VBMT 110304 NN

Machining Conditions

Material Group	Group No	Material Examples*	Brinell hardness HB	d.o.c [mm]		feed [mm/rev]		A max [mm²]	V_c [m/min]		Optimal cutting conditions	
				min	max	min	max		min	max	d.o.c	feed
Low Carbon Steel	1	Ck 15 9SMnPb28	150	0.20	3.0	0.09	0.21	0.63	180	350	1 to 2.5	0.15
			180		3.0		0.20	0.60		280		
			210		3.0		0.18	0.54		250		
Alloy Steel	2	42 CrMo 4 100 Cr 6 32 NiCrMo 14.5	180	0.20	3.0	0.09	0.20	0.60	120	280	1 to 2.5	0.12
			230		3.0		0.20	0.60		250		
			280		3.0	0.07	0.18	0.54		210		
			320		2.0		0.16	0.32		180		
High Alloy Steel	3	X38 CrMoV 5 X210 CrW 12 X90 CrMoV 8	220	0.20	3.0	0.07	0.18	0.54	70	190	1 to 2.5	0.12
			280		3.0		0.16	0.48		150		
			320		2.0		0.14	0.28		130		
			350		2.0		0.14	0.28		100		
Austenitic Stainless Steel	4	303 / 304 304 L	210 to 250	0.20	3.0	0.08	0.18	0.54	170	270	1 to 2.5	0.15
	5	316 / 316 L	230 to 270		3.0	0.07	0.16	0.48	120	210	1 to 2.5	0.12
	6	316 Ti 630 (F16PH)	---------		2.0	0.07	0.14	0.28	70	120	1 to2.5	0.11
Ferritic Stainless Steel	7	430 / 439 / 444	Annealed	0.20	3.0	0.09	0.18	0.54	170	250	1 to2.5	0.13
Martensitic Stainless Steel	8	410 / 420	Annealed	0.20	3.0	0.09	0.18	0.54	170	250	1 to2.5	0.13
			Treated						120	210		
Grey Cast Iron	9	EN - GJL 200	140 to 230	0.20	3.0	0.08	0.20	0.60	170	280	1 to3	0.15
		EN - GJL 250						0.60		250		
		EN - GJL 300						0.60		230		
Nodular Cast Iron	10	EN - GJS 400	210	0.20	3.0	0.08	0.18	0.54	120	230	1 to2.5	0.13
		EN - GJS 600	260					0.54		190		
		EN - GJS 800	310					0.54		150		
Nickel Based Alloys	11	Inconel 625	--------	0.20	2.0	0.07	0.14	0.28	25	35	1 to2	0.12
		Inconel 718						0.28	28	40		
		Hastello y C						0.28	40	65		
Titanium Based Alloys	12	TiAl 6 V4	--------	0.20	2.0	0.07	0.14	0.28	35	60	1 to2	0.12
		T40					0.14	0.24	28	40	1 to2	0.10

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

Insert designation	Super Finishing	Finishing	Semi Finishing	Roughing	Interrupted Cut
VBMT 110304 NN	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

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VBMT 160404 NN

Machining Conditions

Material Group	Group No	Material Examples*	Brinell hardness HB	d.o.c [mm]		feed [mm/rev]		A max [mm²]	V_c [m/min]		Optimal cutting conditions	
				min	max	min	max		min	max	d.o.c	feed
Low Carbon Steel	1	Ck 15 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	0.11	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 to2.5	0.11
Ferritic Stainless Steel	7	430 / 439 / 444	Annealed	0.20	3.0	0.11	0.18	0.24	170	250	1 to2.5	0.13
Martensitic Stainless Steel	8	410 / 420	Annealed	0.20	3.0	0.11	0.18	0.24	170	250	1 to2.5	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 to3	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 to2.5	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 to2	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	0.24	35	60	1 to2	0.12
		T40					0.14	0.21	28	40	1 to2	0.10

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

Insert designation	Super Finishing	Finishing	Semi Finishing	Roughing	Interrupted Cut
VBMT 160404 NN	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

VBMT 160408 NN

Machining Conditions

Material Group	Group No	Material Examples*	Brinell hardness HB	d.o.c [mm]		feed [mm/rev]		A max [mm²]	V_c [m/min]		Optimal cutting conditions	
				min	max	min	max		min	max	d.o.c	feed
Low Carbon Steel	1	Ck15 9SMnPb28	150	0.50	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		0.32	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 to2.5	0.22
Ferritic Stainless Steel	7	430 / 439 / 444	Annealed	0.50	3.0	0.22	0.35	0.5	170	250	1 to3	0.25
Martensitic Stainless Steel	8	410 / 420	Annealed	0.50	3.0	0.22	0.35	0.5	170	250	1 to3	0.25
			Treated						120	210		
Grey Cast Iron	9	EN - GJL 200	140 to 230	0.50	4.0	0.15	0.40	0.8	170	280	1 to3	0.30
		EN - GJL 250						0.7		250		
		EN - GJL 300						0.6		230		
Nodular Cast Iron	10	EN - GJS 400	210	0.50	3.0	0.15	0.35	0.6	120	230	1 to3	0.25
		EN - GJS 600	260					0.5		190		
		EN - GJS 800	310					0.4		150		
Nickel Based Alloys	11	Inconel 625	--------	0.50	2.0	0.20	0.32	0.4	25	35	1 to2	0.22
		Inconel 718						0.4	28	40		
		Hastello y C						0.5	40	65		
Titanium Based Alloys	12	TiAl 6 V4	--------	0.50	2.0	0.18	0.32	0.5	35	60	1 to2	0.25
		T40					0.28	0.4	28	40	1 to2	0.22

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

Insert designation	Super Finishing	Finishing	Semi Finishing	Roughing	Interrupted Cut
VBMT 160408 NN	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4