

Recommended Cutting Conditions

Recommended Cutting Conditions - External Turning (Positive Insert)

ISO Classification	Workpiece Material	Hardness	Cutting Range	Application	Recommended Chipbreaker	Recommended Grade	Corner-R (r _e)	Lower Limit - Recommendation - Upper Limit		
								Vc (m/min)	ap (mm)	f (mm/rev)
*P	Low Carbon Steel Low Carbon Alloy	HB ≤ 300	Precision Finishing	Continuous Interruption	FSF	PR1025 PR1025	0.05 0.2	80 - 100 - 120 60 - 80 - 100	0.05 - 0.07 - 0.15 0.05 - 0.1 - 0.2	0.03 - 0.05 - 0.1 0.03 - 0.1 - 0.15
			Precision Finishing (Molded Chipbreaker)	Continuous	CF	PR1025	0.2	80 - 100 - 120	0.02 - 0.05 - 0.1	0.02 - 0.05 - 0.12
			Finishing	Continuous Interruption	GF	PR1025 PR1025	0.2 0.4	80 - 100 - 120 60 - 80 - 100	0.2 - 0.5 - 1.0 0.2 - 0.5 - 1.0	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2
			Finishing-Medium	Continuous Interruption	GQ	PR1025 PR1025	0.2 0.4	80 - 120 - 150 60 - 80 - 100	0.3 - 1.5 - 3.0 0.3 - 1.0 - 2.0	0.03 - 0.05 - 0.1 0.03 - 0.05 - 0.1
			Low Feed & Large ap	Continuous	J, U	PR1025	0.2	60 - 80 - 100	0.5 - 2.0 - 3.5	0.02 - 0.05 - 0.1
			Back Turning	Continuous	(ABW) (ABS)	PR1025	0.15	60 - 80 - 100	0.5 - 2.0 - 4.0	0.02 - 0.04 - 0.07
					TKFB 12R15...	PR1025	0.05	60 - 100 - 150	0.5 - 1.0 - 1.5	0.02 - 0.05 - 0.12
					TKFB 12R28...	PR1025	0.1	60 - 100 - 150	0.8 - 2.0 - 4.0	0.02 - 0.1 - 0.15
					TKFB 12R38...	PR1025	0.1	60 - 100 - 150	1.1 - 3.0 - 5.5	0.02 - 0.1 - 0.15
	Medium Carbon Steel Medium Carbon Alloy	HB ≤ 330	Precision Finishing	Continuous Interruption	FSF	PR1025 PR1025	0.05 0.2	80 - 100 - 120 60 - 80 - 100	0.05 - 0.07 - 0.15 0.05 - 0.1 - 0.2	0.03 - 0.05 - 0.1 0.03 - 0.1 - 0.15
			Precision Finishing (Molded Chipbreaker)	Continuous	CF	PR1025	0.2	80 - 100 - 120	0.02 - 0.05 - 0.1	0.02 - 0.05 - 0.12
			Finishing	Continuous Interruption	GF	PR1025 PR1025	0.2 0.4	80 - 100 - 120 60 - 80 - 100	0.2 - 0.5 - 1.0 0.2 - 0.5 - 1.0	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2
			Finishing-Medium	Continuous Interruption	GQ	PR1025 PR1025	0.2 0.4	80 - 120 - 150 60 - 80 - 100	0.3 - 1.5 - 3.0 0.3 - 1.0 - 2.0	0.03 - 0.05 - 0.1 0.03 - 0.05 - 0.1
			Low Feed & Large ap	Continuous	J, U	PR1025	0.2	60 - 80 - 100	0.5 - 2.0 - 3.5	0.02 - 0.05 - 0.1
			Back Turning	Continuous	(ABW) (ABS)	PR1025	0.15	60 - 80 - 100	0.5 - 2.0 - 4.0	0.02 - 0.04 - 0.07
					TKFB 12R15...	PR1025	0.05	60 - 100 - 150	0.5 - 1.0 - 1.5	0.02 - 0.05 - 0.12
					TKFB 12R28...	PR1025	0.1	60 - 100 - 150	0.8 - 2.0 - 4.0	0.02 - 0.1 - 0.15
					TKFB 12R38...	PR1025	0.1	60 - 100 - 150	1.1 - 3.0 - 5.5	0.02 - 0.1 - 0.15
	High Carbon Alloy	HB ≤ 280	Precision Finishing	Continuous Interruption	FSF	PR1025 PR1025	0.05 0.2	80 - 100 - 120 60 - 80 - 100	0.05 - 0.07 - 0.15 0.05 - 0.1 - 0.2	0.03 - 0.05 - 0.1 0.03 - 0.1 - 0.15
			Precision Finishing (Molded Chipbreaker)	Continuous	CF	PR1025	0.2	80 - 100 - 120	0.02 - 0.05 - 0.1	0.02 - 0.05 - 0.12
			Finishing	Continuous Interruption	GF	PR1025 PR1025	0.2 0.4	80 - 100 - 120 60 - 80 - 100	0.2 - 0.5 - 1.0 0.2 - 0.5 - 1.0	0.05 - 0.1 - 0.2 0.05 - 0.1 - 0.2
			Finishing-Medium	Continuous Interruption	GQ	PR1025 PR1025	0.2 0.4	80 - 100 - 120 60 - 80 - 100	0.3 - 1.5 - 3.0 0.3 - 1.0 - 2.0	0.03 - 0.05 - 0.1 0.03 - 0.05 - 0.1
			Low Feed & Large ap	Continuous	J, U	PR1025	0.2	60 - 80 - 100	0.5 - 2.0 - 3.5	0.02 - 0.05 - 0.1
			Back Turning	Continuous	(ABW) (ABS)	PR1025	0.15	60 - 80 - 100	0.5 - 2.0 - 4.0	0.02 - 0.04 - 0.07
					TKFB 12R15...	PR1025	0.05	60 - 100 - 150	0.5 - 1.0 - 1.5	0.02 - 0.05 - 0.12
					TKFB 12R28...	PR1025	0.1	60 - 100 - 150	0.8 - 2.0 - 4.0	0.02 - 0.1 - 0.15
					TKFB 12R38...	PR1025	0.1	60 - 100 - 150	1.1 - 3.0 - 5.5	0.02 - 0.1 - 0.15

*For machining free-cutting steels, such as 11SMn (SUM), etc., use PR1005 at Vc=200m/min or less. For ap and f, refer to specs for low carbon steels.

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Small Tools