

Recommended cutting conditions

Overhang below 5D (D:Dia.)

Work material	Carbon steel, Alloy steel, Alloy tool steel, Tool steel, Pre-hardened steel						Hardened steel (45—55HRC)					
	$\alpha \leq 15^\circ$		$\alpha > 15^\circ$		Depth of cut a_p (mm)	Depth of cut a_e (mm)	$\alpha \leq 15^\circ$		$\alpha > 15^\circ$		Depth of cut a_p (mm)	Depth of cut a_e (mm)
	Revolution (min^{-1})	Feed rate (mm/min)	Revolution (min^{-1})	Feed rate (mm/min)			Revolution (min^{-1})	Feed rate (mm/min)	Revolution (min^{-1})	Feed rate (mm/min)		
R 0.5	40000	3900	36000	2100	0.10	0.25	40000	4300	36000	2200	0.10	0.25
R 0.75	40000	4200	36000	2600	0.15	0.35	40000	4700	36000	2700	0.15	0.35
R 1	40000	4500	36000	3100	0.20	0.50	40000	5000	36000	3300	0.20	0.50
R 1.5	37000	5300	24000	2700	0.30	0.75	37000	5800	24000	2800	0.30	0.75
R 2X4	24000	3200	15000	2000	0.25	0.70	19000	2800	13000	1600	0.25	0.70
R 2	30000	4900	19000	2500	0.40	1.00	28000	5000	19000	2400	0.40	1.00
R 2.5	25000	4500	16000	2300	0.50	1.30	22000	4200	16000	2200	0.50	1.25
R 3	22000	4300	14000	2200	0.60	1.80	18000	3800	12000	1800	0.60	1.50
R 4	19000	3900	12000	2000	0.80	2.40	15000	3200	9500	1600	0.80	2.00
R 5	15000	3300	9500	1800	1.00	3.00	11000	2500	7000	1400	1.00	2.50
R 6	12000	2550	8000	1600	1.20	3.60	9000	2000	6000	1300	1.20	3.00

Overhang below 7D (D:Dia.)

Work material	Carbon steel, Alloy steel, Alloy tool steel, Tool steel, Pre-hardened steel						Hardened steel (45—55HRC)					
	$\alpha \leq 15^\circ$		$\alpha > 15^\circ$		Depth of cut a_p (mm)	Depth of cut a_e (mm)	$\alpha \leq 15^\circ$		$\alpha > 15^\circ$		Depth of cut a_p (mm)	Depth of cut a_e (mm)
	Revolution (min^{-1})	Feed rate (mm/min)	Revolution (min^{-1})	Feed rate (mm/min)			Revolution (min^{-1})	Feed rate (mm/min)	Revolution (min^{-1})	Feed rate (mm/min)		
R 3	10000	1500	6900	1000	0.20	1.00	8000	1400	5300	770	0.20	0.80
R 4	8000	1400	5600	900	0.30	1.50	6400	1300	4000	650	0.30	1.20
R 5	6000	1200	4100	740	0.40	2.00	4800	1100	3200	580	0.40	1.60
R 6	5000	1000	3400	600	0.45	2.40	4000	900	2700	490	0.45	2.00

1) α is the inclination of the machined surface.

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

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