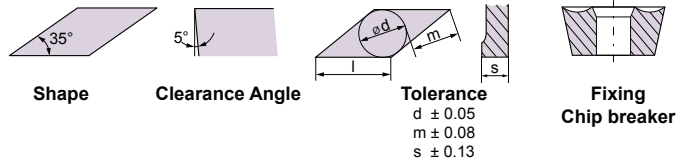




V B M T



Insert Designation	Grade	l	s	r	Catalog Nr.
VBMT 110304 NN	LT 1000	11	3.76	0.4	T0001942
VBMT 160404 NN	LT 1000	16	4.76	0.4	T0001943
VBMT 160408 NN	LT 1000	16	4.76	0.8	T0001944

NN All purpose Chipbreaker

35° shape inserts with positive rake angle. Suitable for Internal and External Copying operations of complex geometries.

Application Guide

	Finishing	Medium	Roughing / Interrupted cut	
VBMT 110304 NN	😊	😐	😞	VBMT Finishing: d.o.c. = 0.30 - 1.50 mm fn = 0.08 - 0.20 mm/rev Medium: d.o.c. = 0.70 - 4.50 mm fn = 0.15 - 0.45 mm/rev Roughing d.o.c. = 3.00 - 7.00 mm fn = 0.35 - 0.70 mm/rev
VBMT 160404 NN	😊	😐	😞	
VBMT 160408 NN	😐	😊	😐	

Stainless Steel
↑ V_C

↑ V_C ⇒
↑ Productivity

Machine Recommendations Guide
Details on page 10

VBMT 110304 NN LT 10 & LT 1000

Material Group	Gr. N°	VDI Group	Material Examples*	Hardness	D.O.C. [mm]		Feed [mm/rev]		Amax [mm ²]	V _c [m/min]		Optimal cutting conditions					
					min	max	min	max		min	max	D.O.C.	Feed	V _c			
Steel	Non-alloyed	1	C35, Ck45, 1020, 1045, 1060, 28Mn6	125 HB	0.2	2.1	0.08	0.20	0.37	180	330	1.0	0.18	300			
		2		190 HB		1.8		0.19	0.32		280			260			
		3		250 HB		1.8		0.17	0.30		250			240			
	Low alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	180 HB	0.2	1.8	0.08	0.17	0.31	120	280	1.0	0.15	260			
		4,6		230 HB		1.8		0.17	0.30		250			240			
		5,7		280 HB		1.4		0.15	0.25		210			200			
		8		350 HB		1.4		0.15	0.22		180			180			
	High alloyed	3	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.2	1.8	0.07	0.15	0.25	70	190	1.0	0.12	180			
		10		280 HB		1.8		0.14	0.25		150			140			
		11		320 HB		1.4		0.12	0.20		130			120			
		11		350 HB		1.4		0.12	0.16		110			110			
Stainless Steel	Austenitic	4	304, 316, X5CrNi18-9	180 HB	0.2	1.8	0.08	0.15	0.20	170	270	1.0	0.12	260			
		14		240 HB		1.8		0.15	0.16		160			210			
	Duplex	5	X2CrNiN23-4, S31500	290 HB	0.2	1.4	0.07	0.12	0.12	80	150	1.0	0.12	140			
		14		310 HB		1.4		0.12	0.12		70			140			
	Ferritic & Martensitic	6	410, X6Cr17, 17-4 PH, 430	200 HB	0.2	1.8	0.08	0.15	0.20	170	250	1.0	0.15	240			
		13		42 HRc		1.4		0.14	0.16		120			190	180		
Cast Iron	Grey	7	GG20, GG40, EN-GJL-250, No30B	150 HB	0.2	2.1	0.06	0.17	0.40	170	250	1.0	0.18	240			
		15		200 HB		2.1		0.17	0.37		160			230	220		
		16		250 HB		2.1		0.17	0.37		150			210	200		
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.2	1.8	0.06	0.15	0.30	120	250	1.0	0.15	240			
		17,19		200 HB		1.8		0.15	0.25		230			220			
18,20	250 HB	1.8	0.15	0.25	190	180											
High Temp. Alloys	Fe, Ni & Co based	9	Incoloy 800, Inconel 700, Stellite 21	240 HB	0.2	1.4	0.08	0.13	0.16	25	50	1.0	0.12	40			
		33		250 HB		1.4		0.13	0.16		25			50	40		
		34		350 HB		1.4		0.13	0.16		23			45	35		
	Ti based	10	TiAl6V4, T40	-	0.2	1.4	0.08	0.14	0.20	45	65	1.0	0.14	60			
37	-	1.4		0.12		0.16		35	60		50						
Hardened Mat.	Steel	11	X100CrMo13, 440C, G-X260NiCr42	45 HRc	0.2	1.3	0.04	0.10	0.12	50	100	0.8	0.11	90			
		38		50 HRc		1.1		0.09	0.11		40			90	0.6	0.09	80
		38		55 HRc		1.0		0.08	0.08		40			80	0.5	0.07	70
	Chilled Cast Iron	40	Ni-Hard 2	400 HB	0.2	1.1	0.04	0.10	0.11	40	60	0.6	0.11	50			
White Cast Iron	41	G-X300CrMo15	55 HRc	0.2	1.0	0.04	0.08	0.08	30	50	0.5	0.07	40				
NF	Al (>8%Si)	12	AlSi12	130 HB	0.2	2.8	0.08	0.26	0.43	200	400	1.0	0.20	350			

