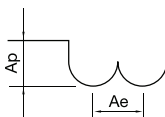


2HRB						Cutting Condition							
Material		Hardened Steels STAVX / SKD11				Heat-treated Steels / Hardened Steels SKD11 / SKD61				Heat-treated Steels / Hardened Steels YXR7 / SKH51			
Hardness		45 ~ 55HRC				55 ~ 62HRC				62 ~ 75HRC			
Radius	Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
R 0.25	1	33,000	466	0.010	0.025	33,000	240	0.007	0.018	24,750	120	0.007	0.018
"	2	33,000	466	0.010	0.025	33,000	240	0.007	0.018	24,750	120	0.007	0.018
"	3	31,000	352	0.007	0.018	31,405	184	0.005	0.013	23,540	60	0.005	0.013
"	4	27,150	132	0.003	0.008	28,215	80	0.002	0.005	21,890	40	0.002	0.005
"	5	24,200	97	0.002	0.005	25,850	60	0.002	0.005	19,360	28	0.002	0.005
"	6	21,300	66	0.001	0.003	23,430	40	0.001	0.003	17,600	20	0.001	0.003
"	8	15,900	35	0.001	0.003	17,490	20	0.001	0.003	13,145	10	0.001	0.003
R 0.3	1	30,000	1320	0.030	0.075	29,150	800	0.015	0.038	22,000	400	0.015	0.038
"	2	30,000	1056	0.020	0.050	29,150	640	0.010	0.025	22,000	320	0.010	0.025
"	3	30,000	704	0.015	0.038	29,150	416	0.008	0.020	22,000	208	0.008	0.020
"	4	30,000	440	0.010	0.025	29,150	272	0.006	0.015	22,000	136	0.006	0.015
"	5	25,000	343	0.007	0.018	25,300	208	0.005	0.013	19,800	104	0.005	0.013
"	6	21,000	282	0.005	0.013	21,450	168	0.004	0.010	16,500	84	0.004	0.010
"	8	16,000	211	0.003	0.008	17,600	128	0.003	0.008	13,200	64	0.003	0.008
"	10	14,900	154	0.002	0.005	16,390	92	0.002	0.005	12,210	44	0.002	0.005
"	12	13,800	97	0.001	0.003	15,180	56	0.001	0.003	11,385	28	0.001	0.003
R 0.4	2	27,000	1408	0.040	0.100	25,850	800	0.020	0.050	19,250	400	0.020	0.050
"	4	27,000	1056	0.025	0.063	25,850	480	0.012	0.030	19,250	240	0.012	0.030
"	6	23,000	528	0.012	0.030	22,550	320	0.006	0.015	17,050	160	0.006	0.015
"	8	18,000	330	0.007	0.018	18,700	228	0.005	0.013	14,025	112	0.005	0.013
"	10	14,700	299	0.005	0.013	16,115	180	0.004	0.010	12,100	88	0.004	0.010
R 0.5	2	24,000	1760	0.100	0.250	23,100	1400	0.050	0.125	17,600	700	0.050	0.125
"	3	24,000	1760	0.050	0.125	23,100	1400	0.030	0.075	17,600	700	0.030	0.075
"	4	24,000	1760	0.050	0.125	23,100	1400	0.030	0.075	17,600	700	0.030	0.075
"	5	24,000	1760	0.050	0.125	23,100	1400	0.030	0.075	17,600	700	0.030	0.075
"	6	21,500	1100	0.030	0.075	21,670	840	0.025	0.063	15,950	420	0.025	0.063
"	8	18,500	510	0.015	0.038	20,240	384	0.015	0.038	15,180	192	0.015	0.038
"	10	14,800	378	0.010	0.025	16,170	288	0.010	0.025	12,210	144	0.010	0.025
"	12	13,400	334	0.008	0.020	14,630	232	0.008	0.020	10,945	112	0.008	0.020
"	14	12,000	308	0.007	0.018	13,200	176	0.007	0.018	9,900	88	0.007	0.018
"	16	10,500	220	0.005	0.013	11,550	128	0.005	0.013	8,635	64	0.005	0.013
"	18	9,750	176	0.004	0.010	10,725	104	0.004	0.010	8,030	56	0.004	0.010
