

# Inserts

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 group	Material group	Composition / Structure	Tensile strength RM (MPa)	Hardness HB HRC	Cutting speed vc m/min	Recommended cutting grade	Feed rate fz mm/z	
							W 2006-....	W 3006-....
1.1		C = 0.1 -0.25 annealed, long cut	420	125	100-160	G16	0.05-0.15	0.07-0.15
1.2		C = 0.1 -0.25 annealed, short chip	420	125	110-160			
2.1	Unalloyed steel	C = 0.25 -0.55 annealed, long cut	620	190	90-150			
2.2	Cast steel	C = 0.25 -0.55 annealed, short chip	640	190	100-160			
3	Machining steel	C = 0.25 -0.55 tempered	850	250	90-150			
4		C = 0.25 -0.8 annealed	915	270	80-140			
5		C = 0.25 -0.8 tempered	1020	300	75-125			
6		annealed	610	180	90-140			
7	Low-alloy steel	tempered	930	275	60-110			
8	Cast steel	tempered	1020	300	60-110			
9	Machining steel	tempered	1190	350	60-100			
10	High-alloy steel	annealed	680	250	60-110			
11	Cast steel	annealed	680	250	60-110			
11	High-alloy tool steel	hardened and tempered	1100	325	50-60			
12-13	Stainless steel and cast steel	ferritic/martensitic annealed	680	200	50-90			
		martensitic	810	240	40-80			
14.1	Stainless steel	austenitisch quenched	610	180	40-80	G16		
14.2	Stainless steel	austenitic/ferritisch (duplex)	880	260	40-80			
15	Grey cast iron	perlitic/ferritic		180	110-160	K10/G12		
16		perlitic (martensitic)		260	100-150			
17	Cast iron with	ferritic		160	80-130			
18	nodular cast iron	perlitic		250	70-120			
19	Malleable	ferritisch		130	90-150			
20		perlitic		230	80-140			
21	Aluminium	not heat treatable		60	-1000	K10/PKD		
22	forging alloys	aushärtbar/ausgehärtet		100	-800			
23	Aluminium	<12% Si not heat treatable		75	-1000			
24	casting alloys	<12% Si heat treatable/heat treated		90	-800			
25		>12% Si not heat treatable		130	-600			
26	Copper	Machined alloys, Pb >1%		110	70-120	K10/G12		
27	Copper alloys	CuZn, CuSnZn		90	70-120			
28	(bronze, brass)	Cu, lead free Copper/electrolyte copper		100	70-120			
29	Non metallic	Duroplastic			-200	K10/PKD		
30	materials	Reinforced materials			-200			
31		Fe-based annealed		200	30-50	G16		
32		heat treated		230	30-50			
33	Heat treatable	Ni- or Co-based annealed		250	20-40			
34	alloys	heat treated		350	20-40			
35		cast		320	20-40			
36	Titanium alloys	Pure titanium	400		20-40	K10		
37		Alpha-beta alloys	1050		20-40			