

TCLAMP^{ULTRA+}

NEW MULTIPURPOSE TDXC INSERT FOR GROOVING AND TURNING APPLICATIONS

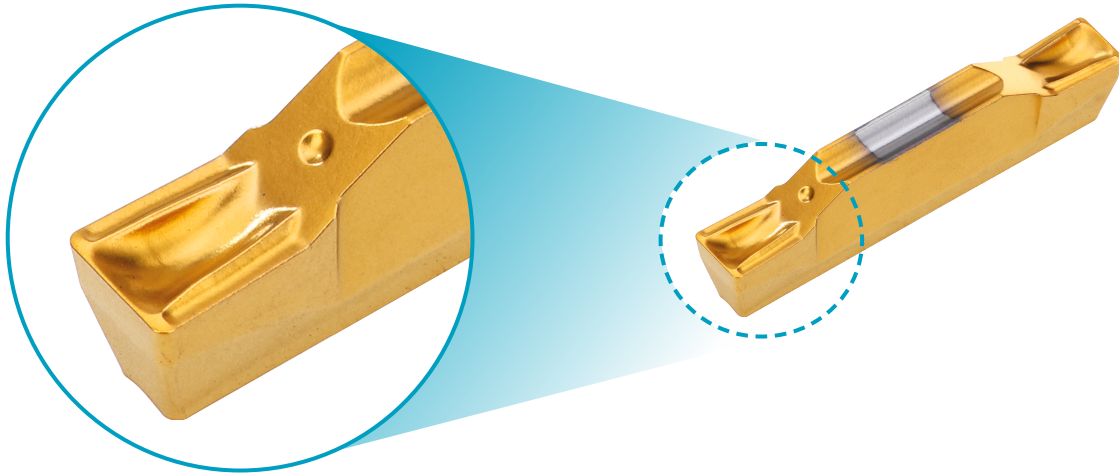
- ▶ Reinforced edge for high feed grooving and parting applications
 - ▶ Stable machining performance
- ▶ Optimized turning chip breaker according to depth of cut
 - ▶ Width sizes 2, 3, 4, 5 and 6 mm
- ▶ Compatible with existing standard holders



PRODUCT OVERVIEW

New TDXC type insert – a new multipurpose grooving and turning line.

With a strong cutting edge allowing for high-feed parting and grooving applications, this double-ended insert's built-in chip breaker is also capable of turning machining.



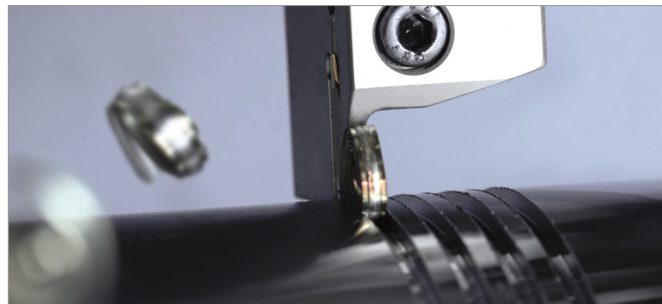
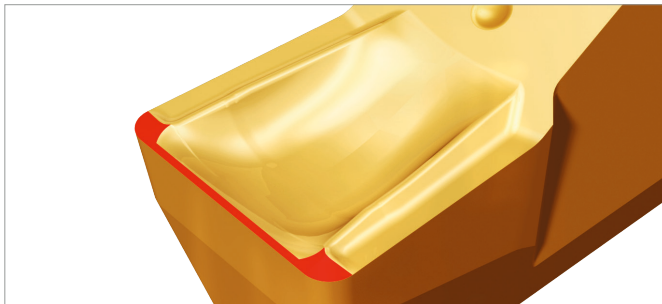
TECHNICAL FEATURES & ADVANTAGES

- Multi-purpose chip breaker for grooving, parting and turning
- Reinforced edge for high feed grooving and parting applications
- Stable machining performance in both interrupted and unstable conditions
- Optimized turning chip breaker according to depth of cut
- Available in 2, 3, 4, 5 and 6 mm width sizes
- Compatible with existing standard holders and optimal performance with **CoolBurst** (high-pressure) type holders