"	20	9,000	132	0.003	0.008	9,900	80	0.003	0.008	7,425	40	0.003	0.008
"	22	9,000	97	0.002	0.005	9,900	60	0.002	0.005	7,425	28	0.002	0.005
R 0.6	6	20,000	1760	0.060	0.150	19,250	1400	0.036	0.090	14,410	700	0.036	0.090
"	8	16,600	792	0.025	0.063	17,435	600	0.025	0.063	13,090	300	0.025	0.063
"	10	15,500	510	0.015	0.038	16,885	384	0.015	0.038	12,650	192	0.015	0.038
R 0.7	8	15,350	1100	0.040	0.100	15,455	840	0.030	0.075	11,605	420	0.030	0.075

2HRB						Cutting Condition							
Material		Hardened Steels STAVX / SKD11				Heat-treated Steels / Hardened Steels SKD11 / SKD61				Heat-treated Steels / Hardened Steels YXR7 / SKH51			
Hardness		45 ~ 55HRC				55 ~ 62HRC				62 ~ 75HRC			
Radius	Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
R 0.75	3	17,000	1760	0.120	0.300	16,500	1400	0.060	0.150	12,375	700	0.060	0.150
"	4	17,000	1760	0.120	0.300	16,500	1400	0.060	0.150	12,375	700	0.060	0.150
"	6	17,000	1760	0.070	0.175	16,500	1400	0.040	0.100	12,375	700	0.040	0.100
"	8	15,000	1100	0.045	0.113	15,400	840	0.030	0.075	11,550	420	0.030	0.075
"	10	15,000	1100	0.045	0.113	15,400	840	0.030	0.075	11,550	420	0.030	0.075
"	12	13,000	510	0.020	0.050	14,300	384	0.020	0.050	10,725	192	0.020	0.050
"	14	10,900	427	0.015	0.038	11,990	308	0.015	0.038	9,020	152	0.015	0.038
"	16	8,850	343	0.012	0.030	9,680	232	0.012	0.030	7,260	116	0.012	0.030
"	20	8,000	308	0.010	0.025	8,800	176	0.010	0.025	6,600	88	0.010	0.025
R 0.8	8	17,500	1848	0.080	0.200	16,830	1440	0.050	0.125	12,650	720	0.050	0.125
"	12	13,500	528	0.024	0.060	14,740	392	0.024	0.060	11,055	196	0.025	0.063
"	16	10,800	396	0.016	0.040	11,770	296	0.016	0.040	8,800	148	0.016	0.040
R 1	4	14,000	1848	0.150	0.375	13,475	1440	0.080	0.200	10,120	720	0.080	0.200
"	6	14,000	1848	0.100	0.250	13,475	1440	0.060	0.150	10,120	720	0.060	0.150
"	8	14,000	1848	0.100	0.250	13,475	1440	0.060	0.150	10,120	720	0.060	0.150
"	10	14,000	1848	0.100	0.250	13,475	1440	0.060	0.150	10,120	720	0.050	0.150
"	12	12,400	1188	0.060	0.150	12,650	880	0.045	0.113	9,515	440	0.045	0.113
"	14	12,400	1188	0.060	0.150	12,650	880	0.045	0.113	9,515	440	0.045	0.113
"	16	10,800	528	0.030	0.075	11,770	392	0.030	0.075	8,800	196	0.030	0.075
"	18	9,700	458	0.025	0.063	10,615	344	0.025	0.063	7,975	172	0.025	0.063
"	20	8,650	396	0.020	0.050	9,416	296	0.020	0.050	7,040	148	0.020	0.050
"	22	8,200	387	0.018	0.045	9,020	264	0.018	0.045	6,765	132	0.018	0.045
"	25	7,800	387	0.016	0.040	8,580	232	0.016	0.040	6,435	116	0.016	0.040
"	30	7,000	308	0.014	0.035	7,700	176	0.014	0.035	5,775	88	0.014	0.035
R 1.25	20	9,600	554	0.040	0.100	10,560	408	0.040	0.100	7,920	204	0.040	0.100
R 1.5	6	10,500	1936	0.200	0.500	10,120	1520	0.120	0.300	7,590	760	0.120	0.300
"	8	10,500	1936	0.200	0.500	10,120	1520	0.120	0.300	7,590	760	0.120	0.300
