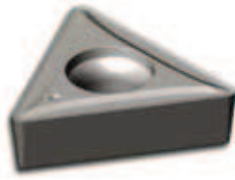


Turning



T

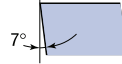
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M

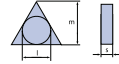
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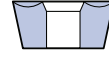
Shape
Triangle 60°



Clearance Angle
7° Positive rake



Tolerance
l ± 0.05 m ± 0.08
s ± 0.13



Insert Type
Pin / Top clamp
Single sided

Insert designation	Grade	l	s	r	Catalog Nr.	Page
TCMT 110204 NN	LT 10	11	2,38	0,4	T0000477	63
TCMT 110208 NN	LT 10	11	2,38	0,8	T0000478	64
TCMT 16T304 NN	LT 10	16	3,97	0,4	T0000479	65
TCMT 16T308 NN	LT 10	16	3,97	0,8	T0000068	66
TCMT 16T312 NN	LT 10	16	3,97	0,8	T0001774	67

NN All Purpose Chipbreaker

Application Guide	Super Finishing	Finishing	Semi Finishing	Roughing	Interrupted Cut
TCMT 110204 NN					
TCMT 110208 NN					
TCMT 16T304 NN					
TCMT 16T308 NN					
TCMT 16T312 NN					

60° Triangle shape inserts, with positive rake angle. Suitable for regular and sever conditions Boring and Internal turning.

- 1 Not Recommended
- 2 Acceptable
- 3 Recommended
- 4 Excellent



Machining Recommendation Guide - Please see Pg. 8

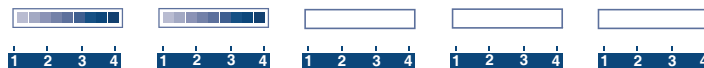


Material Group	Group No	Material Examples*	Brinell hardness	d.o.c [mm]		feed [mm/rev]		A max [mm ²]	V _c [m/min]		Optimal cutting conditions					
				min	max	min	max		min	max	d.o.c	feed				
Low Carbon Steel	1	Ck15, Ck45 1020, 1045	150	0.10	2.0	0.08	0.20	0.36	180	350	1.0	0.18				
			180		2.0		0.18			280						
			210		2.0		0.16			250						
Alloy Steel	2	42 CrMo 4 St 50-2 Ck60 1060 4140	180	0.10	2.0	0.08	0.18	120	280	1.0	0.15					
			230		2.0		0.18		250							
			280		1.5	0.16	210									
			320		1.5	0.14	180									
High Alloy Steel	3	X40 CrMoV 5 1 H 13 40 NiCrMo 6 4340 S 2-10-1-8 HSS M42	220	0.10	2.0	0.08	0.16	70	190	1.0	0.12					
			280		1.5		0.14		150							
			320		1.5		0.13		130							
			350		1.5		0.13		100							
			400	0.10	1.3	0.05	0.11	0.12	50	90	0.9	0.10				
			480		1.2		0.09	0.10	40	80	0.7	0.08				
			550		1.0		0.08	0.08	30	70	0.6	0.07				
Austenitic Stainless Steel	4	X5 CrNi 18 9 304	210 to 250	0.10	2.0	0.08	0.16	170	270	1.0	0.15					
			230 to 270		1.8		0.08		0.14			0.17	160	210	1.0	0.12
					1.5		0.08		0.13			0.14	70	150	1.0	0.12
Ferritic Stainless Steel	7	X8 Cr 7 430	Annealed	0.10	2.0	0.08	0.16	0.20	170	250	1.0	0.15				
Martensitic Stainless Steel	8	X15 Cr 13 410	Annealed Treated	0.10	2.0	0.08	0.16	0.20	170 120	250 190	1.0	0.15				
Grey Cast Iron	9	GG 20	140 to 230	0.10	2.0	0.06	0.18	0.38	170	250	1.0	0.18				
		GG 25						0.36		230						
		GG 30						0.36		210						
Nodular Cast Iron	10	GGG 40	210	0.10	2.0	0.06	0.16	0.29	120	230	1.0	0.15				
		GGG 50	260					0.24		190						
		GGG 70	310					0.24		150						
		G-X260NiCr42	450					0.10		1.0			0.06	0.10	0.08	30
Nickel Based Alloys	11	Inconel 625	-----	0.10	1.5	0.08	0.14	0.14	25	35	1.0	0.12				
		Inconel 718						0.14		28			40			
		Hastelloy C						0.17		40			65			
Titanium Based Alloys	12	TiAl 6 V4	-----	0.10	1.5	0.08	0.14	35	60	1.0	0.14					
		T40					0.13		0.14	28	40	1.0	0.12			

