



**TCLAMP<sup>ULTRA+</sup>**

TDXY INSERT

## NEW TDXY INSERT FOR MULTI-PURPOSE GROOVING AND TURNING APPLICATIONS

- Good chip control when face grooving and turning •*
- Flat bottom surface machining •*
- Suitable for medium to high feed machining •*
- Ideal for steel, stainless steel, cast iron and super alloys machining •*
- Reinforced edge increases tool life •*
- Low cutting force •*



## General Information

Ingersoll has added the new TDXY insert featuring unique chip breaker geometries to the existing line of multi-purpose inserts.

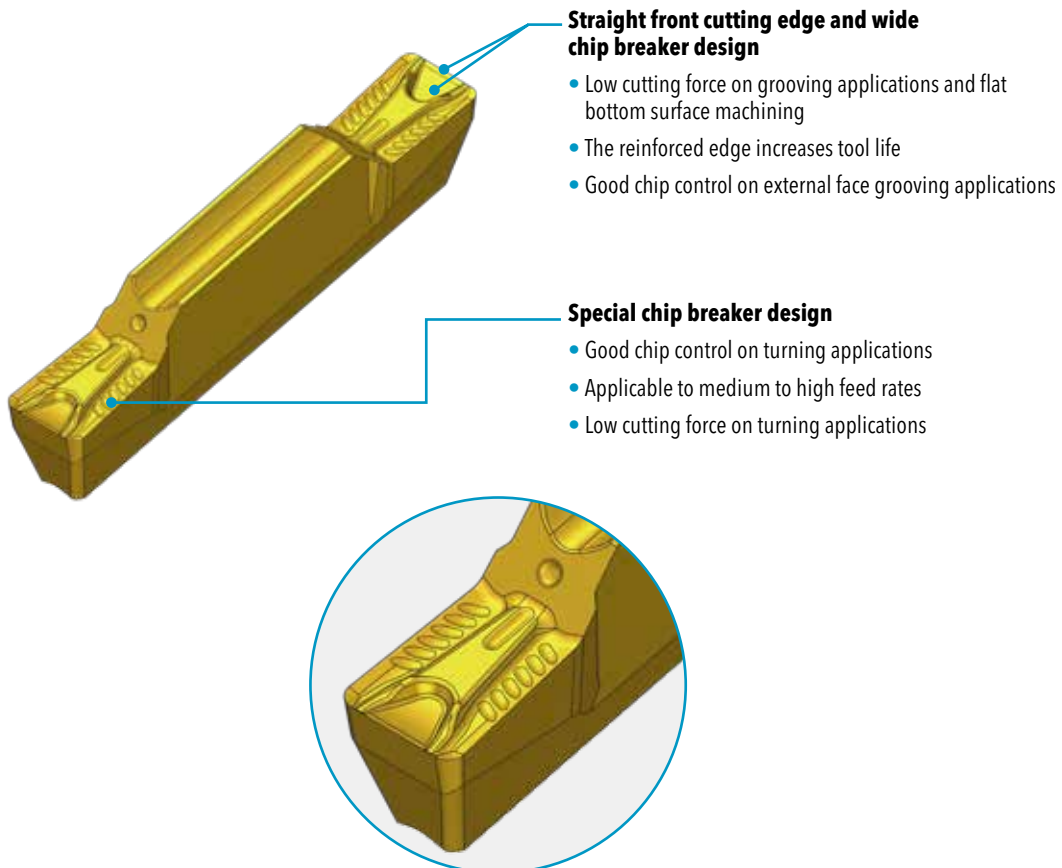
## Application Range

The **TDXY** insert is designed for various applications: external, internal and face grooving as well as turning applications. High feed capability due to the reinforced edge strength and optimal chip breaker result in improved productivity.

The insert line enables good performance even in both continuous and interrupted cutting conditions; the straight front cutting edge shape not only enables a flat bottom surface when grooving but also improves tool life by minimizing chipping and notch wear.

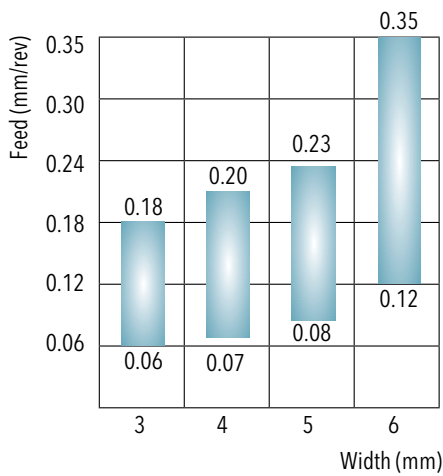
The insert is available in 3, 4, 5, and 6 mm widths. It is suitable for processing a variety of workpieces with the TT9080 grade, TT6080 for cast irons and the new TT3010 grade for machining heat resistant superalloys.

