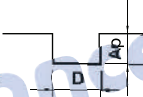
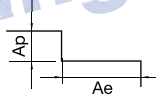


4WRE										Cutting Conditions							
Material		Mild Steels/Carbon Steels/Gray Cast Iron SS/FC/SC				Tool Steels/Mould Steels SCM/HPM				Alloy Steels / Pre-hardened Steels NAK80/KP4M				Hardened Steels STAVAX/SKD11			
Hardness		~ 30HRC				30~ 40HRC				40 ~ 45HRC				45~ 55HRC			
Outside Dia	Effective 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	RPM	FEED	Ap Axial Depth	Ae Radial Depth
Ø 0.8	8	25,000	750	0.009	0.010	21,600	560	0.008	0.010	18,300	450	0.006	0.010	15,900	300	0.004	0.0090
-	16	16,800	340	0.002	0.001	15,700	270	0.002	0.001	13,300	240	0.001	0.001	10,400	200	0.001	0.0010
Ø 1	8	24,000	720	0.014	0.024	20,300	490	0.013	0.024	16,900	390	0.010	0.024	14,200	265	0.007	0.022
-	16	15,800	325	0.004	0.003	14,300	250	0.003	0.003	12,200	220	0.003	0.003	9,200	178	0.002	0.003
-	25	12,600	165	0.003	0.001	11,200	120	0.002	0.001	10,800	105	0.002	0.001	8,300	88	0.001	0.001
Ø 1.5	8	21,000	980	0.041	0.124	18,800	740	0.037	0.124	14,800	520	0.029	0.124	12,400	355	0.020	0.112
-	16	13,600	544	0.013	0.015	12,200	410	0.012	0.015	10,500	322	0.009	0.015	8,000	230	0.007	0.014
-	25	11,400	318	0.005	0.004	10,500	240	0.005	0.004	8,600	196	0.004	0.004	6,200	138	0.003	0.004
Ø 2	8	19,600	1,197	0.054	0.391	17,000	970	0.048	0.391	12,800	630	0.038	0.391	10,600	470	0.027	0.352
-	16	12,300	740	0.025	0.049	11,600	574	0.024	0.049	9,800	378	0.018	0.049	7,300	268	0.013	0.044
-	25	10,100	456	0.012	0.013	9,700	348	0.011	0.013	7,900	262	0.008	0.013	6,400	184	0.006	0.012
Ø 2.5	8	16,600	1,240	0.068	0.488	14,300	1,035	0.061	0.488	10,200	689	0.048	0.488	8,350	510	0.034	0.439
-	16	11,600	890	0.045	0.119	9,800	710	0.040	0.119	7,220	480	0.031	0.119	6,700	326	0.022	0.107
-	25	8,700	630	0.022	0.031	8,300	460	0.019	0.031	6,360	338	0.015	0.031	5,500	273	0.011	0.028
Ø 3	8	14,800	1,390	0.092	0.350	12,100	1,100	0.083	0.350	8,800	736	0.064	0.350	6,900	553	0.046	0.315
-	16	10,200	968	0.064	0.247	8,600	816	0.058	0.247	6,300	543	0.045	0.247	5,890	362	0.032	0.222
-	25	7,600	740	0.036	0.038	7,100	518	0.032	0.038	5,880	397	0.025	0.038	3,900	293	0.018	0.034
-	35	6,200	415	0.018	0.024	5,300	374	0.016	0.024	4,730	322	0.013	0.024	3,300	216	0.009	0.022
Ø 4	8	12,300	1,830	0.140	0.950	10,200	1,210	0.140	0.950	7,400	848	0.093	0.900	6,300	500	0.070	0.810
-	16	8,600	1,240	0.093	0.580	7,200	860	0.084	0.580	5,100	573	0.065	0.580	5,150	397	0.046	0.522
-	25	6,400	890	0.061	0.205	5,000	590	0.055	0.205	4,180	433	0.042	0.205	3,180	304	0.030	0.185
-	40	4,950	510	0.030	0.050	3,900	385	0.027	0.050	3,300	341	0.021	0.050	2,770	208	0.015	0.045
Ø 5	8	7,200	1,280	0.127	1.250	6,400	944	0.114	1.250	4,387	554	0.089	1.250	4,220	378	0.064	1.125
-	16	5,400	955	0.109	0.500	4,600	665	0.099	0.500	3,668	412	0.077	0.500	2,740	280	0.055	0.450
-	25	4,100	660	0.060	0.122	3,300	470	0.054	0.122	3,655	298	0.042	0.122	2,320	180	0.030	0.110
Ø 6	8	4,880	1,088	0.126	2.025	4,433	726	0.114	2.025	2,980	528	0.088	2.025	2,640	356	0.063	1.823
-	16	3,800	720	0.083	0.253	2,950	497	0.074	0.253	2,100	326	0.058	0.253	2,078	226	0.041	0.228
Ø 8	8	4,460	980	0.180	1.600	3,600	787	0.160	1.600	2,540	487	0.130	1.600	2,430	343	0.090	1.440
-	16	3,400	780	0.120	0.200	2,460	516	0.100	0.200	1,890	297	0.080	0.200	1,770	211	0.060	0.180
Ø 10	25	3,400	926	0.200	1.760	3,160	726	0.180	1.760	2,360	467	0.130	1.760	1,650	326	0.080	1.584
-	35	2,170	640	0.140	0.240	2,120	615	0.120	0.240	1,780	412	0.090	0.240	1,180	192	0.070	0.216
Ø 12	30	2,500	710	0.220	1.840	2,300	580	0.200	1.840	2,000	400	0.140	1.840	1,400	280	0.080	1.656
-	40	1,880	526	0.120	0.280	1,820	474	0.110	0.280	1,690	345	0.080	0.280	1,020	184	0.060	0.252
Depth of cut		Slotting • Ap : Axial Depth • D : Outside Diameter  Side Milling • Ap : Axial Depth • Ae : Radial Depth 															

- The edge of the flute precisely grinded. If you want to measure the tool and to avoid damaging on the flutes, use non-contact measuring method.
- When milling workpiece, HRC over 60 Hardened steel, reduce 20% of the RPM and feed compared to the same diameter.
- Use this table for your reference. Adjust the parameters depending on your machining geometry, machining purpose and CNC.
- Use a machine with low vibration and good rigidity (Ø1 or less, the vibration tolerance management should be within 5µm).
- Air below or oil mist is recommended for smooth chip emission and wet coolant milling is recommended for copper material.