VBMT 160404 NN LT 10 & LT 1000

Material Group	Gr. N°	VDI Group	Material Examples*	Hardness	D.O.C. [mm]		Feed [mm/rev]		Amax [mm²]	V _c [m/min]		Optimal cutting conditions			
					min	max	min	max		min	max	D.O.C.	Feed	V _c	
Steel	Non-alloyed	1	C35, Ck45, 1020, 1045, 1060, 28Mn6	125 HB	0.2	3.0	0.11	0.23	0.60	180	330	2.0	0.18	300	
		2		190 HB		2.5		0.22	0.52		280			260	
		3		250 HB		2.5		0.20	0.48		250			240	
	Low alloyed	2	42CrMo4, S150, Ck60, 4140, 4340, 100Cr6	180 HB	0.2	2.5	0.10	0.20	0.50	120	280	2.0	0.15	260	
		4,6		230 HB		2.5		0.20	0.48		250			240	
		5,7		280 HB		2.0		0.18	0.40		210			200	
		8		350 HB		2.0		0.18	0.36		180			180	
	High alloyed	3	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.2	2.5	0.09	0.18	0.40	70	190	2.0	0.12	180	
		10		280 HB		2.5		0.16	0.40		150			140	
		11		320 HB		2.0		0.14	0.32		130			120	
		11		350 HB		2.0		0.14	0.26		110			110	
Stainless Steel	Austenitic	4	304, 316, X5CrNi18-9	180 HB	0.2	2.5	0.10	0.18	0.32	170	270	2.0	0.12	260	
		14		240 HB		2.5		0.18	0.26		160			220	
	Duplex	5	X2CrNi23-4, S31500	290 HB	0.2	2.0	0.09	0.14	0.20	80	150	2.0	0.12	140	
		14		310 HB		2.0		0.14	0.20		70			140	
	Ferritic & Martensitic	6	410, X6Cr17, 17-4 PH, 430	200 HB	0.2	2.5	0.10	0.18	0.32	170	250	2.0	0.15	240	
		13		42 HRc		2.0		0.16	0.26		120			190	
Cast Iron	Grey	7	GG20, GG40, EN-GJL-250, No30B	150 HB	0.2	3.0	0.08	0.20	0.64	170	250	2.0	0.18	240	
		15		200 HB		3.0		0.20	0.60		160			230	
		16		250 HB		3.0		0.20	0.60		150			210	
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.2	2.5	0.08	0.18	0.48	120	250	2.0	0.15	240	
		17,19		200 HB		2.5		0.18	0.40		230			220	
		18,20		250 HB		2.5		0.18	0.40		190			180	
High Temp. Alloys	Fe, Ni & Co based	9	Incoloy 800, Inconel 700, Stellite 21	240 HB	0.2	2.0	0.09	0.15	0.26	25	50	2.0	0.12	40	
		33		250 HB		2.0		0.15	0.26		25			50	
		34		350 HB		2.0		0.15	0.26		23			45	
	Ti based	10	TiAl6V4, T40	-	0.2	2.0	0.09	0.16	0.32	45	65	2.0	0.15	60	
		37		-		2.0		0.14	0.26		35			60	
	Hardened Mat.	Steel	11	X100CrMo13, 440C, G-X260NiCr42	45 HRc	0.2	1.8	0.05	0.12	0.20	50	100	1.5	0.11	90
38			50 HRc		1.5		0.10		0.17	40		90			
38			55 HRc		1.4		0.09		0.13	40		80			
Chilled Cast Iron		40	Ni-Hard 2	400 HB	0.2	1.6	0.05	0.12	0.17	40	60	1.2	0.11	70	
White Cast Iron		41	G-X300CrMo15	55 HRc	0.2	1.4	0.05	0.09	0.13	30	50	1.0	0.07	40	
NF	Al (>8%Si)	12	25	AlSi12	130 HB	0.2	4.0	0.10	0.30	0.70	200	400	2.0	0.20	350

