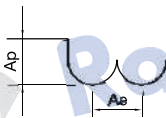


4HSPB/4HSHB							Cutting Condition													
Material	Tool Steels/Alloy Steels SCM/HPM		Alloy Steels / Prehardened Steels NAK80/KP4M		Stainless Steels SUS304/SUS316		Hardened Steels STAVAX/SKD11		Heat-treated Steels/ Hardened Steels SKD11/ SKD61/ YXR7/ R7 / SKH51		Heat-treated Steels/ Hardened Steels SKD11/ SKD61/ YXR7/ R7 / SKH51									
	Hardness	30 ~ 40HRC	40 ~ 45HRC		-		45 ~ 55HRC		55 ~ 60HRC		60 ~ 70HRC									
Radius	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED								
R 0.5	25,600	806	25600	806	25,600	806	25600	806	25,600	723	25600	723								
R 0.75	22,000	1007	22000	1007	22,000	1007	22000	1007	22,000	889	22000	889								
R 1	19,200	1280	19200	1280	19,200	1280	19200	1280	19,200	1138	17600	1138								
R 2	12,400	1706	11200	1489	10,800	1375	10000	1280	10,000	1090	8800	1090								
R 3	8,400	1754	7600	1612	7,200	1517	6800	1422	6,800	1232	5900	1232								
R 4	6,400	1327	5700	1185	5,500	1138	5100	1043	5,100	936	4400	936								
R 5	5,100	1043	4600	948	4,400	929	4000	853	4,000	758	3600	758								
R 6	4,800	995	3800	794	3,640	758	3400	711	3,400	640	3000	640								
Depth of Cut	<table><tr><td>Ap</td><td>Ae</td></tr><tr><td>0.05D</td><td>0.05D</td></tr></table> ~ 55HRC <table><tr><td>Ap</td><td>Ae</td></tr><tr><td>0.02D</td><td>0.05D</td></tr></table> ~ 70HRC												Ap	Ae	0.05D	0.05D	Ap	Ae	0.02D	0.05D
	Ap	Ae																		
	0.05D	0.05D																		
Ap	Ae																			
0.02D	0.05D																			

- The values of ap and ae on the table are for roughing or semi-roughing. If you need a great surface roughness, apply 50% of the value.
- Use the table for your reference. Adjust the parameters depending on your machining geometry, machining purpose and CNC.
- If the table over the maximum RPM and feed of your machine or found red heat on the material, adjust RPM and feed in the same proportion.

2HSB/2HPB/3HPB/4HSB/4HPB						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 ~ 70HRC			
Radius	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	33,000	530	0.010	0.020	30,000	300	0.007	0.010	22,500	150	0.007	0.010
R 0.3	30,000	1200	0.020	0.100	26,500	800	0.010	0.075	20,000	400	0.010	0.075
R 0.4	27,000	1600	0.040	0.170	23,500	1000	0.020	0.120	17,500	500	0.020	0.120
R 0.5	24,000	2000	0.100	0.300	21,000	1750	0.050	0.200	16,000	875	0.050	0.200
R 0.6	21,000	2000	0.100	0.300	18,000	1750	0.050	0.200	14,500	875	0.050	0.200
R 0.75	17,000	2000	0.120	0.400	15,000	1750	0.060	0.290	11,250	875	0.060	0.290
R 1	14,000	2100	0.150	0.500	12,250	1800	0.080	0.350	9,200	900	0.080	0.350
R 1.25	12,250	2150	0.170	0.600	10,700	1850	0.100	0.450	8,050	925	0.100	0.450
R 1.5	10,500	2200	0.200	0.700	9,200	1900	0.120	0.550	6,900	950	0.120	0.550
R 2	9,000	2300	0.250	0.950	7,900	2000	0.150	0.750	5,900	1000	0.150	0.750
R 2.5	7,800	2500	0.250	1.050	6,800	2100	0.150	0.850	5,100	1050	0.150	0.850
R 3	6,500	2500	0.300	1.300	5,700	2200	0.200	1.000	4,300	1100	0.200	1.000
R 4	5,200	2200	0.400	1.700	4,500	1900	0.250	1.350	3,400	950	0.250	1.350
R 5	4,300	2000	0.500	2.100	3,750	1750	0.300	1.700	2,800	875	0.300	1.700
R 6	3,600	1750	0.600	2.600	3,150	1500	0.350	2.000	2,350	750	0.350	2.000
Depth of Cut	 Ap : Axial Depth (mm) Ae : Radial Depth (mm) D : Outside Diameter (mm) n : Speed (min⁻¹) Vf : Feed (mm/min)											

- When milling workpiece HRC below 55 (Alloy steel, tool steel), raise up 20% RPM and feed compared to the same diameter.
- Changing flutes from 3 to 4, use the same RPM and raise up the feed up to 50% in stable condition (3HPB, 4HSB, 4HPB).
- Use the table for your reference. Adjust the parameters depending on your machining geometry, machining purpose and CNC.
- If the table over the maximum RPM and feed of your machine or found red heat on the material, adjust RPM and feed in the same proportion.
- Use a machine with low vibration and good rigidity ($\phi 1$ or less, the vibration tolerance management will be within 5 μ m).
- Note for chip emission, heat or Ignition.