

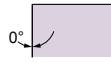


C N M G

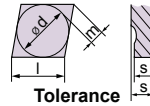
CNMG



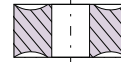
Shape



Clearance Angle



Tolerance
 $d \pm 0.08$
 $m \pm 0.13$
 $s \pm 0.13$



Fixing
Chip breaker

Insert Designation	Grade	l	s	r	Catalog Nr.
CNMG 120404 NN	LT 1000	12	4.76	0.4	T0001895
CNMG 120408 NN	LT 1000	12	4.76	0.8	T0001896
CNMG 120408 NM	LT 1000	12	4.76	0.8	T0001968
CNMG 120408 NX	LT 1000	12	4.76	0.8	T0002741
CNMG 120412 NN	LT 1000	12	4.76	1.2	T0001897

NN All purpose Chipbreaker

NX All purpose Chipbreaker

NM Steel and Cast Iron

The most popular Turning inserts. Use for Turning, Facing and Boring operations.

Application Guide

	Finishing	Medium	Roughing / Interrupted cut
CNMG 120404 NN	😊	😐	😞
CNMG 120408 NN	😐	😊	😊
CNMG 120408 NM	😞	😊	😊
CNMG 120408 NX	😊	😊	😐
CNMG 120412 NN	😞	😐	😊

😊 = Good
 😐 = Acceptable
 😞 = Not recommended

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

Stainless Steel
 $\uparrow V_c$

$\uparrow F \Rightarrow$
 \uparrow Productivity

Machine Recommendations Guide
 Details on page 10

CNMG 120404 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	3.0	0.11	0.23	0.60	180	330	2.0	0.18	300		
		190 HB		2.5		0.22		0.52	280		260					
		250 HB		2.5		0.20		0.48	250		240					
	Low alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	180 HB	0.2	2.5	0.10	0.20	0.50	120	280	2.0	0.15	260		
				230 HB		2.5		0.20	0.48		250			240		
				280 HB		2.0		0.18	0.40		210			200		
				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		
				280 HB		2.5		0.16	0.40		150			140		
				320 HB		2.0		0.14	0.32		130			120		
				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		
				240 HB		2.5		0.18	0.26	160	220			210		
	Duplex	5	X2CrNiN23-4, S31500	290 HB	0.2	2.0	0.09	0.14	0.20	80	150	2.0	0.12	140		
				310 HB		2.0		0.14	0.20	70	140			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		
				42 HRC		2.0		0.16	0.26	120	190			180		
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		
				200 HB		3.0		0.20	0.60	160	230			220		
				250 HB		3.0		0.20	0.60	150	210			200		
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.2	2.5	0.08	0.18	0.48	120	230	2.0	0.15	220		
				200 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		
				250 HB		2.0		0.15	0.26	25	50			40		
				350 HB		2.0		0.15	0.26	23	45			35		
	Ti based	10	TiAl6V4, T40	-	0.2	2.0	0.09	0.16	0.32	45	65	2.0	0.15	60		
				-		2.0		0.14	0.26	35	60			50		
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		
				50 HRc		1.5		0.10	0.17	40	90			1.2	0.09	80
				55 HRc		1.4		0.05	0.09	0.13	40			80	1.0	0.07
	Chilled Cast Iron White Cast Iron	41	Ni-Hard 2, G-X300CrMo15	400 HB	0.2	1.6	0.05	0.12	0.17	40	60	1.2	0.11	50		
				55 HRc		1.4		0.05	0.09	0.13	30			50	1.0	0.07
NF	Al (>8%Si)	12	25	AISI12	130 HB	0.2	4.0	0.10	0.30	0.70	200	400	2.0	0.20	350	

