






VCMT 160404 NN

Machining Conditions

Material Group	Group No	Material Examples*	Brinell hardness HB	d.o.c [mm]		feed [mm/rev]		A max [mm ²]	V _c [m/min]		Optimal cutting conditions			
				min	max	min	max		min	max	d.o.c	feed		
Low Carbon Steel	1	Ck15 9SMnPb28	150	0.20	4.0	0.11	0.23	0.52	180	350	1 to 2.5	0.15		
			180		3.0		0.20			0.52			280	
			210		3.0		0.18			0.40			250	
Alloy Steel	2	42 CrMo 4 100 Cr 6 32 NiCrMo 14.5	180	0.20	4.0	0.11	0.20	0.40	120	280	1 to 2.5	0.12		
			230		3.0		0.20			0.34			250	
			280		3.0	0.00	0.18	0.34		210				
			320		2.0		0.16			0.28			180	
High Alloy Steel	3	X38 CrMoV 5 X210 CrW 12 X90 CrMoV 8	220	0.20	3.0	0.09	0.18	0.34	70	190	1 to 2.5	0.12		
			280		3.0		0.16			0.34			150	
			320		2.0		0.14	0.24		130				
			350		2.0		0.14	0.21		100				
Austenitic Stainless Steel	4	303 / 304 304 L	210 to 250	0.20	3.0	0.10	0.18	0.28	170	270	1 to 2.5	0.15		
	5	316 / 316 L	230 to 270		3.0		0.09		0.16	0.21	120	210	1 to 2.5	0.12
	6	316 Ti 630 (F16PH)	-----		2.0		0.09		0.14	0.17	70	120	1 to 2.5	0.11
Ferritic Stainless Steel	7	430 / 439 / 444	Annealed	0.20	3.0	0.11	0.18	0.24	170	250	1 to 2.5	0.13		
Martensitic Stainless Steel	8	410 / 420	Annealed	0.20	3.0	0.11	0.18	0.24	170	250	1 to 2.5	0.13		
			Treated						120	210				
Grey Cast Iron	9	EN - GJL 200	140 to 230	0.20	3.0	0.10	0.23	0.55	170	280	1 to 3	0.15		
		EN - GJL 250						0.52		250				
		EN - GJL 300						0.52		230				
Nodular Cast Iron	10	EN - GJS 400	210	0.20	3.0	0.10	0.20	0.40	120	230	1 to 2.5	0.13		
		EN - GJS 600	260					0.35		190				
		EN - GJS 800	310					0.35		150				
Nickel Based Alloys	11	Inconel 625	-----	0.20	2.0	0.09	0.16	0.21	25	35	1 to 2	0.12		
		Inconel 718						0.21	28	40				
		Hastello y C						0.24	40	65				
Titanium Based Alloys	12	TiAl 6 V4	-----	0.20	2.0	0.09	0.16	35	60	1 to 2	0.12			
		T40					0.14	0.21	28	40	1 to 2	0.10		

*For all material types and standards, see pages 240 to 245.

Insert designation	Super Finishing	Finishing	Semi Finishing	Roughing	Interrupted Cut
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Machining Conditions

Material Group	Group No	Material Examples*	Brinell hardness HB	d.o.c [mm]		feed [mm/rev]		A max [mm ²]		V _c [m/min]		Optimal cutting conditions	
				min	max	min	max	min	max	min	max	d.o.c	feed
Low Carbon Steel	1	Ck 15 9SMnPb28	150	0.50	4.0	0.21	0.45	0.9	180	350	1 to 3	0.30	
			180		3.0		0.40	0.8		280			
			210		3.0		0.35	0.6		250			
Alloy Steel	2	42 CrMo 4 100 Cr 6 32 NiCrMo 14.5	180	0.50	4.0	0.21	0.40	0.8	120	280	1 to 3	0.28	
			230		3.0		0.40	0.6		250			
			280		3.0	0.18	0.35	0.5		210			
			320		3.0	0.18	0.32	0.3		180			
High Alloy Steel	3	X38 CrMoV 5 X210 CrW 12 X90 CrMoV 8	220	0.50	3.0	0.18	0.35	0.6	70	190	1 to 2.5	0.25	
			280		3.0		0.32	0.5		150			
			320		2.0		0.28	0.4		130			
			350		2.0		0.28	0.4		100			
Austenitic Stainless Steel	4	303 / 304 304 L	210 to 250	0.50	4.0	0.20	0.35	0.6	170	270	1 to 3	0.28	
	5	316 / 316 L	230 to 270		3.0	0.18	0.32	0.4	120	210	1 to 2.5	0.25	
	6	316 Ti 630 (F16PH)	-----		3.0	0.18	0.28	0.3	70	120	1 to 2.5	0.22	
Ferritic Stainless Steel	7	430 / 439 / 444	Annealed	0.50	3.0	0.22	0.35	0.5	170	250	1 to 3	0.25	
Martensitic Stainless Steel	8	410 / 420	Annealed Treated	0.50	3.0	0.22	0.35	0.5	170 120	250 210	1 to 3	0.25	
Grey Cast Iron	9	EN - GJL 200 EN - GJL 250 EN - GJL 300	140 to 230	0.50	4.0	0.15	0.40	0.8 0.7 0.6	170	280 250 230	1 to 3	0.30	
Nodular Cast Iron	10	EN - GJS 400 EN - GJS 600 EN - GJS 800	210 260 310	0.50	3.0	0.15	0.35	0.6 0.5 0.4	120	230 190 150	1 to 3	0.25	
Nickel Based Alloys	11	Inconel 625 Inconel 718 Hastello y C	-----	0.50	2.0	0.20	0.32	0.4 0.4 0.5	25 28 40	35 40 65	1 to 2	0.22	
Titanium Based Alloys	12	TiAl 6 V4 T40	-----	0.50	2.0	0.18	0.32 0.28	0.5 0.4	35 28	60 40	1 to 2	0.25 0.22	

*For all material types and standards, see pages 240 to 245.

