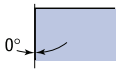
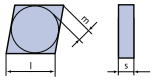
C N M G

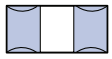
Shape
80° Diamond



Clearance Angle
0° No rake



Tolerance
d ± 0.05 m ± 0.08
s ± 0.13



Insert Type
Pin / Top clamp
Double sided

Insert designation	Grade	l	s	r	Catalog Nr.	Page
CNMG 120404 NN	LT 10	12	4,76	0,4	T0000491	23
CNMG 120408 NN	LT 10	12	4,76	0,8	T0000059	24
CNMG 120408 NR	LT 10	12	4,76	0,8	T0001436	25
CNMG 120408 NP	LT 10	12	4,76	0,8	T0001966	26
CNMG 120408 WM	LT 10	12	4,76	0,8	T0000060	27
CNMG 120412 NN	LT 10	12	4,76	1,2	T0000061	28

NN All Purpose Chipbreaker WM Wiper Medium chip breaker

Application Guide	Super Finishing	Finishing	Semi Finishing	Roughing	Interrrupted Cut
CNMG 120404 NN					
CNMG 120408 NN					
CNMG 120408 NR					
CNMG 120408 NP					
CNMG 120408 WM					
CNMG 120412 NN					
	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

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

1 Not Recommended 2 Acceptable 3 Recommended 4 Excellent

Machining Recommendation Guide - Please see Pg. 8

Material Group	Group No	Material Examples*	Brinell hardness	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, Ck45 1020, 1045	150	0.20	3.0	0.11	0.23	0.60	180	350	2.0	0.18
			180		2.5		0.20	0.48		280		
			210		2.5		0.18	0.48		250		
Alloy Steel	2	42 CrMo 4 St 50-2 Ck60 1060 4140	180	0.20	2.5	0.11	0.20	0.48	120	280	2.0	0.15
			230		2.5		0.20	0.40		250		
			280		2.0	0.09	0.18	0.40		210		
			320		2.0		0.16	0.32		180		
High Alloy Steel	3	X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42	220	0.20	2.5	0.09	0.18	0.40	70	190	2.0	0.12
			280		2.5		0.16	0.40		150		
			320		2.0		0.14	0.28		130		
			350		2.0		0.14	0.24		100		
			400	0.20	1.8	0.05	0.12	0.20	50	90	1.7	0.11
			480		1.5		0.10	0.17	40	80	1.4	0.09
			550		1.4		0.08	0.13	30	70	1.2	0.07
Austenitic Stainless Steel	4	X5 CrNi 18 9 304	210 to 250	0.20	2.5	0.10	0.18	0.32	170	270	2.0	0.15
	5	X2 CrNiMo 17 2 2 316	230 to 270		2.0	0.09	0.16	0.24	160	210	2.0	0.12
	6	X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic	-------		2.0	0.09	0.14	0.20	70	150	2.0	0.12
Ferritic Stainless Steel	7	X8 Cr 7 430	Annealed	0.20	2.0	0.11	0.18	0.28	170	250	2.0	0.15
Martensitic Stainless Steel	8	X15 Cr 13 410	Annealed	0.20	2.0	0.11	0.18	0.28	170	250	2.0	0.12
			Treated						120	190		
Grey Cast Iron	9	GG 20	140 to 230	0.20	3.0	0.08	0.20	0.64	170	250	2.0	0.18
		GG 25						0.60		230		
		GG 30						0.60		210		
Nodular Cast Iron	10	GGG 40	210	0.20	2.5	0.08	0.18	0.48	120	230	2.0	0.15
		GGG 50	260					0.40		190		
		GGG 70	310					0.40		150		
		G-X260NiCr42	450	0.20	1.5	0.05	0.10	0.17	30	70	1.4	0.09
Nickel Based Alloys	11	Inconel 625	--------	0.20	2.0	0.10	0.16	0.24	25	35	2.0	0.12
		Inconel 718						0.24	28	40		
		Hastelloy C						0.28	40	65		
Titanium Based Alloys	12	TiAl 6 V4	--------	0.20	2.0	0.09	0.16	0.28	35	60	2.0	0.14
		T40					0.14	0.24	28	40	2.0	0.12

Insert designation	Super Finishing	Finishing	Semi Finishing	Roughing	Interrrupted Cut
CNMG 120404 NN	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