TCMT

Insert designation Super Finishing Finishing Semi Finishing Roughing Interrupted Cut

TCMT 110204 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	0.20	2.0	0.15	0.45	0.43	180	400	1.0	0.24	
			180		2.0		0.40			350			
			210		2.0		0.40			200			
Alloy Steel	2	42 CrMo 4 St 50-2 Ck60 1060 4140	180	0.20	2.0	0.12	0.40	0.35	120	300	1.0	0.22	
			230				0.40			250			
			280		1.5	0.12	0.38	210					
			320				0.35	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	2.0	0.12	0.40	0.29	70	190	1.0	0.18	
			280				1.5			0.38			150
			320				1.5			0.35			130
			350		1.2	0.07	0.32	100					
			400				0.27	90					
			480				0.22	80					
550	0.8	0.18	0.06	30	70	0.5	0.12						
Austenitic Stainless Steel	4	X5 CrNi 18 9 304	210 to 250	0.20	2.0	0.15	0.38	0.31	170	270	1.0	0.24	
	5	X2 CrNiMo 17 2 2 316	230 to 270		1.8	0.12	0.35	0.24	120	210	1.0	0.22	
	6	X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic	-----		1.5	0.12	0.32	0.20	70	120	1.0	0.22	
Ferritic Stainless Steel	7	X8 Cr 7 430	Annealed	0.20	2.0	0.15	0.38	0.27	170	250	1.0	0.24	
Martensitic Stainless Steel	8	X15 Cr 13 410	Annealed Treated	0.20	2.0	0.15	0.35	0.27	170 120	250 210	1.0	0.15	
Grey Cast Iron	9	GG 20	140 to 230	0.20	2.0	0.15	0.40	0.46	170	280	1.0	0.24	
		GG 25						0.43		250			
		GG 30						0.43		230			
Nodular Cast Iron	10	GGG 40	210	0.20	2.0	0.15	0.40	0.35	120	230	1.0	0.15	
		GGG 50	260					0.29		190			
		GGG 70	310					0.29		150			
		G-X260NiCr42	450					0.07		0.18			0.09
Nickel Based Alloys	11	Inconel 625	-----	0.20	1.5	0.15	0.32	0.17	25	35	0.7	0.22	
		Inconel 718	-----					0.17	28	40			
		Hastelloy C	-----					0.20	40	65			
Titanium Based Alloys	12	TiAl 6 V4	-----	0.20	1.5	0.12	0.35	35	60	0.7	0.22		
		T40	-----				0.35	0.17	28	40	0.7	0.22	

Insert designation Super Finishing Finishing Semi Finishing Roughing Interrupted Cut

TCMT 110208 NN

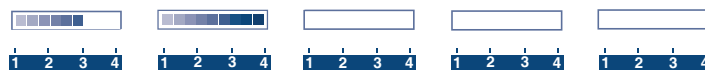


Material Group	Group No	Material Examples*	Brinell hardness	d.o.c [mm]		feed [mm/rev]		A max [mm ²]	V _c [m/min]		Optimal cutting conditions		
				min	max	min	max		min	max	d.o.c	feed	
Low Carbon Steel	1	Ck15, Ck45 1020, 1045	150	0.20	3.0	0.11	0.23	0.60	180	350	2.0	0.18	
			180		2.5		0.20			0.48			280
			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 Treated	0.20	2.0	0.11	0.18	0.28	170 120	250 190	2.0	0.12	
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					0.05		0.10			0.17
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	

