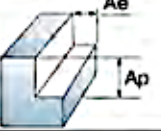
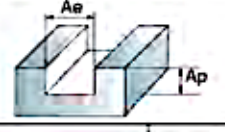


Cutting Data Parameters

1) Side Milling Extra Long 2/4Flutes

 $Ae \leq 0.1D (D \leq \Phi 3)$ $Ae \leq 0.2D (D > \Phi 3)$ $Ap \leq 1.5D$												
Shape of cut												
Work material	Aluminum Alloy, cuprum			Carbon steel, Castiron AISI 1049, SCM,FC250 (~30HRC)			Alloy steel, Die steel (< 35HRC)			Stainless steel AISI 1304, AISI1316		
Φ D(mm)	Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)	
		2Flutes	4Flutes		2Flutes	4Flutes		2Flutes	4Flutes		2Flutes	4Flutes
1	19000	50	300	10000	60	120	6000	35	70	5000	30	60
2	11000	220	400	5500	90	135	3600	55	85	3000	45	70
3	8500	240	435	4250	100	150	2650	65	100	2200	55	85
4	7000	365	550	3600	180	270	2200	110	165	1850	90	135
5	6000	430	650	3000	190	185	1800	115	175	1500	95	145
6	5500	495	750	2650	210	315	1600	120	180	1350	105	160
8	4000	500	750	2000	225	340	1200	120	180	1000	110	165
10	3200	450	675	1600	195	295	950	95	145	800	95	145
12	2560	370	550	1350	165	250	800	80	120	650	75	115
16	2000	280	420	1000	120	180	600	60	90	500	60	90
20	1600	225	340	800	100	150	500	50	75	400	48	70

2) Slotting Extra Long 2/4Flutes

 2F $Ae=D$ $Ap \leq 0.1D (D < \Phi 2)$ $Ap \leq 0.3D (\Phi 2 \leq D \leq \Phi 3)$ $Ap \leq 0.5D (D > \Phi 3)$ 4F $Ae=D$ $Ap \leq 0.3D (D \leq \Phi 3)$ $Ap \leq 0.5D (D > \Phi 3)$												
Shape of cut												
Work material	Aluminum Alloy, cuprum			Carbon steel, Castiron AISI 1049, SCM,FC250 (~30HRC)			Alloy steel, Die steel (< 35HRC)			Stainless steel AISI 1304, AISI1316		
Φ D(mm)	Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)	
		2Flutes	4Flutes		2Flutes	4Flutes		2Flutes	4Flutes		2Flutes	4Flutes
1	19000	150	240	10000	60	96	6000	35	56	5000	30	48
2	11000	220	320	5500	90	108	3600	55	68	3000	45	56
3	8500	240	350	4250	100	120	2650	65	80	2200	55	68
4	7000	290	440	3600	145	216	2200	90	132	1500	55	108
5	6000	345	520	3000	150	228	1800	90	140	1200	55	116
6	5500	395	600	2650	170	252	1600	95	144	1100	65	128
8	4000	400	600	2000	180	272	1200	95	144	800	65	132
10	3200	360	540	1600	155	236	950	75	116	650	55	116
12	2560	295	440	1350	130	200	800	65	96	500	45	92
16	2000	225	336	1000	95	144	600	50	72	400	35	72
20	1600	180	272	800	80	120	500	40	60	320	30	56

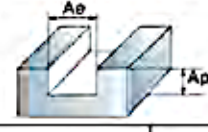
1. Use rigid and precise machine and tool holder.
2. If chattering and noise occur due to the rigidity of machine or the work material installation is very low, please reduce the revolution and the lead rate proportionately.
3. In drilling, please set the feed rate at 1/3 or below.
4. When cutting stainless steel, please use fluid; when cutting Austenitic stainless steel, non-water-soluble cutting fluid is very effective.

Cutting Data Parameters

1) Side Milling Standard 2/4Flutes

 $Ae \leq 0.1D (D \leq \Phi 3)$ $Ae \leq 0.2D (D > \Phi 3)$ $Ap \leq 1.5D$												
Shape of cut												
Work material	Aluminum Alloy, cuprum			Carbon steel, Castiron AISI 1049, SCM,FC250 (~30HRC)			Alloy steel, Die steel (< 35HRC)			Stainless steel AISI 1304, AISI1316		
Φ D(mm)	Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)	
		2Flutes	4Flutes		2Flutes	4Flutes		2Flutes	4Flutes		2Flutes	4Flutes
1	30400	240	480	16000	96	192	9600	56	112	8000	48	96
2	17600	352	640	8800	144	216	5760	88	136	4800	75	112
3	13600	384	696	6800	160	240	4240	104	160	3520	88	136
4	11200	584	880	5760	288	432	3520	176	264	2960	144	216
5	9600	688	1040	4800	304	456	2880	184	280	2400	152	232
6	8800	792	1200	4240	336	504	2560	192	288	2160	168	256
8	6400	800	1200	3200	360	544	1920	192	288	1600	176	264
10	5120	720	1080	2560	312	472	1520	152	232	1280	152	232
12	4240	592	880	2160	264	400	1280	128	192	1040	120	184
16	3200	448	672	1600	192	288	960	96	144	800	96	144
20	2560	360	544	1280	160	240	800	80	120	640	76	112