CNMG 120408 NN

Material Group	Group No	Material Examples*	Brinell hardness	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, Ck45 1020, 1045	150	0.50	5.0	0.21	0.45	1.8	180	350	3.0	0.35
			180		5.0		0.45	1.8		300		
			210		4.0		0.40	1.5		250		
Alloy Steel	2	42 CrMo 4 St 50-2 Ck60 1060 4140	180	0.50	5.0	0.21	0.40	1.2	120	280	3.0	0.30
			230		4.0		0.40	1.2		250		
			280		4.0	0.18	0.35	1.2		210		
			320		3.5		0.35	1.0		180		
High Alloy Steel	3	X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42	220	0.50	4.0	0.18	0.40	1.2	70	190	2.5	0.28
			280		4.0		0.40	1.2		150		
			320		3.0		0.35	0.8		130		
			350		3.0		0.35	0.8		100		
			400	0.50	2.5	0.11	0.30	0.6	50	90	2.0	0.25
			480		2.0		0.25	0.4	40	80	1.7	0.20
			550		1.7		0.20	0.3	30	70	1.0	0.18
Austenitic Stainless Steel	4	X5 CrNi 18 9 304	210 to 250	0.50	5.0	0.20	0.40	1.0	170	270	3.0	0.35
	5	X2 CrNiMo 17 2 2 316	230 to 270		4.0	0.18	0.35	0.8	160	210	3.0	0.32
	6	X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic	-------		4.0	0.18	0.35	0.6	70	150	2.5	0.28
Ferritic Stainless Steel	7	X8 Cr 7 430	Annealed	0.50	4.0	0.22	0.35	0.9	170	250	3.0	0.32
Martensitic Stainless Steel	8	X15 Cr 13 410	Annealed	0.50	4.0	0.22	0.35	0.9	170	250	3.0	0.32
			Treated						120	190		
Grey Cast Iron	9	GG 20	140 to 230	0.50	5.0	0.15	0.60	2.0	170	250	3.0	0.35
		GG 25						1.8		230		
		GG 30						1.8		210		
Nodular Cast Iron	10	GGG 40	210	0.50	5.0	0.15	0.50	1.5	120	230	3.0	0.30
		GGG 50	260					1.3		190		
		GGG 70	310					1.2		150		
		G-X260NiCr42	450	0.50	1.7	0.11	0.25	0.4	30	50	1.0	0.18
Nickel Based Alloys	11	Inconel 625	-------	0.50	3.0	0.20	0.35	0.7	25	35	2.0	0.28
		Inconel 718						0.7	28	40		
		Hastelloy C						0.8	40	65		
Titanium Based Alloys	12	TiAl 6 V4	-------	0.50	3.0	0.18	0.35	0.8	35	60	2.0	0.30
		T40					0.30	0.6	28	40	2.0	0.28

Insert designation	Super Finishing	Finishing	Semi Finishing	Roughing	Interrrupted Cut
CNMG 120408 NN	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

Material Group	Group No	Material Examples*	Brinell hardness	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, Ck45 1020, 1045	150	0.50	5.0	0.27	0.68	2.3	180	330	4.0	0.50
			180		5.0		0.68	2.3		280		
			210		5.0		0.60	2.0		250		
Alloy Steel	2	42 CrMo 4 St 50-2 Ck60 1060 4140	180	0.50	5.0	0.27	0.60	2.0	120	280	4.0	0.45
			230		5.0		0.60	1.5		250		
			280		5.0	0.23	0.53	1.5		210		
			320		4.0		0.53	1.3		180		
High Alloy Steel	3	X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42	220	0.50	5.0	0.23	0.60	1.5	70	190	4.0	0.40
			280		5.0		0.60	1.5		150		
			320		4.0		0.53	1.2		130		
			350		4.0		0.53	1.2		100		
			400	0.50	3.5	0.14	0.45	0.9	50	90	3.4	0.36
			480		3.0		0.35	0.7	40	80	2.9	0.30
			550		2.5		0.28	0.5	30	70	2.5	0.25
Austenitic Stainless Steel	4	X5 CrNi 18 9 304	210 to 250	0.50	5.0	0.26	0.52	1.3	170	270	4.0	0.40
	5	X2 CrNiMo 17 2 2 316	230 to 270		5.0	0.23	0.46	1.1	160	210	4.0	0.36
	6	X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic	-------		5.0	0.23	0.46	0.8	70	150	4.0	0.32
Ferritic Stainless Steel	7	X8 Cr 7 430	Annealed	0.50	5.0	0.29	0.46	1.1	170	250	4.0	0.35
Martensitic Stainless Steel	8	X15 Cr 13 410	Annealed	0.50	5.0	0.29	0.46	1.1	170	250	4.0	0.35
			Treated						120	190		
Grey Cast Iron	9	GG 20	140 to 230	0.50	5.0	0.20	0.90	2.3	170	250	4.0	0.60
		GG 25						2.0		230		
		GG 30						2.0		210		
Nodular Cast Iron	10	GGG 40	210	0.50	5.0	0.20	0.70	1.7	120	230	4.0	0.50
		GGG 50	260					1.5		190		
		GGG 70	310					1.4		150		
		G-X260NiCr42	450	0.50	1.8	0.06	0.15	0.2	30	50	1.2	0.12
Nickel Based Alloys	11	Inconel 625	-------	0.50	5.0	0.26	0.46	1.1	25	35	3.0	0.38
		Inconel 718						1.1	28	40		
		Hastelloy C						1.2	40	65		
Titanium Based Alloys	12	TiAl 6 V4	-------	0.50	5.0	0.23	0.46	1.2	35	60	3.0	0.38
		T40					0.39	0.9	28	40	3.0	0.32

