



Recommended Grades, Cutting Speeds Vc [m/min] and Feed f [mm/tooth]

Material Group	Vargus No.	Material	Hardness Brinell HB	Vc [m/min]			Feed f [mm/tooth]	
				Coated		Uncoated		
				VBX	VTX	VK2		
P Steel	1	Unalloyed Steel	Low Carbon (C=0.1-0.25%)	125	100-210	90-180		0.05-0.3
	2		Medium Carbon (C=0.25-0.55%)	150	100-180	90-170		0.05-0.25
	3		High Carbon (C=0.55-0.85%)	170	100-170	90-160		0.05-0.2
	4	Low Alloy Steel (alloying elements ≤5%)	Non Hardened	180	90-160	90-155		0.05-0.25
	5		Hardened	275	80-180	80-160		0.05-0.2
	6		Hardened	350	70-140	70-150		0.05-0.15
	7	High Alloy Steel (alloying elements >5%)	Annealed	200	60-130	70-115		0.05-0.2
	8		Hardened	325	70-110	60-100		0.05-0.1
	9	Cast Steel	Low Alloy (alloying elements <5%)	200	100-170	100-170	100-150	0.05-0.15
	10		High Alloy (alloying elements >5%)	225	70-120	70-130	60-130	0.05-0.1
M Stainless Steel	11	Stainless Steel Ferritic	Non Hardened	200	100-170	120-180		0.05-0.15
	12		Hardened	330	100-170	120-180		0.05-0.1
	13	Stainless Steel Austenitic	Austenitic	180	70-140	100-140		0.05-0.15
	14		Super Austenitic	200	70-140	100-140		0.05-0.1
	15	Stainless Steel Cast Ferritic	Non Hardened	200	70-140	100-140		0.05-0.15
	16		Hardened	330	70-140	100-140		0.05-0.1
	17	Stainless Steel Cast Austenitic	Austenitic	200	70-120	100-120		0.05-0.15
	18		Hardened	330	70-120	100-120		0.05-0.1
K Cast Iron	28	Malleable Cast Iron	Ferritic (short chips)	130	60-130	100-120		0.02-0.8
	29		Pearlitic (long chips)	230	60-120	80-100		0.02-0.05
	30	Grey Cast Iron	Low Tensile Strength	180	60-130	80-100		0.05-0.15
	31		High Tensile Strength	260	60-100	80-100		0.05-0.1
	32	Nodular Sg Iron	Ferritic	160	60-125	80-100		0.05-0.15
	33		Pearlitic	260	50-90	60-90		0.05-0.1
N Non-Ferrous Metals	34	Aluminium Alloys Wrought	Non Aging	60	100-250		200-300	0.1-0.4
	35		Aged	100	100-180		60-110	0.1-0.3
	36	Aluminium Alloys	Cast	75	150-400		60-120	0.1-0.3
	37		Cast & Aged	90	150-280		60-100	0.05-0.25
	38	Aluminium Alloys	Cast Si 13-22%	130	80-150		20-50	0.1-0.3
	39	Copper and Copper Alloys	Brass	90	120-210	100-200	50-70	0.1-0.3
	40		Bronze And Non Leaded Copper	100	120-210	100-200	50-70	0.05-0.25
	S Heat Resistant Material	19	High Temperature Alloys	Annealed (iron based)	200	20-45	20-40	20-30
20		Aged (iron based)		280	20-30	20-30	15-25	0.02-0.05
21		Annealed (nickel or cobalt based)		250	20-50	15-20	15-20	0.02-0.05
22		Aged (nickel or cobalt based)		350	10-15	10-15	10-15	0.02-0.05
23		Titanium Alloys	Pure 99.5 Ti	400Rm	70-140	70-120	40-60	0.02-0.05
24			α+β Alloys	1050Rm	20-50	20-50	20-40	0.02-0.05
H Hardened Material	25	Extra Hard Steel	Hardened & Tempered	45-50HRC	20-45	20-45		0.01-0.03
	26			51-55HRC	20-45	20-45		0.01-0.02

TM Standard

Grades

Grade	Application	Sample
VBX	First choice for steel and cast iron A tough sub-micron substrate with TiCN coating	
VTX	First choice for stainless steel A tough sub-micron substrate with TiAlN coating	
VK2	Uncoated grade for machining cast iron & nonferrous metals	