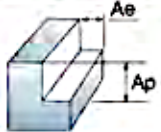
2) Slotting Standard 2/4Flutes

 2F $Ae=D$ $Ap \leq 0.1D (D < \Phi 2)$ $Ap \leq 0.3D (\Phi 2 \leq D \leq \Phi 3)$ $Ap \leq 0.5D (D > \Phi 3)$ 4F $Ae=D$ $Ap \leq 0.3D (D \leq \Phi 3)$ $Ap \leq 0.5D (D > \Phi 3)$												
Shape of cut												
Work material	Aluminum Alloy, cuprum			Carbon steel, Castiron AISI 1049, SCM,FC250 (~30HRC)			Alloy steel, Die steel (< 35HRC)			Stainless steel AISI 1304, AISI1316		
Φ D(mm)	Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)	
		2Flutes	4Flutes		2Flutes	4Flutes		2Flutes	4Flutes		2Flutes	4Flutes
1	30400	240	384	16000	96	154	9600	56	90	8000	48	77
2	17600	352	512	8800	144	173	5760	88	109	4800	72	90
3	13600	384	560	6800	160	192	4240	104	128	3520	88	109
4	11200	464	704	5760	232	346	3520	144	212	2400	88	173
5	9600	552	832	4800	240	365	2880	144	224	1920	88	186
6	8800	632	960	4240	272	404	2560	152	231	1760	104	205
8	6400	640	960	3200	288	436	1920	152	231	1280	104	212
10	5120	576	864	2560	248	378	1520	120	186	1040	88	186
12	3200	472	704	2160	208	320	1280	104	154	800	72	148
16	2560	360	538	1600	152	231	960	80	116	640	56	116
20	2000	288	736	1280	128	192	800	64	96	512	48	90

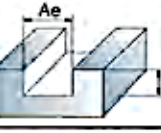
1. Use rigid and precise machine and tool holder.
2. If chattering and noise occur due to the rigidity of machine or the work material installation is very low, please reduce the revolution and the feed rate proportionately.
3. In drilling, please set the feed rate at 1/3 or below.
4. When cutting stainless steel, please use fluid; when cutting Austenitic stainless steel, non-water-soluble cutting fluid is very effective.

Cutting Data Parameters

1) Side Milling Extra Long 2/4Flutes

Shape of cut	 $Ae \leq 0.1D (D \leq \Phi 3)$ $Ae \leq 0.2D (D > \Phi 3)$ $Ap \leq 1.5D$						$Ae \leq 0.05D$ $AP \leq 1.00D$		
Work material	Carbon steel, Castiron AISI 1049, SCM,FC250 (~30HRC)			Alloy steel, Die steel, Pre-hardened steel AISI H13, NAK (< 45HRC)			Hardened steel AISI H13 (< 52HRC)		
ΦD (mm)	Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)	
		2Flutes	4Flutes		2Flutes	4Flutes		2Flutes	4Flutes
1	15000	300	450	10000	200	300	7500	60	90
2	7500	300	450	5000	200	300	4000	60	90
3	5000	300	450	3500	200	300	2500	60	90
4	3750	300	450	2600	200	300	2000	60	90
5	3000	300	450	2100	200	300	1600	60	90
6	2500	300	450	1750	200	300	1350	60	90
8	2000	260	390	1400	175	260	1000	55	80
10	1600	225	340	1100	150	225	800	50	70
12	1350	205	310	950	135	205	650	50	60
16	1000	180	275	700	115	175	500	65	85
20	800	160	245	550	110	170	400	55	70

