

Recommended Cutting Data

Turning – Carbide and High Positive Inserts

uncoated

ISO	Material		Tensile strength [N/mm ²]	Cutting speed Vc [m/min]			
				AK1010	AK1020	AK10	AK20
P	Unalloyed steel and cast steel	ca. 0,15% C	350	-	-	-	-
		ca. 0,45% C	650	-	-	-	-
		ca. 0,75% C	1000	-	-	-	-
	Low alloyed steel and cast steel		600	-	-	-	-
			900	-	-	-	-
			1200	-	-	-	-
	High alloyed steel, high alloyed tool steel and cast steel	annealed	700	-	-	-	-
		hardened and tempered	1100	-	-	-	-
M	Stainless steel and cast steel	ferritic / martensitic, annealed	700	-	-	-	-
		martensitic, hardened and tempered	1000	-	-	-	-
K	Cast iron	austenitic and austenitic/ferritic	450 - 600	-	-	-	-
		chilled	600 - 900	-	-	-	-
		pearlitic, ferritic	500 - 700	120 - 160	120 - 160	120 - 160	120 - 160
	Cast iron with nodular graphite	pearlitic, martensitic	700 - 850	90 - 140	90 - 140	90 - 140	90 - 140
			800 - 1100	80 - 140	80 - 140	80 - 140	80 - 140
	Malleable cast iron	ferritic	450	140 - 200	140 - 200	140 - 200	140 - 200
		pearlitic	750	120 - 160	120 - 160	120 - 160	120 - 160
N	Aluminum alloys, long chipping	not heat treatable	200	300 - 2500	300 - 2500	300 - 2500	300 - 2500
		heat treatable, heat treated	350	200 - 2000	200 - 2000	200 - 2000	200 - 2000
	Cast aluminum alloys	≤ 12% Si, hardened	250	400 - 1500	400 - 1500	400 - 1500	400 - 1500
		≤ 12% Si, heat treatable, heat treated	300	400 - 1500	400 - 1500	400 - 1500	400 - 1500
		≤ 12% Si, not heat treatable	450	200 - 800	200 - 800	200 - 800	200 - 800
	Copper and copper alloys (brass/bronze)	Lead alloys, Pb > 1%	400	250 - 600	250 - 600	250 - 600	250 - 600
		Brass, bronze	300	200 - 600	200 - 600	200 - 600	200 - 600
		Aluminum bronze	500	150 - 400	150 - 400	150 - 400	150 - 400
		Copper and electrolyte copper	200	150 - 300	150 - 300	150 - 300	150 - 300
	Non-ferrous materials	Duroplastics		80 - 180	80 - 180	80 - 180	80 - 180
		Reinforced plastics		60 - 150	60 - 150	60 - 150	60 - 150
		Hard rubber		100 - 250	100 - 250	100 - 250	100 - 250
S	High temperature resistant alloys	Fe-alloyed annealed	700	15 - 40	-	15 - 40	-
		Fe-alloyed hardened	950	8 - 28	-	8 - 28	-
		Ni- oder Co- based annealed	800	10 - 30	-	10 - 30	-
		Ni- oder Co- based casting	1100	8 - 25	-	8 - 25	-
		Ni- oder Co- based hardened	1200	8 - 25	-	8 - 25	-
	Titanium alloys, high strength	Pure titanium	500 - 700	60 - 120	60 - 120	60 - 120	-
H	Alpha- and beta-alloys, hardened		700 - 1000	30 - 80	30 - 80	30 - 80	30 - 80
	Hardened steel	hardened and tempered	1000 - 1350	-	-	-	-
		hardened and tempered	1350 - 1700	-	-	-	-
	Hard cast iron	casting	1350	-	-	-	-
	Hardened cast iron	hardened and tempered	1900	-	-	-	-

The datas cutting speeds given are approximate values.
It is necessary to adjust them to the individual machining operation.

More grades on the
following pages. 