"	10	10,500	1936	0.150	0.375	10,120	1520	0.100	0.250	7,590	760	0.100	0.250
"	12	10,500	1936	0.150	0.375	10,120	1520	0.100	0.250	7,590	760	0.100	0.250
"	16	10,500	1936	0.150	0.375	10,120	1520	0.100	0.250	7,590	760	0.100	0.250
"	20	9,250	1232	0.100	0.250	9,460	920	0.075	0.188	7,095	460	0.075	0.188
"	25	8,000	554	0.050	0.125	8,800	408	0.050	0.125	6,600	204	0.050	0.125
"	30	5,750	396	0.030	0.075	6,270	296	0.030	0.075	4,703	148	0.030	0.075
"	35	5,350	387	0.025	0.063	5,885	248	0.025	0.063	4,400	124	0.025	0.063
"	40	4,900	343	0.020	0.050	5,445	200	0.020	0.050	4,070	100	0.020	0.050
R 2	8	9,000	2024	0.250	0.625	8,690	1600	0.150	0.375	6,490	800	0.150	0.375
"	10	9,000	2024	0.250	0.625	8,690	1600	0.150	0.375	6,490	800	0.150	0.375
"	12	9,000	2024	0.200	0.500	8,690	1600	0.130	0.325	6,490	800	0.130	0.325
"	16	9,000	2024	0.200	0.500	8,690	1600	0.130	0.325	6,490	800	0.130	0.325

2HRB						Cutting Condition							
Material		Hardened Steels STAVX / SKD11				Heat-treated Steels / Hardened Steels SKD11 / SKD61				Heat-treated Steels / Hardened Steels YXR7 / SKH51			
Hardness		45 ~ 55HRC				55 ~ 62HRC				62 ~ 75HRC			
Radius	Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
"	20	9,000	2024	0.200	0.500	8,690	1600	0.130	0.325	6,490	800	0.130	0.325
"	25	8,000	1276	0.130	0.325	8,195	1000	0.090	0.225	6,160	500	0.090	0.225
"	30	7,000	681	0.060	0.150	7,700	432	0.060	0.150	5,775	216	0.060	0.150
"	35	6,000	554	0.055	0.138	6,600	408	0.055	0.138	4,950	204	0.055	0.138
"	40	4,300	396	0.040	0.100	4,730	296	0.040	0.100	3,520	148	0.040	0.100
R 2.5	20	7,200	2024	0.250	0.625	6,985	1600	0.160	0.400	5,225	800	0.160	0.400
"	30	6,400	1276	0.160	0.400	6,820	1000	0.110	0.275	5,115	500	0.110	0.275
"	40	6,000	607	0.080	0.200	6,600	456	0.080	0.200	4,950	228	0.080	0.200
R 3	15	6,500	2200	0.300	0.750	6,270	1760	0.200	0.500	4,730	880	0.200	0.500
R 4	25	5,200	1936	0.400	1.000	4,950	1520	0.250	0.625	3,740	760	0.250	0.625
R 5	30	4,300	1760	0.500	1.250	4,125	1400	0.300	0.750	3,080	700	0.300	0.750
R 6	30	3,600	1540	0.600	1.500	3,465	1200	0.350	0.875	2,585	600	0.350	0.875
Depth of Cut		 Ap : Axial Depth (mm) Ae : Radial Depth (mm) D : Outside Diameter (mm) n : Speed (min⁻¹) Vf : Feed (mm/min)											

- Use the table for your reference. Adjust the parameters depending on your machining geometry, machining purpose and CNC.
- When milling workpiece HRC below 55 (Alloy steel, tool steel), raise up 20% RPM and feed compared to the same diameter.
- Air blow or mist coolant is recommended and wet coolants are recommended for copper milling.
- Use a machine with low vibration and good rigidity (Ø1 or less, the vibration tolerance management will be within 5µm).
- Note for chip emission, heat or Ignition.