## Technical Features

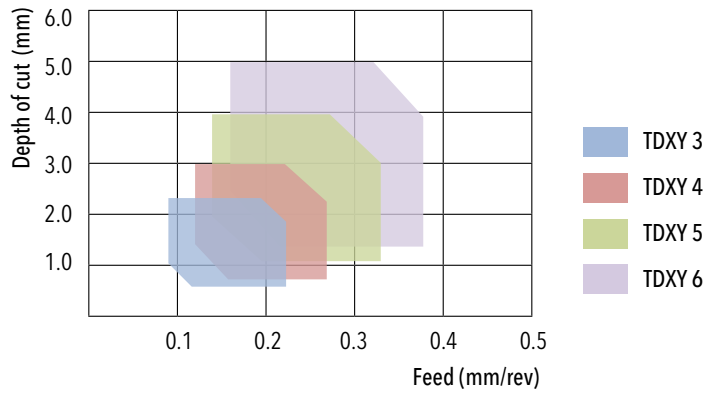


**Cutting Conditions & Grades**

• Grooving



• Turning



• Available PVD coated grades

TT6080	K05 - K25	H05 - H25	
TT3010	S05 - S20		
TT9080	P20 - P40	M20 - M40	S20 - S40



**TDXY Insert Advantages & Features**

- For external and internal grooving as well as turning applications
- Good chip control when face grooving and turning
- Flat bottom surface machining
- Suitable for medium to high feed machining
- Ideal for steel, stainless steel, cast iron and super alloys machining

**Recommended Cutting Conditions**

**Grooving and Turning**

ISO	Material	Condition	Tensile strength (N/mm <sup>2</sup> )	Hardness HB	Material No.	Cutting speed Vc (m/min)			
						Coated			
						TT6080	TT3010	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)	Quenched and tempered	600	200	6			100-160	
			930	275	7			80-160	
			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	
		Martensitic	820	240	13			80-150	
		Austenitic	600	180	14			80-170	
K	Gray cast iron (GG)	Ferritic		160	15	110-250			
		Pearlitic		250	16	90-140			
	Cast iron nodular (GGG)	Ferritic		180	17	120-230			
		Pearlitic		260	18	90-180			
Malleable cast iron	Ferritic		130	19	90-180				
	Pearlitic		230	20	80-150				
N	Aluminum - wrought alloy	Not cureable		60	21				
		Cured		100	22				
	Aluminum-cast, alloyed	≤12% Si	Not cureable		75	23			
		Cured		90	24				
	>12% Si	High temp.		130	25				
		Free cutting		110	26				
	Copper alloys	Brass		90	27				
		Electrolytic copper		100	28				
	Non-metallic	Duroplastics, fiber plastics			29				
		Hard rubber			30				
S	High temp. alloys	Fe based	Annealed		200	31		40-60	30-50
			Cured		280	32		30-50	20-40
		Ni or Co based	Annealed		250	33		30-40	20-30
			Cured		350	34		25-35	15-20
			Cast		320	35		25-35	15-20
	Titanium, Ti alloys		Rm 400		36		140-180	130-170	
		Alpha+beta alloys cured	Rm 1050		37		40-80	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

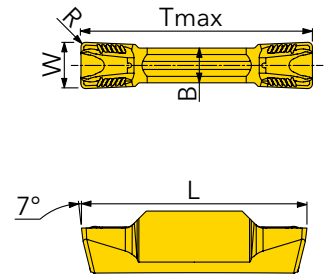
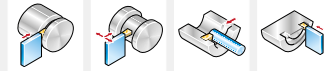
**Recommended Cutting Conditions**

**Face Grooving and Internal Grooving**

ISO	Material	Condition	Tensile strength (N/mm <sup>2</sup> )	Hardness HB	Material No.	Cutting speed Vc (m/min)				
						Coated				
						TT6080	TT3010	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				
		≥0.55%C	Annealed	750	220	4			60-110	
		Quenched and tempered	1000	300	5					
	Low alloy steel and cast steel (less than 5% of alloying elements)	Quenched and tempered	600	200	6				60-110	
			930	275	7				70-110	
			1000	300	8					
			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	
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		Martensitic	820	240	13					
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		Pearlitic		260	18	60-90				
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		Cured		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				
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PRECISION INSERTS FOR RADIAL, AXIAL, INTERNAL GROOVING AND TURNING



Designation	R	B	H	L	Tmax	W ± 0,05	insert-S	Grade	TT6080	TT3010	TT9080
TDXY 3E-0.4	0,4	2,2	4,7	20	18	3,0	3				
TDXY 4E-0.4	0,4	3,0	4,7	20	18	4,0	4				
TDXY 4E-0.8	0,8	3,0	4,7	20	18	4,0	4				
TDXY 5E-0.4	0,4	4,0	5,2	25	23	5,0	5				
TDXY 5E-0.8	0,8	4,0	5,2	25	23	5,0	5				
TDXY 6E-0.4	0,4	5,0	5,2	25	23	6,0	6				
TDXY 6E-0.8	0,8	5,0	5,2	25	23	6,0	6				

● = P   ● = M   ● = K   ● = N   ● = S   ○ = H

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