0.030	24,000	113	0.0320	1,540
2		5	0.060	0.800	23,800	150	0.044	2,100	0.010	0.010 ~ 0.030	31,000	194	0.0500	3,100
		10	0.049	0.800	21,400	134	0.044	1,890	0.010	0.010 ~ 0.030	28,000	175	0.0500	2,800
		20	0.013	0.800	16,600	105	0.036	1,190	0.010	0.010 ~ 0.030	21,000	135	0.0400	1,680

Material			Hardened steels 55~65HRC · 1.2379, 1.3343											
Parameter			Roughing (efficiency)						Finishing (surface, tool life)					
D	CR	l_n	a_p (mm)	a_e (mm)	n (min^{-1})	V_c (m/min)	f_z (mm/t)	V_f (mm/min)	a_p (mm)	a_e (mm)	n (min^{-1})	V_c (m/min)	f_z (mm/t)	V_f (mm/min)
0.2	0.05	0.5	0.004	0.043	40,000	25	0.013	1,070	0.0045	0.0045 ~ 0.0135	50,000	31	0.0119	1,190
		1	0.003	0.043	37,000	23	0.013	990	0.0045	0.0045 ~ 0.0135	45,000	28	0.0119	1,070
0.3		0.75	0.006	0.085	40,000	38	0.013	1,070	0.0045	0.0045 ~ 0.0135	50,000	47	0.0119	1,190
		1.5	0.005	0.085	36,000	34	0.013	960	0.0045	0.0045 ~ 0.0135	45,000	43	0.0119	1,070
0.4		1	0.010	0.128	37,000	47	0.018	1,320	0.0045	0.0045 ~ 0.0135	46,000	58	0.0119	1,090
		2	0.008	0.128	33,000	42	0.018	1,180	0.0045	0.0045 ~ 0.0135	42,000	52	0.0119	1,000
0.5	0.1	1.5	0.016	0.128	37,000	58	0.020	1,490	0.0072	0.0072 ~ 0.0216	46,000	73	0.0190	1,750
		3	0.013	0.128	33,000	52	0.020	1,330	0.0072	0.0072 ~ 0.0216	41,000	65	0.0190	1,560
0.6		1.5	0.019	0.170	34,000	65	0.022	1,520	0.0072	0.0072 ~ 0.0216	41,000	78	0.0190	1,560
		3	0.016	0.170	31,000	58	0.022	1,380	0.0072	0.0072 ~ 0.0216	37,000	70	0.0190	1,410
0.8		2.5	0.026	0.255	34,000	85	0.025	1,670	0.0072	0.0072 ~ 0.0216	41,000	103	0.0285	2,340
		5	0.020	0.255	31,000	77	0.025	1,520	0.0072	0.0072 ~ 0.0216	37,000	92	0.0285	2,110
1	0.2	2.5	0.032	0.255	30,800	97	0.027	1,650	0.0090	0.0090 ~ 0.0270	38,000	119	0.0285	2,170
		5	0.026	0.255	27,800	87	0.027	1,490	0.0090	0.0090 ~ 0.0270	34,000	107	0.0285	1,940
		10	0.006	0.255	21,600	68	0.022	930	0.0090	0.0090 ~ 0.0270	26,000	83	0.0228	1,190
1.5		5	0.045	0.468	25,900	122	0.030	1,540	0.0090	0.0090 ~ 0.0270	33,000	154	0.0380	2,510
		10	0.013	0.468	18,200	86	0.024	870	0.0090	0.0090 ~ 0.0270	23,000	108	0.0304	1,400
2		5	0.051	0.680	22,600	142	0.039	1,750	0.0090	0.0090 ~ 0.0270	29,000	184	0.0475	2,760
		10	0.041	0.680	20,300	128	0.039	1,570	0.0090	0.0090 ~ 0.0270	26,000	166	0.0475	2,470
		20	0.011	0.680	15,800	99	0.031	990	0.0090	0.0090 ~ 0.0270	20,000	128	0.0380	1,520

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:			

