

Recommended Cutting Data

Turning – High Positive Inserts

coated

ISO	Material		Tensile strength [N/mm²]	Cutting speed Vc [m/min]							
				AM15C	AM5015	AM5025	AM5110	AM5120	AM5120+	AM5220	AP5210
P	Unalloyed steel and cast steel	ca. 0,15% C	350	220 - 320	220 - 320	180 - 280	220 - 350	220 - 320	180 - 280	180 - 280	220 - 370
		ca. 0,45% C	650	180 - 250	180 - 290	160 - 250	180 - 310	180 - 290	160 - 250	160 - 250	180 - 330
		ca. 0,75% C	1000	140 - 200	150 - 250	120 - 220	150 - 270	150 - 250	120 - 220	120 - 220	150 - 290
	Low alloyed steel and cast steel		600	180 - 250	180 - 280	160 - 250	180 - 300	180 - 280	-	160 - 250	180 - 320
			900	160 - 220	170 - 250	140 - 230	170 - 270	170 - 250	-	140 - 230	170 - 290
			1200	140 - 200	150 - 220	120 - 200	150 - 240	150 - 220	-	120 - 200	150 - 260
	High alloyed steel, high alloyed tool steel and cast steel	annealed	700	140 - 230	80 - 160	70 - 150	80 - 180	80 - 160	-	70 - 150	80 - 180
		hardened and tempered	1100	110 - 200	40 - 130	35 - 120	40 - 140	40 - 130	-	35 - 120	40 - 150
	Stainless steel and cast steel	ferritic / martensitic, annealed	700	170 - 260	60 - 180	50 - 160	40 - 180	40 - 150	50 - 160	50 - 160	40 - 140
		martensitic, hardened and tempered	1000	110 - 200	40 - 140	40 - 140	40 - 160	40 - 130	40 - 140	40 - 140	40 - 120
M	Stainless steel and cast steel	austenitic and austenitic/ferritic	450 - 600	210 - 250	80 - 160	70 - 150	80 - 180	80 - 160	70 - 150	70 - 150	70 - 150
		chilled	600 - 900	100 - 170	40 - 130	35 - 120	40 - 140	40 - 130	35 - 120	35 - 120	35 - 120
K	Cast iron	pearlitic, ferritic	500 - 700	210 - 250	180 - 300	180 - 300	180 - 350	180 - 300	180 - 300	180 - 300	180 - 350
		pearlitic, martensitic	700 - 850	90 - 130	160 - 280	160 - 280	160 - 300	160 - 280	160 - 280	160 - 280	160 - 300
			800 - 1100	90 - 130	120 - 240	120 - 240	120 - 270	120 - 240	120 - 240	120 - 240	120 - 270
	Cast iron with nodular graphite	ferritic	550	210 - 250	140 - 230	130 - 210	140 - 230	140 - 230	-	140 - 230	140 - 230
		pearlitic	800	90 - 130	120 - 170	110 - 150	120 - 170	120 - 170	-	120 - 170	120 - 170
	Malleable cast iron	ferritic	450	210 - 250	150 - 210	130 - 200	150 - 210	150 - 210	-	150 - 210	150 - 210
pearlitic		750	90 - 130	150 - 210	130 - 200	150 - 210	150 - 210	-	150 - 210	150 - 210	
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, heat treated	300	-	-	-	-	-	-	-	-
		≤ 12% Si, not heat treatable	450	-	-	-	-	-	-	-	-
	Copper and copper alloys (brass / bronze)	Lead alloys, Pb > 1%	400	-	200 - 500	200 - 400	200 - 650	200 - 500	150 - 500	-	-
		Brass, bronze	300	-	200 - 500	200 - 400	200 - 650	200 - 500	150 - 500	-	-
		Aluminum bronze	500	-	160 - 450	160 - 400	160 - 350	160 - 450	120 - 400	-	-
		Copper and electrolyte copper	200	-	100 - 320	100 - 300	120 - 220	100 - 320	120 - 250	-	-
	Non-ferrous materials	Duroplastics		-	160 - 600	-	160 - 600	160 - 600	-	-	-
Reinforced plastics			-	100 - 300	-	100 - 300	100 - 300	100 - 300	-	-	
Hard rubber			-	-	-	-	80 - 250	-	-	-	
S	High temperature resistant alloys	Fe-alloyed annealed	700	-	20 - 60	20 - 60	20 - 70	20 - 60	20 - 60	20 - 60	20 - 70
		Fe-alloyed hardened	950	-	20 - 60	20 - 60	20 - 70	20 - 60	20 - 60	20 - 60	20 - 70
		Ni- oder Co- based annealed	800	-	15 - 50	15 - 50	15 - 60	15 - 50	15 - 50	15 - 50	15 - 60
		Ni- oder Co- based casting	1100	-	15 - 40	15 - 40	15 - 50	15 - 40	15 - 40	15 - 40	15 - 50
		Ni- oder Co- based hardened	1200	-	15 - 40	15 - 40	15 - 50	15 - 40	15 - 40	15 - 40	15 - 50
	Titanium alloys, high strength	Pure titanium	500 - 700	-	90 - 180	90 - 170	100 - 210	90 - 180	-	-	-
	Alpha- and beta-alloys, hardened		700 - 1000	-	40 - 80	35 - 70	40 - 90	40 - 80	-	-	-
H	Hardened steel	hardened and tempered	1000 - 1350	-	30 - 50	30 - 50	-	30 - 50	-	-	-
		hardened and tempered	1350 - 1700	-	10 - 25	10 - 25	-	10 - 25	-	-	-
	Hard cast iron	casting	1350	-	40 - 70	40 - 70	-	40 - 70	-	-	-
	Hardened cast iron	hardened and tempered	1900	-	10 - 25	10 - 25	-	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. 