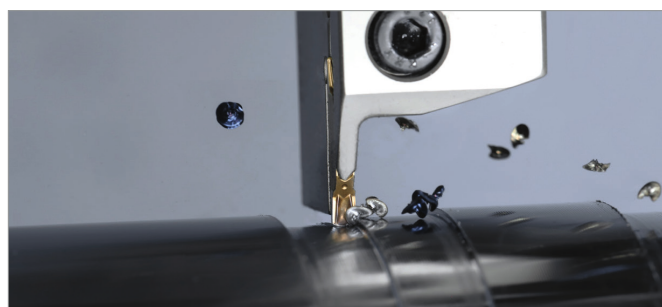


TECHNICAL FEATURES

Reinforced front edge for stable cutting in parting and grooving operations



Optimized chip breaker shape for excellent chip breaking in turning operations



MULTIFUNCTIONAL CHIP BREAKER FEATURES

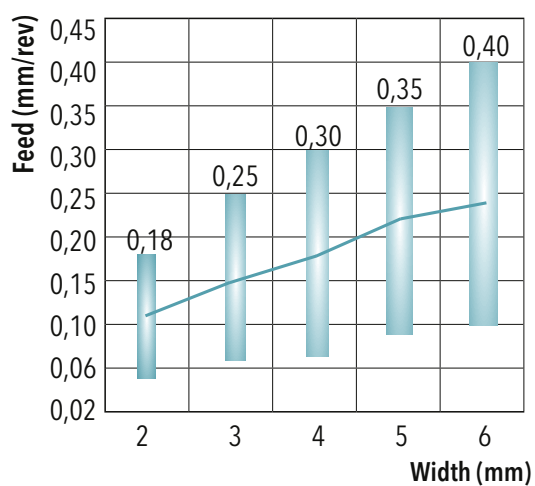
Chip breakers	Applications and Features
 TDXC	– Stable cutting edge in grooving and parting – Covers C-type chip breaker applications including a built-in chip breaker for turning applications – Medium-to-high feed range – Steel, cast iron, stainless steel and heat resistant alloys
 TDXY	– Suitable for wide groove side turning – Suited for face grooving and face turning – Steel, cast iron, stainless steel and heat resistant alloys
 TDXU	– 1st choice for general purpose machining in groove-turn applications – Multifunctional chip breaker for external, internal and face machining – Low cutting force and good chip control – Steel, stainless steel and heat resistant alloys
 TDXT	– 1st choice for turning and grooving of cast iron – Grooving of various geometries – High feed rate for turning

