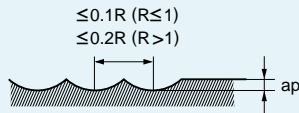


RECOMMENDED CUTTING CONDITIONS

Work material		Hardened steel (45—55HRC)			Hardened steel (55—62HRC)			Work material		Hardened steel (45—55HRC)			Hardened steel (55—62HRC)		
		X40CrMoV51			X210Cr12					X40CrMoV51			X210Cr12		
R (mm)	Neck length (mm)	Revolution (min ⁻¹)	Feed rate (mm/min)	Depth of cut ap (mm)	Revolution (min ⁻¹)	Feed rate (mm/min)	Depth of cut ap (mm)	R (mm)	Neck length (mm)	Revolution (min ⁻¹)	Feed rate (mm/min)	Depth of cut ap (mm)	Revolution (min ⁻¹)	Feed rate (mm/min)	Depth of cut ap (mm)
R 0.1	0.5	40000	300	0.003	40000	300	0.002	R 0.75	18	13000	1100	0.02	10000	800	0.02
	1	40000	300	0.002	40000	300	0.002		20	12000	900	0.02	9000	700	0.01
	1.5	40000	300	0.001	40000	200	0.001		8	40000	5000	0.08	26000	3200	0.07
	2	40000	200	0.001	40000	100	0.001		12	35000	3800	0.05	20000	2100	0.03
R 0.15	2.5	40000	100	0.001	40000	60	0.001	R 0.8	16	13000	1200	0.04	12000	1100	0.02
	1	40000	500	0.007	40000	500	0.005		20	10000	750	0.02	8000	600	0.01
	1.5	40000	500	0.005	40000	500	0.003		8	40000	5000	0.09	25000	3100	0.08
	2	40000	500	0.003	40000	500	0.002		12	36000	3800	0.06	18000	1900	0.04
	2.5	40000	400	0.003	40000	400	0.002		16	25000	2500	0.04	14000	1300	0.025
R 0.2	3	40000	300	0.002	40000	300	0.001	R 0.9	20	10000	1000	0.03	8000	800	0.02
	4	40000	200	0.002	30000	200	0.001		6	40000	6000	0.1	24000	3400	0.1
	1	40000	1400	0.015	40000	1400	0.01		8	40000	5000	0.1	24000	3000	0.1
	1.5	40000	1000	0.01	40000	1000	0.006		10	40000	5000	0.08	24000	3000	0.07
	2	40000	1000	0.01	40000	1000	0.006		12	40000	5000	0.08	24000	2600	0.05
R 0.25	2.5	40000	700	0.005	40000	700	0.003	R 1	14	40000	5000	0.06	21000	2300	0.05
	3	40000	700	0.005	40000	700	0.003		16	32000	3500	0.05	16000	1700	0.03
	4	40000	600	0.004	40000	500	0.003		18	24000	2400	0.04	13000	1300	0.03
	5	40000	400	0.003	40000	300	0.002		20	10000	1000	0.04	10000	1000	0.03
	1.5	40000	2000	0.02	40000	2000	0.015		22	10000	1000	0.04	10000	1000	0.02
	2	40000	2000	0.02	40000	2000	0.015		25	10000	1000	0.04	8000	800	0.02
R 0.3	3	40000	1200	0.015	40000	1200	0.01	R 1.25	30	10000	800	0.02	8000	800	0.015
	4	36000	900	0.01	36000	900	0.007		35	10000	500	0.02	8000	400	0.01
	5	36000	700	0.007	36000	600	0.005		10	36000	5000	0.12	20000	2600	0.11
	6	36000	600	0.006	36000	500	0.004		15	36000	4600	0.08	18000	2000	0.075
	2	40000	2800	0.03	40000	2800	0.02		20	26000	3000	0.07	13000	1400	0.05
	3	40000	2800	0.03	40000	2800	0.02		25	10000	1100	0.06	8000	800	0.04
R 0.4	4	35000	2000	0.02	35000	2000	0.015	R 1.5	30	8000	800	0.05	7000	700	0.03
	5	30000	1000	0.01	30000	1000	0.007		35	8000	500	0.03	5000	400	0.03
	6	30000	800	0.008	30000	800	0.005		8	32000	6400	0.15	16000	3000	0.15