CNMG 120408 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	5.0	0.21	0.50	2.00	180	330	3.0	0.38	240	
		2		190 HB		5.0		0.50	1.80		280		0.35	220	
		3		250 HB		5.0		0.45	1.50		250		0.33	200	
	Low alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	180 HB	0.5	5.0	0.21	0.45	1.60	120	280	3.0	0.32	200	
		4,6		230 HB		4.0	0.21	0.45	1.40		250		0.32	180	
		5,7		280 HB		4.0	0.18	0.40	1.20		210		0.30	150	
		8		350 HB		3.5	0.18	0.40	1.00		180		0.30	130	
	High alloyed	3	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.5	4.0	0.18	0.40	1.20	70	190	2.5	0.30	140	
		10		280 HB		4.0		0.40	1.20		150		0.30	120	
		11		320 HB		3.0		0.35	0.80		130		0.28	100	
		11		350 HB		3.0		0.35	0.80		110		0.28	90	
Stainless Steel	Austenitic	4	304, 316, X5CrNi18-9	180 HB	0.5	5.0	0.20	0.40	1.00	170	270	3.0	0.25	190	
		14		240 HB		5.0		0.40	0.90	160	220		0.22	170	
	Duplex	5	X2CrNiN23-4, S31500	290 HB	0.5	4.0	0.18	0.35	0.70	80	150	2.5	0.28	100	
		14		310 HB		4.0		0.35		70	140		90		
	Ferritic & Martensitic	6	410, X6Cr17, 17-4 PH, 430	200 HB	0.5	5.0	0.22	0.40	1.00	170	250	3.0	0.32	190	
		13		42 HRc		4.0		0.40		120	190			130	
Cast Iron	Grey	7	GG20, GG40, EN-GJL-250, No30B	150 HB	0.5	5.0	0.15	0.60	2.00	170	250	3.0	0.35	200	
		15		200 HB		5.0		0.60	1.80	160	230			180	
		16		250 HB		5.0		0.55	1.80	150	210			160	
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.5	5.0	0.15	0.50	1.50	120	250	3.0	0.30	180	
		17,19		200 HB		5.0		0.50	1.30		230			160	
		18,20		250 HB		5.0		0.50	1.20		190			140	
High Temp. Alloys	Fe, Ni & Co based	9	Incoloy 800, Inconel 700, Stellite 21	240 HB	0.5	3.0	0.20	0.35	0.70	25	50	2.0	0.28	32	
		33		250 HB		3.0		0.35		0.70	25			50	30
		34		350 HB		3.0		0.35		23	45			28	
	Ti based	10	TiAl6V4, T40	-	0.5	3.5	0.20	0.40	0.80	45	65	2.0	0.33	55	
		37		-		3.0		0.35	0.70	35	60		45		
Hardened Mat.	Steel	11	X100CrMo13, 440C, G-X260NiCr42	45 HRc	0.5	2.5	0.11	0.30	0.60	50	100	2.0	0.25	80	
		38		50 HRc		2.0		0.25	0.50	40	90		1.5	0.20	70
		38		55 HRc		1.6		0.20	0.30	40	80		1.0	0.18	60
	Chilled Cast Iron	40	Ni-Hard 2	400 HB	0.5	2.0	0.11	0.25	0.50	40	60	1.5	0.18	50	
	White Cast Iron	41	G-X300CrMo15	55 HRc	0.5	1.6	0.11	0.20	0.30	30	50	1.0	0.15	40	
NF	Al (>8%Si)	12	25	AlSi12	130 HB	0.5	6.0	0.20	0.60	2.00	200	400	3.0	0.40	280