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Insert designation Super Finishing Finishing Semi Finishing Roughing Interrupted Cut

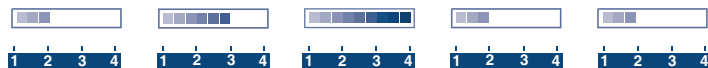
TCMT 16T304 NN



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			300		
			210		4.0		0.40			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			250		
			280		4.0	0.35	210					
			320		3.5	0.35	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			150		
			320		3.0		0.35			130		
			350	3.0	0.35	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 Treated	0.50	4.0	0.22	0.35	0.9	170 120	250 190	3.0	0.32
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					0.4		30		
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	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 Interrupted Cut

TCMT 16T308 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	0.22	0.47	1.3	180	350	2.0	0.33
			180		4.0		0.43	1.1		280		
			210		4.0		0.38	0.9		250		
Alloy Steel	2	42 CrMo 4 St 50-2 Ck60 1060 4140	180	0.50	4.0	0.22	0.43	1.1	120	280	1.5	0.30
			230		4.0		0.43	0.9		250		
			280		3.0	0.20	0.38	0.7		210		
			320		3.0		0.35	0.6		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	0.20	0.38	0.9	70	190	1.5	0.28
			280		4.0		0.35	0.7		150		
			320		3.0		0.32	0.6		130		
			350		3.0		0.32	0.5		100		
			400	2.8	0.05	0.28	0.4	40	90	2.4	0.23	
			480	2.2		0.24	0.3	40	80	2.0	0.20	
550	1.5	0.20	0.3	30	70	1.2	0.16					
Austenitic Stainless Steel	4	X5 CrNi 18 9 304	210 to 250	0.50	4.0	0.22	0.38	0.9	170	270	1.5	0.28
	5	X2 CrNiMo 17 2 2 316	230 to 270		3.0	0.20	0.35	0.7	120	210	1.5	0.25
	6	X6 CrNiMoTi 17 12 2 316 Ti Duplex / Nitronic	-----		3.0	0.20	0.32	0.6	70	120	1.5	0.23
Ferritic Stainless Steel	7	X8 Cr 7 430	Annealed	0.50	3.0	0.23	0.38	0.8	170	250	1.5	0.28
Martensitic Stainless Steel	8	X15 Cr 13 410	Annealed Treated	0.50	3.0	0.23	0.38	0.8	170 120	250 210	1.5	0.28
Grey Cast Iron	9	GG 20	140 to 230	0.50	5.0	0.18	0.45	1.3	170	280	3.0	0.32
		GG 25						1.2		250		
		GG 30						1.1		230		
Nodular Cast Iron	10	GGG 40	210	0.50	4.0	0.18	0.38	1.1	120	230	2.5	0.28
		GGG 50	260					1.0		190		
		GGG 70	310					0.9		150		
		G-X260NiCr42	450	0.20	1.2	0.04	0.12	0.1	30	50	0.9	0.08
Nickel Based Alloys	11	Inconel 625	-----	0.50	3.0	0.22	0.34	0.7	25	35	1.5	0.25
		Inconel 718	-----					0.7	28	40		
		Hastelloy C	-----					0.8	40	65		
Titanium Based Alloys	12	TiAl 6 V4	-----	0.50	3.0	0.20	0.34	0.8	35	60	1.5	0.25
		T40	-----				0.30	0.7	28	40	1.5	0.22

TCMT

Insert designation Super Finishing Finishing Semi Finishing Roughing Interrupted Cut

TCMT 16T312 NN

