

T-CLAMP

FOR SMALL ID TURNING AND GROOVING



Minimum Bore Diameters:
.492" ~ .787"

Maximum Groove Depths (T-Max):
.094" ~ .157"

Shank Diameters:
.375" ~ .750"

Insert Geometries:
TDIM - Pressed Inserts for Economy
TDIP - Ground Inserts for Precision

Applications:
Internal Turning & Grooving

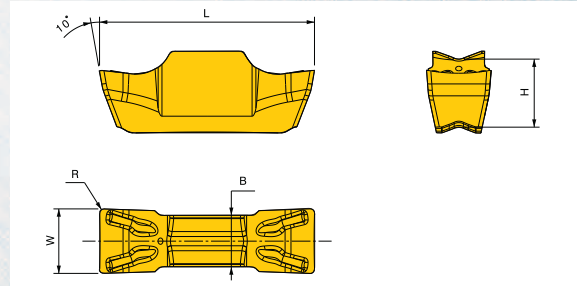
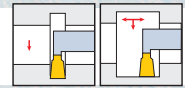
Ingersoll introduces new products to our T-Clamp Ultra Plus family. These new tools, which use double-ended inserts and include a coolant-through feature for better chip evacuation, are for internal grooving and boring of parts with internal diameters as small as .492".

Series Features:

- Economical double-ended insert
- Strong clamping with fully supported seat
- Internal coolant through the shank
- Various application range
 - TDIP: ground insert for precision internal turning and grooving operations
 - TDIM: pressed insert with efficient chipformer for internal turning and grooving operations
 - Internal machining from Dmin .492"
 - Special inserts for threading and profiling available on request

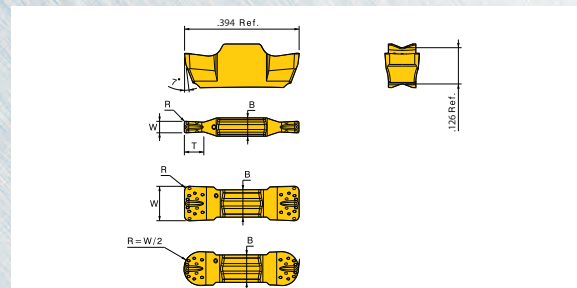
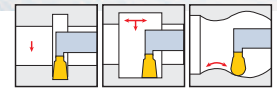
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TDIM-PRESSED INSERTS FOR INTERNAL TURNING AND GROOVING



Designation	Insert Seat Size	W±0.002	R	B	L	H	Grade
TDIM 2E-0.15	2	.079	.006	.063	.394	.126	TT9080
TDIM 3E-0.2	3	.118	.008	.094	.394	.126	TT9080

TDIP-PRECISION INSERTS FOR INTERNAL TURNING AND GROOVING

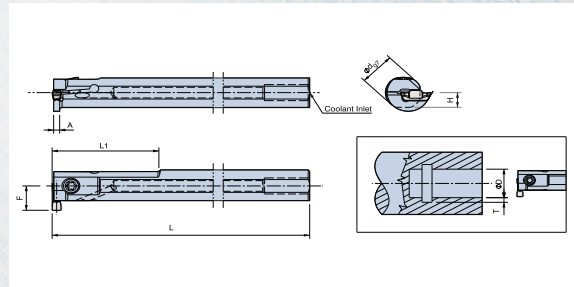


Designation	Insert Seat Size	W±0.0008	R	B	T	Grade
TDIP 1.00-0.10*	2	.039	.004	.063	.063	TT9080
TDIP 1.00-0.50*	2	.039	.020	.063	.063	TT9080
TDIP 1.20-0.00*	2	.047	.000	.063	.071	TT9080
TDIP 1.40-0.00*	2	.055	.000	.063	.079	TT9080
TDIP 1.50-0.10*	2	.059	.004	.063	.079	TT9080
TDIP 2.00E-0.10	2	.079	.004	.063	-	TT9080
TDIP 2.00E-0.20	2	.079	.008	.063	-	TT9080
TDIP 2.00E-1.00	2	.079	.039	.063	-	TT9080
TDIP 2.15E-0.15	2	.085	.006	.063	-	TT9080
TDIP 2.50E-0.20	3	.098	.008	.094	-	TT9080
TDIP 3.00E-0.20	3	.118	.008	.094	-	TT9080
TDIP 3.00E-1.50	3	.118	.059	.094	-	TT9080