CNMG 120408 NM 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,	125 HB	0.5	5.0	0.21	0.65	2.7	180	330	4.0	0.50	210		
		2	1045, 1060,	190 HB		5.0		0.65			2.7		280	200		
		3	28Mn6	250 HB		5.0		0.59			2.3		250	200		
	Low alloyed	2	6	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	180 HB	0.5	5.0	0.21	0.59	1.8	120	280	4.0	0.44	160	
			4,6		230 HB		4.0	0.21	0.59			1.8		250	0.44	150
			5,7		280 HB		4.0	0.18	0.52			1.8		210	0.38	140
			8		350 HB		3.5	0.18	0.52			1.6		180	0.38	130
	High alloyed	3	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.5	4.0	0.18	0.52	1.8	70	190	3.3	0.38	120		
				280 HB		4.0		0.52			1.8		150	0.38	110	
				320 HB		3.0		0.46			1.2		130	0.35	100	
				350 HB		3.0		0.46			1.2		110	0.35	90	
Stainless Steel	Ferritic & Martensitic	6	410, X6Cr17,	200 HB	0.5	5.0	0.22	0.52	1.6	170	250	4.0	0.38	190		
		13	17-4 PH, 430	42 HRc		4.0		0.52		120	190		3.5	0.38	130	
Cast Iron	Grey	7	GG20, GG40, EN-GJL-250, No30B	150 HB	0.5	5.0	0.15	0.78	3.0	170	250	4.0	0.44	180		
				200 HB		5.0		0.78		2.7	160		230	170		
				250 HB		5.0		0.72		2.7	150		210	160		
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.5	5.0	0.15	0.65	2.3	120	250	4.0	0.38	150		
				200 HB		5.0		0.65			2.0		230	140		
				250 HB		5.0		0.65			1.8		190	130		
Hardened Mat.	Steel	11	X100CrMo13,	45 HRc	0.5	2.5	0.11	0.39	0.9	50	100	2.7	0.31	80		
			440C,	50 HRc		2.0		0.33		0.6	40		90	2.0	0.25	70
			G-X260NiCr42	55 HRc		1.5		0.26		0.5	40		80	1.5	0.23	60
	Chilled Cast Iron White Cast Iron	41	G-X300CrMo15	400 HB	55 HRc	0.5	2.0	0.11	0.33	0.6	40	60	2.0	0.23	50	
				55 HRc	0.5	1.5	0.11	0.26	0.5	30	50	1.5	0.19	40		

CNMG 120408 NX 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	5.0	0.21	0.50	1.80	180	330	3.0	0.35	240		
		190 HB		5.0		0.50		1.80			280			220		
		250 HB		5.0		0.45		1.50			250			200		
	Low alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	180 HB	0.5	5.0	0.21	0.45	1.20	120	280	3.0	0.32	200		
				230 HB		4.0		0.45			1.20		250	180		
				280 HB		4.0		0.18			0.40		1.20	210	0.30	150
				350 HB		3.5		0.18			0.40		1.00	180	0.30	130
	High alloyed	3	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.5	4.0	0.18	0.40	1.20	70	190	2.5	0.30	140		
				280 HB		4.0		0.40			1.20		150	0.30	120	
				320 HB		3.0		0.35			0.80		130	0.28	100	
				350 HB		3.0		0.35			0.80		110	0.28	90	
	Stainless Steel	Austenitic	4	304, 316, X5CrNi18-9	180 HB	0.5	5.0	0.20	0.40	1.20	170	3.0	0.25	190		
240 HB					5.0		0.40		1.00		160		220	0.22	170	
Duplex		5	X2CrNiN23-4, S31500	290 HB	0.5	4.0	0.18	0.35	0.80	80	2.5	0.28	100			
				310 HB		4.0		0.35		0.80		70	140	0.28	90	
Ferritic & Martensitic		6	410, X6Cr17, 17-4 PH, 430	200 HB	0.5	5.0	0.22	0.40	1.00	170	3.0	0.32	190			
				42 HRC		4.0		0.40		1.00		120	190	2.5	0.32	130
Cast Iron	Grey	7	GG20, GG40, EN-GJL-250, No30B	150 HB	0.5	5.0	0.15	0.60	2.00	170	3.0	0.35	200			
				200 HB		5.0		0.60		1.80			160	230	180	
				250 HB		5.0		0.55		1.80			150	210	160	
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.5	5.0	0.15	0.50	1.50	250	3.0	0.30	180			
				200 HB		5.0		0.50		1.30			120	230	160	
				250 HB		5.0		0.50		1.20			190	140	140	
High Temp. Alloys	Fe, Ni & Co based	9	Incoloy 800, Inconel 700, Stellite 21	240 HB	0.5	3.0	0.20	0.35	0.70	25	2.0	0.28	32			
				250 HB		3.0		0.35		0.70		25	45	30		
				350 HB		3.0		0.35		0.70		23	40	28		
	Ti based	10	TiAl6V4, T40	-	0.5	4.0	0.20	0.40	0.80	45	2.0	0.33	55			
				-		3.0		0.35		0.70		35	55	0.30	45	
Hardened Mat.	Steel	11	X100CrMo13, 440C, G-X260NiCr42	45 HRc	0.5	2.5	0.11	0.30	0.60	50	1.5	0.20	80			
				50 HRc		2.0		0.25		0.40		40	90	0.18	70	
				55 HRc		1.5		0.20		0.30		40	80	1.0	0.18	60
	Chilled Cast Iron White Cast Iron	41	Ni-Hard 2, G-X300CrMo15	400 HB	0.5	2.0	0.11	0.25	0.40	40	1.0	0.15	50			
				55 HRc		1.5		0.20		0.30		30	50	1.0	0.15	40
NF	Al (>8%Si)	12	25	AISI12	130 HB	0.5	6.0	0.20	0.60	1.80	200	400	3.0	0.40	280	

