Turning – Carbide

coated

ISO	Material		Tensile strength [N/mm²]	Cutting speed Vc [m/min]										
				AK2010	AK2110	AK2310	AK2320	AM2030	AM2035	AM2110	AM2130	AM5015	AM5020	AM5025
P	Unalloyed steel and cast steel	ca. 0,15% C	350	-	220 - 380	220 - 380	200 - 340	170 - 220	180 - 230	-	-	220 - 320	180 - 230	180 - 230
		ca. 0,45% C	650	-	190 - 330	190 - 330	180 - 290	160 - 180	170 - 190	-	-	180 - 290	170 - 190	170 - 190
		ca. 0,75% C	1000	-	160 - 280	160 - 280	150 - 240	120 - 140	130 - 150	-	-	150 - 250	130 - 150	130 - 150
	Low alloyed steel and cast steel		600	-	180 - 300	180 - 300	170 - 260	160 - 180	170 - 190	-	-	180 - 280	170 - 190	170 - 190
			900	-	160 - 260	160 - 260	150 - 240	80 - 140	90 - 150	-	-	170 - 250	90 - 150	90 - 150
			1200	-	120 - 220	120 - 220	120 - 220	60 - 120	70 - 130	-	-	150 - 220	70 - 130	70 - 130
	High alloyed steel, high alloyed tool steel and cast steel	annealed	700	-	140 - 220	140 - 220	140 - 200	110 - 190	120 - 200	-	-	80 - 160	120 - 200	120 - 200
		hardened and tempered	1100	-	70 - 130	70 - 130	70 - 120	40 - 90	50 - 100	-	-	40 - 130	50 - 100	50 - 100
	Stainless steel and cast steel	ferritic / martensitic, annealed	700	-	140 - 220	140 - 220	140 - 220	130 - 170	140 - 180	-	-	60 - 180	140 - 180	140 - 180
		martensitic, hardened and tempered	1000	-	70 - 130	70 - 130	70 - 110	100 - 150	110 - 140	-	-	40 - 140	110 - 140	110 - 140
M	Stainless steel and cast steel	austenitic and austenitic/ferritic	450 - 600	-	-	-	-	100 - 180	100 - 180	120 - 200	100 - 140	80 - 160	120 - 200	120 - 200
		chilled	600 - 900	-	-	-	-	70 - 140	70 - 140	70 - 180	70 - 140	40 - 130	90 - 160	90 - 160
K	Cast iron	pearlitic, ferritic	500 - 700	150 - 210	250 - 380	250 - 380	250 - 340	-	-	-	-	180 - 300	-	120 - 160
		pearlitic, martensitic	700 - 850	220 - 350	190 - 300	190 - 300	190 - 250	-	-	-	-	160 - 280	-	90 - 130
			800 - 1100	-	-	-	-	-	-			120 - 240	-	-
	Cast iron with nodular graphite	ferritic	550	220 - 380	220 - 300	220 - 300	200 - 260	-	-	-	-	140 - 230	-	120 - 160
		pearlitic	800	200 - 350	150 - 230	150 - 230	150 - 200	-	-	-	-	120 - 170	-	120 - 180
	Malleable cast iron	ferritic	450	200 - 400	200 - 300	200 - 300	200 - 260	-	-	-	-	150 - 210	-	140 - 220
		pearlitic	750	180 - 320	170 - 230	170 - 230	170 - 200	-	-	-	-	150 - 210	-	110 - 160
N	Aluminum alloys, long chipping	not heat treatable	200	-	-	-	-	-	-	-	-	-	-	-
		heat treatable, heat treated	350	-	-	-	-	-	-	-	-	-	-	-
	Casted aluminum alloys	≤ 12% Si, hardened	250	-	-	-	-	-	-	-	-	-	-	-
		≤ 12% Si, heat treatable, hardened	300	-	-	-	-	-	-	-	-	-	-	-
		≤ 12% Si, not heat treatable	450	-	-	-	-	-	-	-	-	-	-	-
	Copper and copper alloys (brass / bronze)	Lead alloys, Pb > 1%	400	-	-	-	-	-	-	-	-	200 - 500	-	-
		Brass, bronze	300	-	-	-	-	-	-	-	-	200 - 500	-	-
		Aluminum bronze	500	-	-	-	-	-	-	-	-	160 - 450	-	-
		Copper and electrolyte copper	200	-	-	-	-	-	-	-	-	100 - 320	-	-
	Non-ferrous materials	Duroplastics		-	-	-	-	-	-	-	-	160 - 600	-	-
		Reinforced plastics		-	-	-	-	-	-	-	-	100 - 300	-	-
		Hard rubber		-	-	-	-	-	-	-	-	-	-	-
S	High temperature resistant alloys	Fe-alloyed annealed	700	-	-	-	-	20 - 40	20 - 40	-	-	20 - 60	-	20 - 50
		Fe-alloyed hardened	950	-	-	-	-	15 - 35	15 - 35	-	-	20 - 60	-	20 - 50
		Ni- oder Co- based annealed	800	-	-	-	-	8 - 25	8 - 25	-	-	15 - 50	-	15 - 40
		Ni- oder Co- based casting	1100	-	-	-	-	4 - 15	4 - 15	-	-	15 - 40	-	10 - 25
		Ni- oder Co- based hardened	1200	-	-	-	-	4 - 15	4 - 15	-	-	15 - 40	-	20 - 35
	Titanium alloys, high strength	Pure titanium	500 - 700	-	-	-	-	80 - 130	80 - 130	-	-	90 - 180	-	80 - 140
	Alpha- and beta-alloys, hardened		700 - 1000	-	-	-	-	15 - 35	15 - 35	-	-	40 - 80	-	25 - 45
H	Hardened steel	hardened and tempered	1000 - 1350	-	-	-	-	-	-	-	-	30 - 50	-	-
		hardened and tempered	1350 - 1700	-	-	-	-	-	-	-	-	10 - 25	-	-
	Hard cast iron	casting	1350	-	-	-	-	-	-	-	-	40 - 70	-	-
	Hardened cast iron	hardened and tempered	1900	-	-	-	-	-	-	-	-	10 - 25	-	-

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.