

Machining Data for Face Machining

ISO	Material	Condition	Tensile Strength [Kpsi]	Hardness HB	Material No.	
P	Non-alloy steel and cast steel, free cutting steel	< 0.25 %C	Annealed	61	125	1
		>= 0.25 %C	Annealed	94	190	2
		< 0.55 %C	Quenched and tempered	123	250	3
		>= 0.55 %C	Annealed	109	220	4
			Quenched and tempered	145	300	5
	Low alloy steel and cast steel (less than 5% of alloying elements)	Annealed	87	200	6	
		Quenched and tempered	135	275	7	
			145	300	8	
			174	350	9	
	High alloy steel, cast steel, and tool steel	Annealed	99	200	10	
Quenched and tempered		160	325	11		
M	Stainless steel and cast steel	Ferritic/martensitic	99	200	12	
		Martensitic	119	240	13	
		Austenitic	87	180	14	
K	Cast iron nodular (GGG)	Ferritic/pearlitic		180	15	
		Pearlitic		260	16	
	Grey cast iron (GG)	Ferritic		160	17	
		Pearlitic		250	18	
	Malleable cast iron	Ferritic		130	19	
		Pearlitic		230	20	
N	Aluminum-wrought alloy	Not cureable		60	21	
		Cured		100	22	
	Aluminum-cast, alloyed	<=12% Si	Not cureable	75	23	
			Cured	90	24	
		>12% Si	High temperature	130	25	
	Copper alloys	>1% Pb	Free cutting	110	26	
		Brass	90	27		
		Electrolitic copper	100	28		
	Non-metallic	Duroplastics, fiber plastics			29	
		Hard rubber			30	
S	High temp. alloys	Fe based	Annealed		200	31
			Cured		280	32
		Ni or Co based	Annealed		250	33
			Cured		350	34
			Cast		320	35
	Titanium and Ti alloys		58		36	
		Alpha+beta alloys cured	152		37	
H	Hardened steel	Hardened		55 HRc	38	
		Hardened		60 HRc	39	
	Chilled cast iron	Cast		400	40	
	Cast iron	Hardened		55 HRc	41	

Coated						Uncoated
IC9015	C908/508	IC635	IC9054	IC354	IC428	IC20
Cutting Speed (SFM)						
390-510	340-440	310-410	360-480	330-430		
360-480	310-410	280-380	330-430	300-390		
310-390	280-340	250-310	300-360	260-330		
310-510	280-440	250-410	300-480	260-430		
280-480	250-410	210-380	250-430	230-390		
280-360	250-310	210-280	250-330	230-300		
230-300	210-260	180-230	210-260	200-250		
230-300	210-260	180-230	210-260	200-250		
200-230	160-210	150-180	180-210	160-200		
360-480	310-410	280-380	330-430	300-390		
280-360	250-310	210-280	250-330	230-300		
200-280	160-250	150-210	180-250	160-230		
					390-660	70-130
					330-590	70-130
					490-720	130-200
					430-660	130-200
					430-660	130-200
					390-660	100-160
						920-1640
						590-820
						820-1310
						660-980
						200-330
						430-720
						390-660
						260-490
	70-130					70-100
	50-100					50-70
	50-70					50-70
	50-70					50-70
	50-70					50-70
	300-390					260-330
	70-160					70-130

Cutting Speed (SFM)	GFQR IC528 Feed (IPR)	PICCO IC228 Feed (IPR)
130 - 590	.0008-.0031	.0006-.0020
130 - 430	.0008-.0024	.0006-.0016
130 - 390	.0008-.0024	.0006-.0016
130 - 460	.0008-.0031	.0006-.0016
130 - 460	.0008-.0031	.0006-.0016
130 - 390	.0008-.0024	.0006-.0012
130 - 390	.0008-.0020	.0006-.0012
130 - 460	.0008-.0031	.0006-.0016
130 - 390	.0008-.0031	.0006-.0012
130 - 390	.0008-.0031	.0006-.0016
130 - 390	.0008-.0028	.0006-.0016
130 - 330	.0008-.0024	.0006-.0012
130 - 460	.0008-.0031	.0006-.0012
130 - 390	.0008-.0028	.0006-.0020
130 - 460	.0008-.0031	.0006-.0016
130 - 390	.0008-.0028	.0006-.0016
130 - 460	.0008-.0024	.0006-.0016
130 - 390	.0008-.0028	.0006-.0016
490 - 1050	.0008-.0031	.0006-.0020
330 - 820	.0008-.0031	.0006-.0020
490 - 980	.0008-.0031	.0006-.0020
490 - 980	.0008-.0031	.0006-.0020
330 - 490	.0008-.0031	.0006-.0020
260 - 750	.0008-.0031	.0006-.0020
230 - 660	.0008-.0031	.0006-.0020
160 - 590	.0008-.0031	.0006-.0020
70 - 130	.0008-.0024	.0006-.0016
50 - 100	.0008-.0024	.0006-.0016
50 - 70	.0008-.0024	.0006-.0016
50 - 70	.0008-.0024	.0006-.0016
50 - 70	.0008-.0024	.0006-.0016
130 - 390	.0008-.0024	.0006-.0016
70 - 160	.0008-.0024	.0006-.0016