

Recommended Cutting Data

Turning – Carbide

coated

ISO	Material		Tensile strength [N/mm ²]	Cutting speed Vc [m/min]											
				AP23 10	AP23 20	AP23 35	AP52 10	AL 10	AM15C	AM25C	AM350	AM35C	AR27C	AR270	AR370
P	Unalloyed steel and cast steel	ca. 0,15% C	350	300-400	250-350	180-270	220-370	220-320	220-320	150-260	180-230	170-240	200-270	200-260	190-240
		ca. 0,45% C	650	260-350	210-300	170-230	180-330	180-290	180-250	140-210	170-190	150-200	180-230	180-220	170-200
		ca. 0,75% C	1000	240-300	180-230	160-210	150-290	150-250	140-200	120-180	100-140	80-150	120-180	120-180	100-150
	Low alloyed steel and cast steel		600	220-300	180-270	160-220	180-320	180-280	180-250	140-210	170-190	150-200	210-260	180-220	170-200
			900	180-260	160-220	140-180	170-290	170-250	160-220	130-190	90-150	80-160	120-190	120-180	100-160
			1200	120-220	100-200	100-160	150-260	150-220	140-200	120-180	70-130	60-140	120-160	120-150	80-140
	High alloyed steel, high alloyed tool steel and cast steel	annealed	700	150-220	130-200	130-180	80-180	-	140-230	120-200	120-200	110-170	140-200	140-180	130-170
		hardened and tempered	1100	70-150	70-140	70-120	40-150	-	110-200	100-160	50-100	60-130	100-160	100-150	80-130
	Stainless steel and cast steel	ferritic / martensitic, annealed	700	-	-	-	40-140	170-290	170-260	140-240	140-180	110-180	170-230	170-220	130-180
		martensitic, hardened and tempered	1000	-	-	-	40-120	140-280	110-200	110-200	110-160	90-160	130-190	130-180	110-160
M	Stainless steel and cast steel	austenitic and austenitic/ferritic	450-600	-	-	-	70-150	140-280	210-250	100-170	120-190	100-170	150-220	150-200	100-170
		chilled	600-900	-	-	-	35-120	-	100-170	80-150	80-150	-	-	-	-
K	Cast iron	pearlitic, ferritic	500-700	-	-	-	180-350	180-300	210-250	170-230	-	-	120-180	-	-
		pearlitic, martensitic	700-850	-	-	-	160-300	160-280	90-130	90-120	-	-	120-180	-	-
			800-1100	-	-	-	120-270	120-240	90-130	90-120	-	-	100-150	-	-
	Cast iron with nodular graphite	ferritic	550	-	-	-	140-230	140-230	210-250	170-230	-	-	120-170	120-160	-
		pearlitic	800	-	-	-	120-170	120-170	90-130	90-120	-	-	120-190	120-180	-
	Malleable cast iron	ferritic	450	-	-	-	150-210	150-210	210-250	170-230	-	-	150-230	-	-
pearlitic		750	-	-	-	150-210	150-210	90-130	90-120	-	-	120-170	-	-	
N	Aluminum alloys, long chipping	not heat treatable	200	-	-	-	-	-	-	-	-	-	-	-	-
		heat treatable, heat treated	350	-	-	-	-	-	-	-	-	-	-	-	-
	Cast 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	-	-	-	-	-	-	-	-	-	-	-	-
		Brass, bronze	300	-	-	-	-	-	-	-	-	-	-	-	-
		Aluminum bronze	500	-	-	-	-	-	-	-	-	-	-	-	-
		Copper and electrolyte copper	200	-	-	-	-	-	-	-	-	-	-	-	-
	Non-ferrous materials	Duroplastics		-	-	-	-	-	-	-	-	-	-	-	-
		Reinforced plastics		-	-	-	-	-	-	-	-	-	-	-	-
		Hard rubber		-	-	-	-	-	-	-	-	-	-	-	-
S	High temperature resistant alloys	Fe-alloyed annealed	700	-	-	-	20-70	20-50	-	-	20-40	-	-	20-50	20-40
		Fe-alloyed hardened	950	-	-	-	20-70	20-50	-	-	15-35	-	-	20-50	15-35
		Ni- oder Co- based annealed	800	-	-	-	15-60	15-40	-	-	8-25	-	-	15-40	10-30
		Ni- oder Co- based casting	1100	-	-	-	15-50	15-30	-	-	4-15	-	-	10-25	5-18
		Ni- oder Co- based hardened	1200	-	-	-	15-50	15-30	-	-	4-15	-	-	20-35	5-18
	Titanium alloys, high strength	Pure titanium	500-700	-	-	-	-	-	-	-	-	-	-	20-60	-
	Alpha- and beta-alloys, hardened		700-1000	-	-	-	-	-	-	-	-	-	-	25-45	-
H	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. 