CBN-EPSR | Epoch CBN Radius End Mill | Recommended Cutting Conditions



Material			Hardened steels 65~68HRC · High speed steel											
Parameter			Roughing (efficiency)						Finishing (surface, tool life)					
D	CR	l_n	a_p (mm)	a_e (mm)	n (min^{-1})	V_c (m/min)	f_z (mm/t)	V_f (mm/min)	a_p (mm)	a_e (mm)	n (min^{-1})	V_c (m/min)	f_z (mm/t)	V_f (mm/min)
0.2	0.05	0.5	0.003	0.035	38,000	24	0.011	870	0.004	0.004 ~ 0.012	47,000	30	0.0106	1,000
		1	0.003	0.035	35,000	22	0.011	800	0.004	0.004 ~ 0.012	43,000	27	0.0106	910
0.3		0.75	0.005	0.070	38,000	36	0.011	870	0.004	0.004 ~ 0.012	47,000	45	0.0106	1,000
		1.5	0.004	0.070	34,000	32	0.011	780	0.004	0.004 ~ 0.012	43,000	41	0.0106	910
0.4		1	0.008	0.105	35,000	44	0.015	1,070	0.004	0.004 ~ 0.012	44,000	55	0.0106	940
		2	0.006	0.105	32,000	40	0.015	980	0.004	0.004 ~ 0.012	39,000	49	0.0106	830
0.5	0.1	1.5	0.013	0.105	35,000	55	0.017	1,200	0.006	0.006 ~ 0.019	44,000	69	0.0170	1,500
		3	0.011	0.105	32,000	50	0.017	1,100	0.006	0.006 ~ 0.019	39,000	62	0.0170	1,330
0.6		1.5	0.016	0.140	32,000	61	0.019	1,220	0.006	0.006 ~ 0.019	39,000	74	0.0170	1,330
		3	0.013	0.140	29,000	55	0.019	1,110	0.006	0.006 ~ 0.019	35,000	66	0.0170	1,190
0.8		2.5	0.021	0.210	32,000	80	0.021	1,350	0.006	0.006 ~ 0.019	39,000	97	0.0255	1,990
		5	0.017	0.210	29,000	73	0.021	1,220	0.006	0.006 ~ 0.019	35,000	87	0.0255	1,790
1	0.2	2.5	0.026	0.210	29,000	92	0.023	1,330	0.008	0.008 ~ 0.024	36,000	113	0.0255	1,840
		5	0.021	0.210	26,000	83	0.023	1,190	0.008	0.008 ~ 0.024	32,000	101	0.0255	1,630
		10	0.005	0.210	20,000	64	0.018	740	0.008	0.008 ~ 0.024	25,000	79	0.0204	1,020
1.5		5	0.037	0.385	25,000	116	0.026	1,280	0.008	0.008 ~ 0.024	31,000	146	0.0340	2,110
		10	0.011	0.385	17,000	81	0.020	690	0.008	0.008 ~ 0.024	22,000	102	0.0272	1,200
2		5	0.042	0.560	21,000	135	0.033	1,390	0.008	0.008 ~ 0.024	28,000	174	0.0425	2,380
		10	0.034	0.560	19,000	121	0.033	1,260	0.008	0.008 ~ 0.024	25,000	157	0.0425	2,130
		20	0.009	0.560	15,000	94	0.027	800	0.008	0.008 ~ 0.024	19,000	122	0.0340	1,290

Material			Hardened steels 68~72HRC · High speed steel											
Parameter			Roughing (efficiency)						Finishing (surface, tool life)					
D	CR	l_n	a_p (mm)	a_e (mm)	n (min^{-1})	V_c (m/min)	f_z (mm/t)	V_f (mm/min)	a_p (mm)	a_e (mm)	n (min^{-1})	V_c (m/min)	f_z (mm/t)	V_f (mm/min)
0.2	0.05	0.5	0.003	0.030	36,000	23	0.010	690	0.0035	0.0035 ~ 0.0105	44,000	28	0.0094	830
		1	0.002	0.030	33,000	21	0.010	630	0.0035	0.0035 ~ 0.0105	40,000	25	0.0094	750
0.3		0.75	0.005	0.060	36,000	34	0.010	690	0.0035	0.0035 ~ 0.0105	45,000	42	0.0094	840
		1.5	0.004	0.060	32,000	30	0.010	610	0.0035	0.0035 ~ 0.0105	41,000	38	0.0094	770
0.4		1	0.007	0.090	33,000	42	0.013	840	0.0035	0.0035 ~ 0.0105	41,000	52	0.0094	770
		2	0.005	0.090	30,000	38	0.013	770	0.0035	0.0035 ~ 0.0105	37,000	47	0.0094	690
0.5	0.1	1.5	0.011	0.090	33,000	52	0.014	950	0.0060	0.0056 ~ 0.0168	41,000	65	0.0150	1,230
		3	0.009	0.090	30,000	47	0.014	860	0.0060	0.0056 ~ 0.0168	37,000	58	0.0150	1,110
0.6		1.5	0.014	0.120	31,000	58	0.016	990	0.0060	0.0056 ~ 0.0168	37,000	70	0.0150	1,110
		3	0.011	0.120	28,000	52	0.016	890	0.0060	0.0056 ~ 0.0168	33,000	63	0.0150	990
0.8		2.5	0.018	0.180	30,000	76	0.018	1,050	0.0060	0.0056 ~ 0.0168	37,000	92	0.0225	1,670
		5	0.014	0.180	27,000	69	0.018	950	0.0060	0.0056 ~ 0.0168	33,000	83	0.0225	1,490
1	0.2	2.5	0.023	0.180	28,000	87	0.019	1,070	0.0070	0.0070 ~ 0.0210	34,000	106	0.0225	1,530
		5	0.018	0.180	25,000	78	0.019	960	0.0070	0.0070 ~ 0.0210	30,000	96	0.0225	1,350
		10	0.005	0.180	19,000	61	0.015	590	0.0070	0.0070 ~ 0.0210	24,000	74	0.0180	860
1.5		5	0.032	0.330	23,000	109	0.021	980	0.0070	0.0070 ~ 0.0210	29,000	138	0.0300	1,740
		10	0.009	0.330	16,000	77	0.017	540	0.0070	0.0070 ~ 0.0210	20,000	96	0.0240	960
2		5	0.036	0.480	20,000	127	0.028	1,110	0.0070	0.0070 ~ 0.0210	26,000	164	0.0375	1,950
		10	0.029	0.480	18,000	114	0.028	990	0.0070	0.0070 ~ 0.0210	24,000	148	0.0375	1,800
		20	0.008	0.480	14,000	89	0.022	620	0.0070	0.0070 ~ 0.0210	18,000	115	0.0300	1,080

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