	7	30000	600	0.008	30000	600	0.005		10	32000	5100	0.15	16000	2200	0.15
	8	25000	400	0.006	25000	400	0.004		12	32000	5100	0.13	16000	2200	0.13
	2	40000	3500	0.04	40000	3500	0.03		14	32000	4500	0.13	16000	2200	0.1
	3	40000	3000	0.04	40000	3000	0.03		16	32000	4500	0.1	16000	1800	0.1
	4	40000	3000	0.02	40000	3000	0.015		20	27000	3800	0.1	14000	1600	0.06
R 0.5	6	30000	1600	0.02	30000	1600	0.01	R 1.75	25	21000	2700	0.08	11000	1200	0.06
	8	25000	1000	0.01	25000	1000	0.007		30	9000	1000	0.08	7000	700	0.05
	10	25000	600	0.008	25000	600	0.005		35	6000	700	0.06	6000	600	0.04
	3	40000	4000	0.05	40000	4000	0.04		40	6000	600	0.04	5000	400	0.03
	4	40000	4000	0.05	40000	4000	0.04		16	28000	4200	0.13	14000	1600	0.13
	5	40000	3000	0.03	40000	3000	0.02		20	26000	3800	0.13	13000	1600	0.11
	6	35000	2000	0.03	35000	2000	0.02		25	23000	3300	0.12	11000	1200	0.08
	8	30000	1600	0.02	30000	1600	0.01		30	13000	1900	0.09	9000	1000	0.07
	10	20000	1000	0.01	20000	1000	0.01		35	9000	1200	0.08	6000	600	0.06
	12	20000	1000	0.01	18000	800	0.008		40	8500	1100	0.07	5500	500	0.04
R 0.6	14	18000	600	0.008	18000	480	0.008	R 2	10	24000	4800	0.2	12000	2200	0.2
	16	18000	500	0.008	18000	400	0.006		12	24000	4800	0.2	12000	2200	0.2
	18	13000	300	0.005	13000	240	0.004		14	24000	3800	0.15	12000	1500	0.15
	20	13000	250	0.005	13000	200	0.004		16	24000	3800	0.15	12000	1500	0.15
	6	40000	4000	0.05	35000	3500	0.04		20	24000	3800	0.15	12000	1500	0.15
	8	40000	3000	0.05	27000	2000	0.04		25	24000	3800	0.15	10000	1100	0.1
R 0.7	10	27000	1900	0.03	24000	1700	0.02	R 2.5	30	20000	3000	0.1	10000	1100	0.08
	12	16000	1100	0.02	16000	1000	0.01		35	12000	1700	0.1	8000	900	0.08
	14	16000	850	0.01	16000	780	0.01		40	11000	1500	0.1	5000	500	0.06
	16	15000	500	0.01	14000	400	0.006		45	10000	1300	0.08	5000	500	0.05
	8	40000	4500	0.06	28000	3200	0.05		50	8000	1000	0.05	4000	400	0.04
	12	32000	3000	0.03	19000	1800	0.02		20	19000	3400	0.2	10000	1400	0.2
R 0.75	16	15000	1000	0.02	14000	800	0.01	R 3	25	19000	3400	0.2	10000	1400	0.2
	6	40000	5000	0.07	32000	4000	0.06		30	19000	3200	0.15	8000	1000	0.15
	8	40000	5000	0.07	28000	3500	0.06		35	16000	2700	0.1	8000	900	0.1
	10	40000	4500	0.06	21000	2400	0.04		30	16000	3500	0.2	8000	1000	0.2
	12	32000	3400	0.04	19000	2000	0.03		40	16000	3000	0.15	8000	800	0.15
	14	16000	1500	0.04	13000	1200	0.03		50	16000	2700	0.15	6000	500	0.15
16	13000	1200	0.03	13000	1200	0.02									



R:Radius

- 1) If the depth of cut is shallow, the revolution and feed rate can be increased.
- 2) Cutting condition may be considerably different due to the overhang (milling depth), depth of cut, and machine tools. Please see the above table as a standard.