

Cutting Speed

(Vc) m/min

Cutting Speed (v _c) m/min							
ISO	Materials	Rm and Hardness	CVD Coated				
			NL200	NL250	NL300	NL400	NL920
			min. - max.	min. - max.	min. - max.	min. - max.	min. - max.
P	Unalloyed Steel	<600 N/mm ² <180 HBN	167 - 415	162 - 406	158 - 381	135 - 361	117 - 226
		<950 N/mm ² <280 HBN	108 - 269	105 - 263	102 - 244	88 - 234	76 - 146
	Alloyed Steel	700-950 N/mm ² 200-280 HBN	99 - 247	97 - 241	94 - 229	80 - 215	70 - 134
		950-1200 N/mm ² 280-355 HBN	90 - 224	88 - 220	85 - 201	73 - 195	63 - 122
M	Stainless Steel	Austenitic + Ferritic 300 series		110 - 274	110 - 255	91 - 244	79 - 152
		Martensitic 400 series		105 - 263	105 - 245	88 - 234	76 - 146
	PH Stainless	Refractory P.H.		59 - 146	60 - 135	49 - 130	42 - 81
K	Cast Iron	Grey GG-Ft	165 - 411	161 - 373	157 - 335		116 - 224
		Spheroidal-Ductile GGG-FGS	143 - 355	139 - 322	135 - 290		100 - 193
		Malleable GTS - MN/MP	96 - 239	94 - 217	91 - 195		68 - 130
N	Aluminium & Alloys	Aluminium & Alloys < 16% 116 HB					
		Aluminium + Silicon > 16% 92 HB					
S	High Temperature Alloys	Iron Based		23 - 59		20 - 52	17 - 33
		Cobalt Based		19 - 48		16 - 42	14 - 26
		Nickel Based		20 - 51		17 - 46	15 - 28
		Titanium Based		32 - 80		27 - 72	23 - 45
H	Hard Materials	Hard Steel >1400 N/mm ² >415 HBN	45 - 125				
		Chilled Cast Iron >1400 N/mm ² >400 HBN	50 - 120				

Material Guide – Key to Recommended Inserts

Material Designation

◆ Unalloyed Steels
 ◆ Alloyed Steels
 ◆ Stainless Steels
 ◆ PH Stainless
 ◆ Cast Irons
 ◆ Aluminum & Alloys
 ◆ High Temp. Alloys
 ◆ Hard Materials

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ISO	Materials	Rm and Hardness	PVD				Uncoated	Ceramic
			SP0819	SP4019	SP4030 (Grooving)	SP4066 (Threading)	GH1 Micrograin	SA6609
P	Unalloyed Steel	<600 N/mm ² <180 HBN	212 - 451	208 - 442	135 - 271	230 - 485		
		<950 N/mm ² <280 HBN	138 - 293	135 - 287	88 - 176	150 - 315		
	Alloyed Steel	700-950 N/mm ² 200-280 HBN	126 - 268	123 - 263	80 - 161	135 - 290		
		950-1200 N/mm ² 280-355 HBN	115 - 244	112 - 239	73 - 146	125 - 265		
		1200-1400 N/mm ² 355-415 HBN	78 - 167	77 - 163	50 - 100	85 - 180		
M	Stainless Steel	Austenitic + Ferritic 300 series	143 - 305	140 - 299	107 - 229	154 - 329	80 - 150	
		Martensitic 400 series	149 - 317	135 - 287	102 - 220	160 - 342	80 - 160	
	PH Stainless	Refractory P.H.	76 - 163	75 - 159	57 - 122	82 - 175	40 - 80	
K	Cast Iron	Grey GG-Ft		206 - 438	134 - 268	226 - 482	116 - 224	
		Spheroidal-Ductile GGG-FGS		178 - 378	116 - 232	195 - 416	100 - 193	
		Malleable GTS - MN/MP		120 - 255	78 - 156	132 - 280	60 - 130	
N	Aluminium & Alloys	Aluminium & Alloys < 16% 116 HB	396 - 976	365 - 975	366 - 915	335 - 823		
		Aluminium + Silicon > 16% 92 HB	274 - 671		244 - 610	183 - 549		
S	High Temperature Alloys	Iron Based	31 - 65	30 - 64	20 - 39	33 - 70	15 - 35	180 - 450
		Cobalt Based	25 - 53	24 - 52	16 - 32	27 - 57	15 - 25	180 - 400
		Nickel Based	27 - 57	26 - 56	17 - 34	29 - 61	15 - 30	180 - 360
		Titanium Based	42 - 89	41 - 88	27 - 54	45 - 96	25 - 45	
H	Hard Materials	Hard Steel >1400 N/mm ² >415 HBN	70 - 140	62 - 131				
		Chilled Cast Iron >1400 N/mm ² >400 HBN	65 - 135	60 - 127				

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