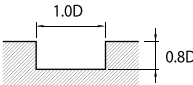
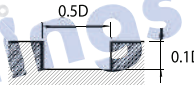
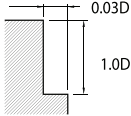
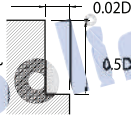


4EPE/4ELE					Cutting Conditions							
Slotting												
Material	Copper Alloys C1100				Alloy Steels / Pre-hardened Steels NAK80/KP4M				Hardened Steels STAVAX/SKD11			
Hardness					40~ 45HRC				45 ~ 55HRC			
Outside Dia	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
Ø 1	48,000	2700	0.10	1.0	38,000	2160	0.80	0.50	25,500	1512	0.80	0.50
Ø 2	33,300	3060	0.20	2.0	26,000	2448	1.60	1.00	17,500	1714	1.60	1.00
Ø 3	21,800	3060	0.30	3.0	17,300	2448	2.40	1.50	11,500	1714	2.40	1.50
Ø 4	16,700	3168	0.40	4.0	13,200	2534	3.20	2.00	8,800	1774	3.20	2.00
Ø 5	15,700	3600	0.50	5.0	12,500	2880	4.00	2.50	8,300	2016	4.00	2.50
Ø 6	13,000	3420	0.60	6.0	10,350	2736	4.80	3.00	6,900	1915	4.80	3.00
Ø 8	9,880	3348	0.80	8.0	7,800	2678	6.40	4.00	5,200	1875	6.40	4.00
Ø 10	7,800	3060	1.00	10.0	6,150	2448	8.00	5.00	4,100	1714	8.00	5.00
Ø 12	6,650	3060	1.20	12.0	5,250	2448	9.60	6.00	3,500	1714	9.60	6.00
Ø 16	5,540	2808	1.60	16.0	4,340	2246	12.80	8.00	2,600	1572	12.80	8.00
Ø 18	5,540	2808	1.80	18.0	4,340	2246	14.40	9.00	2,600	1572	14.40	9.00
Ø 20	4,640	2592	2.00	20.0	4,340	2074	16.00	10.00	2,100	1452	16.00	10.00
Depth of cut		~ 40HRC  40HRC ~ 										

4EPE/4ELE					Cutting Conditions							
Side Cutting												
Material	Copper Alloys C1100				Alloy Steels / Pre-hardened Steels NAK80/KP4M				Hardened Steels STAVAX/SKD11			
Hardness					40~ 45HRC				45 ~ 55HRC			
Outside Dia	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 1	48,000	1155	1.0	0.03	38,000	809	1.00	0.03	25,500	566	0.50	0.02
Ø 2	33,300	1320	2.0	0.06	26,000	924	2.00	0.06	17,500	647	1.00	0.04
Ø 3	21,800	1320	3.0	0.09	17,300	924	3.00	0.09	11,500	647	1.50	0.06
Ø 4	16,700	1375	4.0	0.12	13,200	963	4.00	0.12	8,800	674	2.00	0.08
Ø 5	15,700	1595	5.0	0.15	12,500	1117	5.00	0.15	8,300	782	2.50	0.10
Ø 6	13,000	1485	6.0	0.18	10,350	1040	6.00	0.18	6,900	728	3.00	0.12
Ø 8	9,880	1452	8.0	0.24	7,800	1016	8.00	0.24	5,200	711	4.00	0.16
Ø 10	7,800	1320	10.0	0.30	6,150	924	10.00	0.30	4,100	647	5.00	0.20
Ø 12	6,650	1320	12.0	0.36	5,250	924	12.00	0.36	3,500	647	6.00	0.24
Ø 16	5,540	1100	16.0	0.48	4,340	770	16.00	0.48	2,600	539	8.00	0.32
Ø 18	5,540	1100	18.0	0.54	4,340	770	18.00	0.54	2,600	539	9.00	0.36
Ø 20	4,640	1045	20.0	0.60	4,340	836	20.00	0.60	2,100	585	10.00	0.40
Depth of cut		 										

- Use a rigid precise machine and holder.
- Ap(mm): Axial Depth of cut
- Ae(mm): Radial Depth of cut
- The edge of the flute precisely grinded, if you want measure the tool and to avoid damaging on the flutes, use non-contact measuring method
- When milling workpiece HRC over 50 hardened steel, reduce 20% of the RPM and feed compared to the same diameter.
- Use this table for your reference. Adjust the parameter 3 depending on your machining geometry, machining purpose and CNC.
- If the table over the maximum RPM and feed of your machine, adjust RPM and feed in the same proportion.
- Use a machine with low vibration and good rigidity (Ø1 or less, the vibration tolerance management should be within 5µm).
- Air blow or oil mist is recommended for smooth chip emission, and wet coolant milling is recommended for copper material.
- The Above condition are only reference. In actual machining conditions adjust these parameters according to the milling shape, machine ability and the operation environment.