RECOMMENDED APPLICATION RANGE

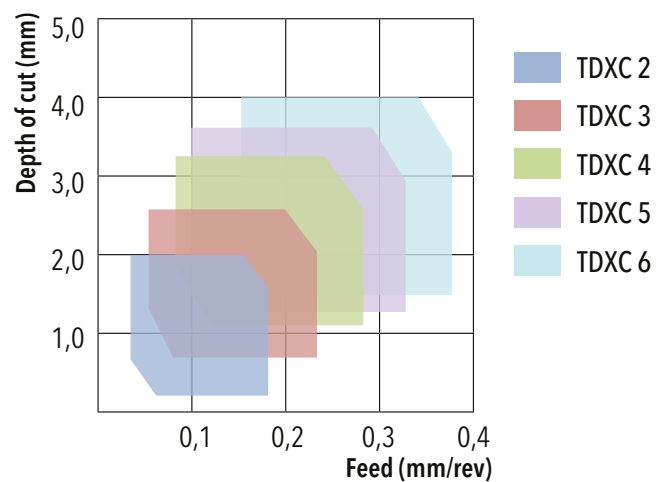
TDXC Typ



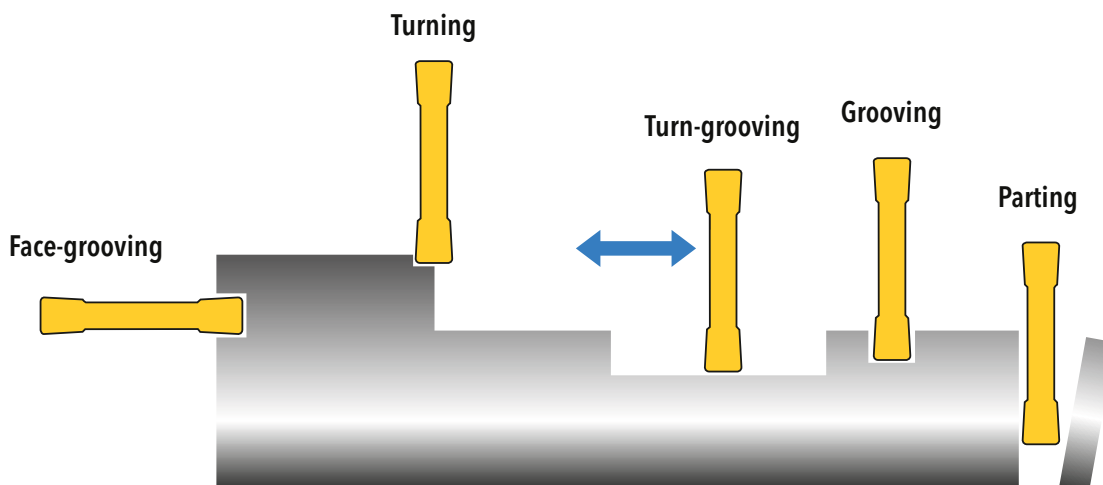
Grooving



Turning



WIDE VARIETY OF APPLICATIONS



RECOMMENDED CUTTING DATA - GROOVING & TURNING

ISO	Material		Condition	Tensile strength (N/mm ²)	Hardness HB	Material No.	Cutting speed V _c (m/min)
							TT9080
P	Non-alloy steel, cast steel, free cutting steel	<0.25%C	Annealed	420	125	1	100 - 200
		≥0.25%C	Annealed	650	190	2	100 - 180
		<0.55%C	Quenched and tempered	850	250	3	80 - 160
		≥0.55%C	Annealed	750	220	4	80 - 160
			Quenched and tempered	1000	300	5	70 - 130
	Low alloy steel and cast steel (less than 5% of alloying elements)	Annealed		600	200	6	100 - 160
				930	275	7	80 - 160
		Quenched and tempered		1000	300	8	80 - 150
				1200	350	9	80 - 130
	High alloy steel, cast steel and tool steel	Annealed		680	200	10	90 - 130
		Quenched and tempered		1100	325	11	50 - 80
M	Stainless steel and cast steel	Ferritic / martensitic		680	200	12	80 - 170
				820	240	13	80 - 150
		Martensitic		600	180	14	80 - 170
K	Gray cast iron (GG)	Ferritic		-	160	15	100 - 230
				-	250	16	90 - 180
	Cast iron nodular (GGG)	Ferritic		-	180	17	150 - 250
				-	260	18	100 - 230
	Malleable cast iron	Ferritic		-	130	19	90 - 180
				-	230	20	90 - 180
N	Aluminum - wrought alloy	Not cureable		-	60	21	-
				-	100	22	-
	Aluminum- cast, alloyed	≤12% Si	Not cureable	-	75	23	-
			Cured	-	90	24	-
		>12% Si	High temp.	-	130	25	-
				-			
	Copper alloys	>1% Pb	Free cutting	-	110	26	-
			Brass	-	90	27	-
			Electrolitic copper	-	100	28	-
	Non-metallic		Duroplastics, fiber plastics	-	-	29	-
			Hard rubber	-	-	30	-
S	High temp. alloys	Fe based	Annealed	-	200	31	30 - 50
			Cured	-	280	32	20 - 40
		Ni or Co based	Annealed	-	250	33	20 - 30
			Cured	-	350	34	15 - 20
			Cast	-	320	35	15 - 20
	Titanium, Ti alloys			Rm 400	-	36	130 - 170
			Alpha+beta alloys cured	Rm 1050	-	37	40 - 70
H	Hardened steel		Hardened	-	55HRC	38	-
			Hardened	-	60HRC	39	-
	Chilled cast iron		Cast	-	400	40	-
	Cast iron nodular		Hardened	-	55HRC	41	-

