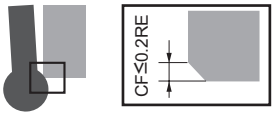
Recommended Cutting Conditions

■ Chamfering (Debarring)

(mm)

Workpiece Material		Milld Steels, Carbon Steels, Copper Alloys, Pre-hardened Steels (–45HRC) SS400, S10C, S45C, SCM440, SNCM439 NAK, SKD etc.			Austentic, Ferritic and Martensitic Stainless Steels, Precipitation Hardening Stainless Steels, Cobalt Chrome Alloys, Titanium Alloys SUS304, SUS316L, SUS420J, SUS630、SU631, Ti-6Al-4V, CCM etc.		
DC	**RE**	Revolution **n** (min^{-1})	Feed Rate **vf** (mm/min)	Depth of Cut **Max.CF**	Revolution **n** (min^{-1})	Feed Rate **vf** (mm/min)	Depth of Cut **Max.CF**
1.0	**0.5**	19000	300	0.10	14000	220	0.10
1.3	**0.65**	15000	420	0.13	11000	310	0.13
1.8	**0.9**	11000	570	0.18	8000	420	0.18
2.0	**1.0**	9500	610	0.20	7200	460	0.20
2.8	**1.4**	6800	760	0.28	5100	570	0.28
3.0	**1.5**	6400	770	0.30	4800	580	0.30
3.8	**1.9**	5000	840	0.38	3800	640	0.38
4.0	**2.0**	4800	880	0.40	3600	660	0.40
4.8	**2.4**	4000	960	0.48	3000	720	0.48
5.0	**2.5**	3800	970	0.50	2900	740	0.50
6.0	**3.0**	3200	1000	0.60	2400	770	0.60
Depth of Cut		 RE : Radius					

■ Internal Profile / Undercut

(mm)

Workpiece Material		Milld Steels, Carbon Steels, Copper Alloys, Pre-hardened Steels (–45HRC) SS400, S10C, S45C, SCM440, SNCM439 NAK, SKD etc.			Austentic, Ferritic and Martensitic Stainless Steels, Precipitation Hardening Stainless Steels, Cobalt Chrome Alloys, Titanium Alloys SUS304, SUS316L, SUS420J, SUS630、SU631, Ti-6Al-4V, CCM etc.		
DC	**RE**	Revolution **n** (min^{-1})	Feed Rate **vf** (mm/min)	Depth of Cut **ae**	Revolution **n** (min^{-1})	Feed Rate **vf** (mm/min)	Depth of Cut **ae**
2.0	**1.0**	9500	460	0.03	7200	290	0.03
3.0	**1.5**	6400	560	0.10	4800	350	0.10
4.0	**2.0**	4800	650	0.14	3600	390	0.14
5.0	**2.5**	3800	730	0.18	2900	440	0.18
6.0	**3.0**	3200	770	0.22	2400	460	0.22
Depth of Cut		 RE : Radius					

Note 1) SMART MIRACLE coating has very low electrical conductivity; therefore, an external contact type of tool setter (electrically transmitted) may not work. When measuring the tool length, please use an internal contact type (non-electrical type) or a laser tool setter.

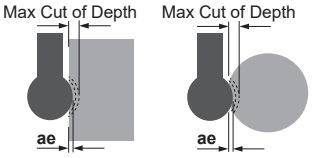
Note 2) If the depth of cut is smaller than this table, feed rate can be increased.

Note 3) If the rigidity of the machine or the workpiece material installation is very low, or chattering is generated, please reduce the revolution and the feed rate proportionately.

Note 4) For sizes RE 0.5, 0.65, 0.9, 1.4, 1.9 and RE 2.4 which have long neck lengths, internal profile milling and round shape slotting are not recommended.

■ Radiused Shape Slotting

(mm)

Workpiece Material		Milld Steels, Carbon Steels, Copper Alloys, Pre-hardened Steels (–45HRC) SS400, S10C, S45C, SCM440, SNCM439 NAK, SKD etc.				Austentic, Ferritic and Martensitic Stainless Steels, Precipitation Hardening Stainless Steels, Cobalt Chrome Alloys, Titanium Alloys SUS304, SUS316L, SUS420J, SUS630、SU631, Ti-6Al-4V, CCM etc.			
DC	**RE**	Revolution **n** (min^{-1})	Feed Rate **vf** (mm/min)	Depth of Cut **ae**	Depth of Cut **Max ae**	Revolution **n** (min^{-1})	Feed Rate **vf** (mm/min)	Depth of Cut **ae**	Depth of Cut **Max ae**
2.0	**1.0**	9500	300	0.03	0.06	7200	140	0.03	0.06
3.0	**1.5**	6400	380	0.10	0.20	4800	190	0.10	0.20
4.0	**2.0**	4800	440	0.14	0.28	3600	230	0.14	0.28
5.0	**2.5**	3800	490	0.18	0.54	2900	260	0.18	0.54
6.0	**3.0**	3200	510	0.22	0.88	2400	270	0.22	0.88
Depth of Cut									

Note 1) SMART MIRACLE coating has very low electrical conductivity; therefore, an external contact type of tool setter (electrically transmitted) may not work. When measuring the tool length, please use an internal contact type (non-electrical type) or a laser tool setter.

Note 2) If the depth of cut is smaller than this table, feed rate can be increased.

Note 3) If the rigidity of the machine or the workpiece material installation is very low, or chattering is generated, please reduce the revolution and the feed rate proportionately.

Note 4) For sizes RE 0.5, 0.65, 0.9, 1.4, 1.9 and RE 2.4 which have long neck lengths, internal profile milling and round shape slotting are not recommended.

Note 5) The maximum allowed depth of cut (Max ae) avoids interference between the workpiece and tool shank. It is recommended to machine up to the Max ae in 2-4 passes.