CNMG 120412 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	0.7	6.0	0.26	0.68	3.06	180	330	4.0	0.46	240		
		190 HB		6.0		0.68		3.06						280		
		250 HB		6.0		0.61		2.55						200		
	Low alloyed	2	42CrMo4, St50, Ck60, 4140, 4340, 100Cr6	180 HB	0.7	6.0	0.23	0.61	2.04	120	280	4.0	0.42	200		
				230 HB		4.8		0.61						2.04	250	
				280 HB		4.8		0.54						2.04	210	
				350 HB		4.2		0.54						1.70	180	
	High alloyed	3	X40CrMoV5, H13, M42, D3, S6-5-2, 12Ni19	220 HB	0.7	4.8	0.23	0.54	2.04	70	190	3.4	0.40	140		
				280 HB		4.8		0.47						1.36	150	
				320 HB		3.6		0.47						1.36	130	
				350 HB		3.6		0.47						1.36	110	
Stainless Steel	Austenitic	4	304, 316, X5CrNi18-9	180 HB	0.7	6.0	0.25	0.54	2.04	170	270	4.0	3.00	190		
				240 HB		6.0		0.54						1.70	160	220
	Duplex	5	X2CrNiN23-4, S31500	290 HB	0.7	4.8	0.23	0.47	1.36	80	150	3.4	0.32	100		
				310 HB		4.8		0.47						1.36	70	140
	Ferritic & Martensitic	6	410, X6Cr17, 17-4 PH, 430	200 HB	0.7	6.0	0.28	0.54	1.70	170	250	4.0	0.40	190		
				42 HRc		4.8		0.54						1.70	120	190
Cast Iron	Grey	7	GG20, GG40, EN-GJL-250, No30B	150 HB	0.7	6.0	0.20	0.81	3.40	170	250	4.0	0.46	180		
				200 HB		6.0		0.81						3.06	160	230
				250 HB		6.0		0.74						3.06	150	210
	Malleable & Nodular	8	GGG40, GGG70, 50005	150 HB	0.7	6.0	0.20	0.68	2.55	120	230	4.0	0.40	160		
				200 HB		6.0		0.68						2.21	190	
250 HB	6.0	0.68	2.04	190												
High Temp. Alloys	Fe, Ni & Co based	9	Incoloy 800, Inconel 700, Stellite 21	240 HB	0.7	3.6	0.25	0.47	1.19	25	45	2.7	0.37	32		
				250 HB		3.6		0.47						1.19	25	45
				350 HB		3.6		0.47						1.19	23	40
	Ti based	10	TiAl6V4, T40	-	0.7	4.8	0.25	0.54	1.36	45	65	2.7	0.44	55		
-	3.6			0.47		1.19		35						55		
Hardened Mat.	Steel	11	X100CrMo13, 440C, G-X260NiCr42	45 HRc	0.7	3.0	0.14	0.41	1.02	50	100	2.7	0.33	80		
				50 HRc		2.4		0.34						0.68	40	90
				55 HRc		1.8		0.27						0.51	40	80
	Chilled Cast Iron	40	0.7	2.4	0.14	0.34	0.68	40	60	2.0	0.24	50				
	White Cast Iron	41	0.7	1.8	0.14	0.27	0.51	30	50	1.3	0.20	40				
NF	Al (>8%Si)	12	25	AlSi12	130 HB	0.7	7.0	0.25	0.81	3.10	200	400	4.0	0.50	280	