Insert designation	Super Finishing	Finishing	Semi Finishing	Roughing	Interrrupted Cut
CNMG 120408 NR	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

CNMG 120408 NP

Material Group	Group No	Material Examples*	Brinell hardness	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, Ck45 1020, 1045	150	0.50	5.0	0.27	0.68	2.3	180	330	4.0	0.50
			180		5.0		0.68	2.3		280		
			210		5.0		0.60	2.0		250		
Alloy Steel	2	42 CrMo 4 St 50-2 Ck60 1060 4140	180	0.50	5.0	0.27	0.60	2.0	120	280	4.0	0.45
			230		5.0		0.60	1.5		250		
			280		5.0	0.23	0.53	1.5		210		
			320		4.0		0.53	1.3		180		
High Alloy Steel	3	X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42	220	0.50	5.0	0.23	0.60	1.5	70	190	4.0	0.40
			280		5.0		0.60	1.5		150		
			320		4.0		0.53	1.2		130		
			350		4.0		0.53	1.2		100		
			400	0.50	3.5	0.14	0.45	0.9	50	90	3.4	0.36
			480		3.0		0.35	0.7	40	80	2.9	0.30
			550		2.5		0.28	0.5	30	70	2.5	0.25
Austenitic Stainless Steel	4	X5 CrNi 18 9 304	210 to 250	0.50	5.0	0.26	0.52	1.3	170	270	4.0	0.40
	5	X2 CrNiMo 17 2 2 316	230 to 270		5.0	0.23	0.46	1.1	160	210	4.0	0.36
	6	X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic	-------		5.0	0.23	0.46	0.8	70	150	4.0	0.32
Ferritic Stainless Steel	7	X8 Cr 7 430	Annealed	0.50	5.0	0.29	0.46	1.1	170	250	4.0	0.35
Martensitic Stainless Steel	8	X15 Cr 13 410	Annealed	0.50	5.0	0.29	0.46	1.1	170	250	4.0	0.35
			Treated						120	190		
Grey Cast Iron	9	GG 20	140 to 230	0.50	5.0	0.20	0.90	2.3	170	250	4.0	0.60
		GG 25						2.0		230		
		GG 30						2.0		210		
Nodular Cast Iron	10	GGG 40	210	0.50	5.0	0.20	0.70	1.7	120	230	4.0	0.50
		GGG 50	260					1.5		190		
		GGG 70	310					1.4		150		
		G-X260NiCr42	450	0.50	1.8	0.06	0.15	0.2	30	50	1.2	0.12
Nickel Based Alloys	11	Inconel 625	-------	0.50	5.0	0.26	0.46	1.1	25	35	3.0	0.38
		Inconel 718						1.1	28	40		
		Hastelloy C						1.2	40	65		
Titanium Based Alloys	12	TiAl 6 V4	-------	0.50	5.0	0.23	0.46	1.2	35	60	3.0	0.38
		T40					0.39	0.9	28	40	3.0	0.32

Insert designation	Super Finishing	Finishing	Semi Finishing	Roughing	Interrrupted Cut
CNMG 120408 NP	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

