

Application recommendations

Inserts, cutting data recommendations



The cutting data recommendations in the table are guide values and depend to a high degree on the stability of the machine, fixture and workpiece.

Cutting groups	Material group	Composition / structure	Tensile strength	Hardness	Cutting speed v_c m/min						Feed rate f_z mm/z	
					RM (MPa)	HB HRC	K10	G12	G16	G26	PCD / PCD 1 PCD 3 PCD C	PCBN
1.1		C = 0.1 -0.25 annealed, long cutt.	420	125			240-280	190-330			0.05-0.15	0.05-0.25
1.2		C = 0.1 -0.25 annealed, short-chip	420	125			240-280	190-330				
2.1	Unalloyed steel	C = 0.25 -0.55 annealed, long cutt.	620	190			220-260	180-220				
2.2	Cast steel	C = 0.25 -0.55 annealed, short-chip	640	190			220-260	180-220				
3	Machining steel	C = 0.25 -0.55 tempered	850	250			210-250	170-210				
4		C = 0.25 -0.8 annealed	915	270			200-240	160-200				
5		C = 0.25 -0.8 tempered	1020	300			190-230	150-190				
6		annealed	610	180			140-180	110-150				
7	Low-alloy steel	tempered	930	275			130-170	100-140				
8	Cast steel	tempered	1020	300			130-170	100-140				
9	Machining steel	tempered	1190	350			130-170	100-140				
10	High-alloy steel	annealed	680	200			100-140	90-130				
11	Cast steel	annealed	680	200			100-140	90-130				
	High-alloy tool steel	hardened and tempered	1100	325			110-150	90-120				
12-13	Stainless steel and cast steel	ferritic/martensitic annealed	680	200			100-140	80-120				
		martensitic	810	240			100-140	80-120				
14.1	Stainless steel	austenitic quenched	610	180			100-140	80-120				
14.2	Stainless steel	austenitic/ferritic (duplex)	880	260			90-130	70-110				
15	Grey cast iron	perlitic/ferritic		180	90-130	170-250				600-800		
16	Grey cast iron	perlitic (martensitic)		260	80-120	140-180	90-130			400-600		
17	Cast iron with nodular cast iron	ferritic		160	70-110	130-170				400-600		
18	Cast iron with nodular cast iron	perlitic		250	60-90	100-140	90-130					
19	Malleable	ferritic		130	80-120	140-180				500-800		
20	Malleable	perlitic		230	60-90	120-160						
21	Aluminium forging alloys	not heat treatable		60	-1000	-1500			-5000			
22	Aluminium forging alloys	heat treatable/heat treated		100	-800	-1200			-5000			
23	Aluminium casting alloys	<12% Si not heat treatable		75	-800	-1200			-5000			
24	Aluminium casting alloys	<12% Si heat treatable/heat treated		90	-600	-1000			-5000			
25	Aluminium casting alloys	>12% Si not heat treatable		130		-800			-1500			
26	Copper	Machined alloys, Pb >1%		110	200-300	350-450			-2000			
27	Copper alloys	CuZn, CuSnZn		90	200-300	350-450			-2000			
28	Copper alloys (bronze, brass)	Cu lead free Copper/elektrolyte copper		100	200-300	350-550			-2000			
29	Non metallic materials	Duroplastic	90		240-280	400-500			-3000			
30	Non metallic materials	Reinforced materials	100		240-280	400-500			-3000			
31	Heat resistant alloys	Fe-based annealed		200				40-60				
32		Fe-based heat treated		230				40-60				
33		Ni- or Co-based annealed		250				40-60				
34		Ni- or Co-based heat treated		350				35-55				
35		cast		320				35-55				
36	Titanium alloys	pure titanium	400					35-55				
37		Alpha-beta alloys	1050					50-70				
38	Hardened steel			50-62						150-300		
39				50-62						150-300		