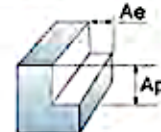
2) Slotting Extra Long 2/4Flutes

Shape of cut	 $Ae = D (D \leq \Phi 3)$ $Ae \leq 0.1D (D > \Phi 2)$ $Ap \leq 0.2D (D > \Phi 2)$						$Ae = D$ $AP \leq 0.05D (\Phi 0.5 \leq D \leq \Phi 2)$ $AP \leq 0.10D (D > \Phi 2)$		
Work material	Carbon steel, Castiron AISI 1049, SCM,FC250 (~30HRC)			Alloy steel, Die steel, Pre-hardened steel AISI H13, NAK (< 45HRC)			Hardened steel AISI H13 (< 52HRC)		
ΦD (mm)	Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)	
		2Flutes	4Flutes		2Flutes	4Flutes		2Flutes	4Flutes
1	15000	240	360	10000	160	240	7500	48	72
2	7500	240	360	5000	160	240	4000	48	72
3	5000	240	360	3500	160	240	2500	48	72
4	3750	240	360	2600	160	240	2000	48	72
5	3000	240	360	2100	160	240	1600	48	72
6	2500	240	360	1750	160	240	1350	48	72
8	2000	208	312	1400	140	208	1000	44	64
10	1600	180	272	1100	120	180	800	40	56
12	1350	164	248	950	108	164	650	40	48
16	1000	144	220	700	92	140	500	52	68
20	800	128	196	550	88	136	400	44	56

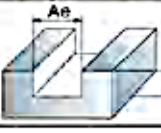
1. Use rigid and precise machine and tool holder.
2. If chattering and noise occur due to the rigidity of machine or the work material installation is very low, please reduce the revolution and the feed rate proportionately.
3. In drilling, please set the feed rate at 1/3 or below.
4. When cutting stainless steel, please use fluid; when cutting Austenitic stainless steel, non-water-soluble cutting fluid is very effective.

Cutting Data Parameters

1) Side Milling Standard 2/4Flutes

Shape of cut	 $Ae \leq 0.1D (D \leq \Phi 3)$ $Ae \leq 0.2D (D > \Phi 3)$ $Ap \leq 1.5D$						$Ae \leq 0.05D$ $AP \leq 1.00D$		
Work material	Carbon steel, Castiron AISI 1049, SCM,FC250 (~30HRC)			Alloy steel, Die steel, Pre-hardened steel AISI H13, NAK (< 45HRC)			Hardened steel AISI H13 (< 52HRC)		
ΦD (mm)	Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)	
		2Flutes	4Flutes		2Flutes	4Flutes		2Flutes	4Flutes
1	24000	480	720	16000	320	480	12000	96	144
2	12000	480	720	8000	320	480	6400	96	144
3	8000	480	720	5600	320	480	4000	96	144
4	6000	480	720	4160	320	480	3200	96	144
5	4800	480	720	3360	320	480	2560	96	144
6	4000	480	720	2800	320	480	2160	96	144
8	3200	416	624	2240	280	416	1600	88	128
10	2560	360	544	1760	240	360	1280	80	112
12	2160	328	496	1520	216	328	1040	80	96
16	1600	288	440	1120	184	280	800	104	136
20	1280	256	392	880	176	272	640	88	112

2) Slotting Standard 2/4Flutes

Shape of cut	 $Ae = D (D \leq \Phi 3)$ $Ae \leq 0.1D (D > \Phi 2)$ $Ap \leq 0.2D (D > \Phi 2)$						$Ae = D$ $AP \leq 0.05D (\Phi 0.5 \leq D \leq \Phi 2)$ $AP \leq 0.10D (D > \Phi 2)$		
Work material	Carbon steel, Castiron AISI 1049, SCM,FC250 (~30HRC)			Alloy steel, Die steel, Pre-hardened steel AISI H13, NAK (< 45HRC)			Hardened steel AISI H13 (< 52HRC)		
ΦD (mm)	Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)		Rev(min ⁻¹)	Cutting speed(mm/min)	
		2Flutes	4Flutes		2Flutes	4Flutes		2Flutes	4Flutes
1	24000	384	576	16000	256	384	12000	77	116
2	12000	384	576	8000	256	384	6400	77	116
3	8000	384	576	5600	256	384	4000	77	116
4	6000	384	576	4160	256	384	3200	77	116
5	4800	384	576	3360	256	384	2560	77	116
6	4000	384	576	2800	256	384	2160	77	116
8	3200	333	500	2240	224	333	1600	71	103
10	2560	288	436	1760	192	288	1280	64	90
12	2160	363	397	1520	173	263	1040	64	77
16	1600	231	352	1120	148	224	800	84	109
20	1280	205	314	880	141	218	640	71	90

1. Use rigid and precise machine and tool holder.
2. If chattering and noise occur due to the rigidity of machine or the work material installation is very low, please reduce the revolution and the feed rate proportionately.
3. In drilling, please set the feed rate at 1/3 or below.
4. When cutting stainless steel, please use fluid; when cutting Austenitic stainless steel, non-water-soluble cutting fluid is very effective.