Material Group	Group No	Material Examples*	Brinell hardness	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, Ck45 1020, 1045	150	0.50	5.0	0.21	0.45	1.8	180	350	3.0	0.35
			180		5.0		0.45	1.8		300		
			210		4.0		0.40	1.5		250		
Alloy Steel	2	42 CrMo 4 St 50-2 Ck60 1060 4140	180	0.50	5.0	0.21	0.40	1.2	120	280	3.0	0.30
			230		4.0		0.40	1.2		250		
			280		4.0	0.18	0.35	1.2		210		
			320		3.5		0.35	1.0		180		
High Alloy Steel	3	X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42	220	0.50	4.0	0.18	0.40	1.2	70	190	2.5	0.28
			280		4.0		0.40	1.2		150		
			320		3.0		0.35	0.8		130		
			350		3.0		0.35	0.8		100		
			400	0.50	2.5	0.11	0.30	0.6	50	90	2.0	0.25
			480		2.0		0.25	0.4	40	80	1.7	0.20
			550		1.7		0.20	0.3	30	70	1.0	0.18
Austenitic Stainless Steel	4	X5 CrNi 18 9 304	210 to 250	0.50	5.0	0.20	0.40	1.0	170	270	3.0	0.35
	5	X2 CrNiMo 17 2 2 316	230 to 270		4.0	0.18	0.35	0.8	160	210	3.0	0.32
	6	X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic	-------		4.0	0.18	0.35	0.6	70	150	2.5	0.28
Ferritic Stainless Steel	7	X8 Cr 7 430	Annealed	0.50	4.0	0.22	0.35	0.9	170	250	3.0	0.32
Martensitic Stainless Steel	8	X15 Cr 13 410	Annealed	0.50	4.0	0.22	0.35	0.9	170	250	3.0	0.32
			Treated						120	190		
Grey Cast Iron	9	GG 20	140 to 230	0.50	5.0	0.15	0.60	2.0	170	250	3.0	0.35
		GG 25						1.8		230		
		GG 30						1.8		210		
Nodular Cast Iron	10	GGG 40	210	0.50	5.0	0.15	0.50	1.5	120	230	3.0	0.30
		GGG 50	260					1.3		190		
		GGG 70	310					1.2		150		
		G-X260NiCr42	450	0.50	1.7	0.11	0.25	0.4	30	50	1.0	0.18
Nickel Based Alloys	11	Inconel 625	--------	0.50	3.0	0.20	0.35	0.7	25	35	2.0	0.28
		Inconel 718						0.7	28	40		
		Hastelloy C						0.8	40	65		
Titanium Based Alloys	12	TiAl 6 V4	--------	0.50	3.0	0.18	0.35	0.8	35	60	2.0	0.30
		T40					0.30	0.6	28	40	2.0	0.28

Insert designation	Super Finishing	Finishing	Semi Finishing	Roughing	Interrrupted Cut
CNMG 120408 WM	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

CNMG 120412 NN

Material Group	Group No	Material Examples*	Brinell hardness	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, Ck45 1020, 1045	150	0.50	5.0	0.27	0.68	3.1	180	330	4.0	0.50
			180		5.0		0.68	3.1		280		
			210		5.0		0.60	2.6		250		
Alloy Steel	2	42 CrMo 4 St 50-2 Ck60 1060 4140	180	0.50	5.0	0.27	0.60	2.6	120	280	4.0	0.45
			230		5.0		0.60	2.0		250		
			280		5.0	0.23	0.53	2.0		210		
			320		4.0		0.53	1.7		180		
High Alloy Steel	3	X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42	220	0.50	5.0	0.23	0.60	2.0	70	190	4.0	0.40
			280		5.0		0.60	2.0		150		
			320		4.0		0.53	1.6		130		
			350		4.0		0.53	1.6		100		
			400	0.50	3.5	0.14	0.45	1.2	50	90	3.4	0.36
			480		3.0		0.35	0.9	40	80	2.9	0.30
			550		2.5		0.28	0.6	30	70	2.5	0.25
Austenitic Stainless Steel	4	X5 CrNi 18 9 304	210 to 250	0.50	5.0	0.26	0.52	1.7	170	270	4.0	0.40
	5	X2 CrNiMo 17 2 2 316	230 to 270		5.0	0.23	0.46	1.4	160	210	4.0	0.36
	6	X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic	-------		5.0	0.23	0.46	1.0	70	150	4.0	0.32
Ferritic Stainless Steel	7	X8 Cr 7 430	Annealed	0.50	5.0	0.29	0.46	1.5	170	250	4.0	0.35
Martensitic Stainless Steel	8	X15 Cr 13 410	Annealed	0.50	5.0	0.29	0.46	1.5	170	250	4.0	0.35
			Treated						120	190		
Grey Cast Iron	9	GG 20	140 to 230	0.50	5.0	0.20	0.90	3.0	170	250	4.0	0.60
		GG 25						2.7		230		
		GG 30						2.7		210		
Nodular Cast Iron	10	GGG 40	210	0.50	5.0	0.20	0.70	2.3	120	230	4.0	0.50
		GGG 50	260					2.0		190		
		GGG 70	310					1.8		150		
		G-X260NiCr42	450	0.50	1.8	0.06	0.15	0.3	30	50	1.2	0.12
Nickel Based Alloys	11	Inconel 625	--------	0.50	5.0	0.26	0.46	1.4	25	35	3.0	0.38
		Inconel 718						1.4	28	40		
		Hastelloy C						1.6	40	65		
Titanium Based Alloys	12	TiAl 6 V4	--------	0.50	5.0	0.23	0.46	1.6	35	60	3.0	0.38
		T40					0.39	1.2	28	40	3.0	0.32

Insert designation	Super Finishing	Finishing	Semi Finishing	Roughing	Interrrupted Cut
CNMG 120412 NN	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4