VBMT 160408 NN LT 10 & LT 1000

Material Group	Gr. N°	VDI Group	Material Examples*	Hardness	D.O.C. [mm]		Feed [mm/rev]		Amax [mm ²]	V _c [m/min]		Optimal cutting conditions				
					min	max	min	max		min	max	D.O.C.	Feed	V _c		
Steel	Non-alloyed	1	C35, Ck45, 1020, 1045, 1060, 28Mn6	125 HB	0.5	3.5	0.19	0.40	1.26	180	280	2.5	0.30	240		
		190 HB		3.5		0.40		1.26						220		
		250 HB		3.5		0.36		1.05						200		
	Low alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	180 HB	0.5	3.5	0.19	0.36	0.84	120	280	2.5	0.27	200		
				230 HB		2.8		0.36						0.84	180	
				280 HB		2.8		0.16						0.32	0.84	150
				350 HB		2.5		0.16						0.32	0.70	180
	High alloyed	3	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.5	2.8	0.16	0.32	0.84	70	190	2.1	0.26	140		
				280 HB		2.8		0.32						0.84	120	
				320 HB		2.1		0.28						0.56	130	
				350 HB		2.1		0.28						0.56	110	
Stainless Steel	Austenitic	4	304, 316, X5CrNi18-9	180 HB	0.5	3.5	0.18	0.32	0.84	170	270	2.5	0.30	190		
				240 HB		3.5		0.32		0.70				160	220	
	Duplex	5	X2CrNiN23-4, S31500	290 HB	0.5	2.8	0.16	0.28	0.56	80	150	2.1	0.24	100		
				310 HB				2.8		0.28				0.56	70	140
	Ferritic & Martensitic	6	410, X6Cr17, 17-4 PH, 430	200 HB	0.5	3.5	0.20	0.32	0.70	170	250	2.5	0.27	190		
				42 HRc				2.8		0.32				0.70	120	190
Cast Iron	Grey	7	GG20, GG40, EN-GJL-250, No30B	150 HB	0.5	3.5	0.14	0.48	1.40	170	250	2.5	0.30	200		
				200 HB				3.5		0.48				1.26	160	230
				250 HB				3.5		0.44				1.26	150	210
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.5	3.5	0.14	0.40	1.05	120	230	2.5	0.26	180		
				200 HB				3.5		0.40				0.91	190	
250 HB	3.5	0.40	0.84	190												
High Temp. Alloys	Fe, Ni & Co based	9	Incoloy 800, Inconel 700, Stellite 21	240 HB	0.5	2.1	0.18	0.28	0.49	25	45	2.0	0.24	32		
				250 HB				2.1		0.28				0.28	25	45
				350 HB				2.1		0.28				0.28	23	40
	Ti based	10	TiAl6V4, T40	-	0.5	2.8	0.18	0.32	0.56	45	65	2.0	0.28	55		
				-				2.1		0.28				0.49	35	55
Hardened Mat.	Steel	11	X100CrMo13, 440C, G-X260NiCr42	45 HRc	0.5	1.8	0.10	0.24	0.42	50	100	1.6	0.21	80		
				50 HRc				1.4		0.20				0.28	40	90
				55 HRc				1.1		0.16				0.21	40	80
	Chilled Cast Iron	40	0.5	1.4	0.10	0.20	0.28	40	60	1.2	0.15	50				
	White Cast Iron	41	0.5	1.1	0.10	0.16	0.21	30	50	1.0	0.13	40				
NF	Al (>8%Si)	12	25	AlSi12	130 HB	0.5	4.2	0.18	0.48	1.40	200	400	2.5	0.34	280	