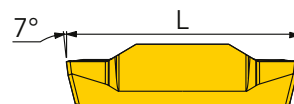
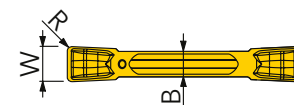
■ Steel
 ■ Stainless steel
 ■ Cast iron
 ■ Nonferrous
 ■ High temp. alloys
 ■ Hardened steel

RECOMMENDED CUTTING DATA - FACE GROOVING AND INTERNAL GROOVING

ISO	Material		Condition	Tensile strength (N/mm ²)	Hardness HB	Material No.	Cutting speed V _c (m/min)
							TT9080
P	Non-alloy steel, cast steel, free cutting steel	<0.25%C	Annealed	420	125	1	100 - 150
		≥0.25%C	Annealed	650	190	2	60 - 100
		<0.55%C	Quenched and tempered	850	250	3	50 - 100
		≥0.55%C	Annealed	750	220	4	60 - 110
			Quenched and tempered	1000	300	5	50 - 100
	Low alloy steel and cast steel (less than 5% of alloying elements)	Annealed		600	200	6	60 - 110
				930	275	7	70 - 110
		Quenched and tempered		1000	300	8	70 - 110
				1200	350	9	60 - 90
	High alloy steel, cast steel and tool steel	Annealed		680	200	10	60 - 90
		Quenched and tempered		1100	325	11	50 - 80
M	Stainless steel and cast steel	Ferritic / martensitic		680	200	12	50 - 130
				820	240	13	50 - 130
		Martensitic		820	240	13	50 - 130
				600	180	14	40 - 130
K	Gray cast iron (GG)	Ferritic		-	160	15	100 - 180
				-	250	16	90 - 150
	Cast iron nodular (GGG)	Ferritic		-	180	17	120 - 200
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N	Aluminum - wrought alloy	Not cureable		-	60	21	-
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	Aluminum- cast, alloyed	≤12% Si	Not cureable	-	75	23	-
			Cured	-	90	24	-
		>12% Si	High temp.	-	130	25	-
			Free cutting	-	110	26	-
	Copper alloys	>1% Pb	Brass	-	90	27	-
			Electrolitic copper	-	100	28	-
	Non-metallic		Duroplastics, fiber plastics	-	-	29	-
			Hard rubber	-	-	30	-
S	High temp. alloys	Fe based	Annealed	-	200	31	20 - 40
			Cured	-	280	32	15 - 30
		Ni or Co based	Annealed	-	250	33	15 - 20
			Cured	-	350	34	15 - 20
			Cast	-	320	35	15 - 20
				Rm 400	-	36	90 - 120
	Titanium, Ti alloys		Alpha+beta alloys cured	Rm 1050	-	37	20 - 50
H	Hardened steel		Hardened	-	55HRC	38	-
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PRECISE SINTERED INSERTS FOR GROOVING,
FACE GROOVING, INTERNAL GROOVING AND TURNING



Designation	Z	R	B	L	W ± 0,05	Tmax	inserts-S	Grade	TT9080
TDXC 2E-0.3	2	0,3	1,7	20,0	2,0	19	2		
TDXC 3E-0.3	2	0,3	2,2	20,0	3,0	19	3		
TDXC 4E-0.4	2	0,4	3,0	20,0	4,0	19	4		
TDXC 5E-0.4	2	0,4	4,0	25,0	5,0	24	5		
TDXC 6E-0.4	2	0,4	5,0	25,0	6,0	24	6		

● = P ● = M ● = K ● = N ● = S ○ = H

Ingersoll Cutting Tools

Marketing- & Technologie-Standorte

Germany / Allemagne

Ingersoll Werkzeuge GmbH

Kalteiche-Ring 21-25

35708 Haiger, Germany

Telefon: +49 (0) 27 73-7 42-0

E-Mail: info@ingersoll-imc.de

Internet: www.ingersoll-imc.de

France

Ingersoll France

22, rue Albert Einstein

F-77420 CHAMPS-sur-MARNE

Téléphone: +33 (0) 1 64 68 45 36

E-Mail: info@ingersoll-imc.fr

Internet: www.ingersoll-imc.fr