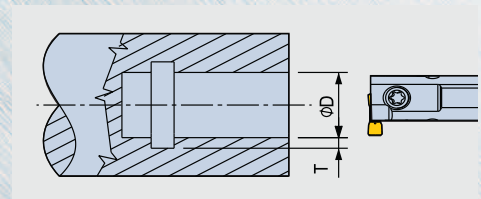
*T-Max Insert Limitation

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TTSIR/L-INTERNAL GROOVING AND TURNING ON SMALL DIAMETERS



Designation	Insert Seat Size	Ød	L	L1	F	H	A	Tmax	ØDmin	Coolant Inlet	Screw	Wrench
TTSIR/L 9.5-12.5-2	2	.375	5.0	.984	.295	.167	.063	.094	.492	Ø.138	TS 40093I	T 15
TTSIR/L 12.7-14-2	2	.500	5.0	1.378	.358	.230	.063	.102	.551	Ø.236	TS 40093I	T 15
TTSIR/L 15.9-12.5-2	2	.625	6.0	.787	.413	.291	.063	.094	.492	Ø.315	TS 40093I	T 15
TTSIR/L 15.9-14-2	2	.625	6.0	.984	.433	.291	.063	.102	.551	Ø.315	TS 40093I	T 15
TTSIR/L 15.9-16-2	2	.625	6.0	1.575	.433	.291	.063	.118	.630	Ø.315	TS 50125I	T 20
TTSIR/L 12.7-14-3	3	.375	5.0	1.378	.358	.230	.079	.102	.551	Ø.236	TS 40093I	T 15
TTSIR/L 15.9-12.5-3	3	.625	6.0	.787	.413	.291	.079	.094	.492	Ø.315	TS 40093I	T 15
TTSIR/L 15.9-14-3	3	.625	6.0	.984	.433	.291	.079	.102	.551	Ø.315	TS 40093I	T 15
TTSIR/L 15.9-16-3	3	.625	6.0	1.575	.433	.291	.079	.118	.630	Ø.315	TS 50125I	T 20
TTSIR/L 19-20-3	3	.750	6.0	1.575	.551	.335	.079	.157	.787	PL 075	TS 50125I	T 20





RECOMMENDED CUTTING CONDITIONS

ISO	Material	Condition	Tensile Strength Rm(N/mm ²)	Hardness HB	Internal Grooving (sfm) TT9080 TT9030	
P	Non-alloy steel, cast steel, free cutting steel	<0.25 %C	Annealed	420	125	325-500
		>=0.25 %C	Annealed	650	190	200-325
		<0.55 %C	Quenched and tempered	850	250	-
		>=0.55%C	Annealed	750	220	200-360
		Quenched and tempered	1000	300	-	
	Low alloy steel and cast steel (less than 5% alloying elements)	Annealed		600	200	200-360
				930	275	230-360
		Quenched and tempered		1000	300	-
				1200	350	200-295
	High alloy steel, cast steel and tool steel	Annealed		680	200	200-295
Quenched and tempered		1100	325	165-260		

ISO	Material	Condition	Tensile Strength Rm(N/mm ²)	Hardness HB	Internal Grooving (sfm) TT9030 TT9080
M	Stainless steel and cast steel	Ferritic/martensitic	680	200	165-425
		Martensitic	820	240	
		Austenitic	600	180	130-425

ISO	Material	Condition	Hardness HB	Internal Grooving (sfm) TT9030 TT9080
K	Malleable cast iron	Ferritic/pearlitic	180	230-395
		Pearlitic	260	200-300
	Gray cast iron (GG)	Ferritic	160	230-360
		Pearlitic	250	200-295
	Cast iron nodular (GGG)	Ferritic	130	200-360
		Pearlitic	230	165-295

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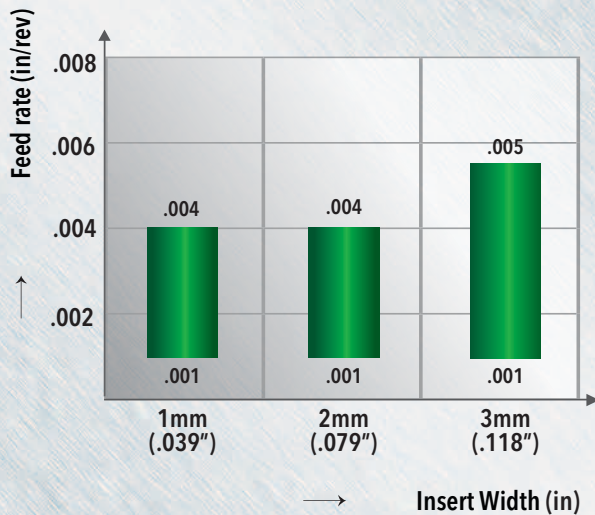
RECOMMENDED CUTTING CONDITIONS

ISO	Material	Condition	Tensile Strength Rm(N/mm ²)	Hardness HB	Internal Grooving (sfm)	
					TT9080	TT9030
S	High temp. alloys	Fe based	Annealed		200	65-130
			Cured		280	50-100
	Super alloys	Ni or Co based	Annealed		250	50-65
			Cured		350	50-65
			Cast		320	50-65
	Titanium, Ti alloys	Alpha+beta alloys cured		Rm 400		295-395
			Rm 1050		65-165	

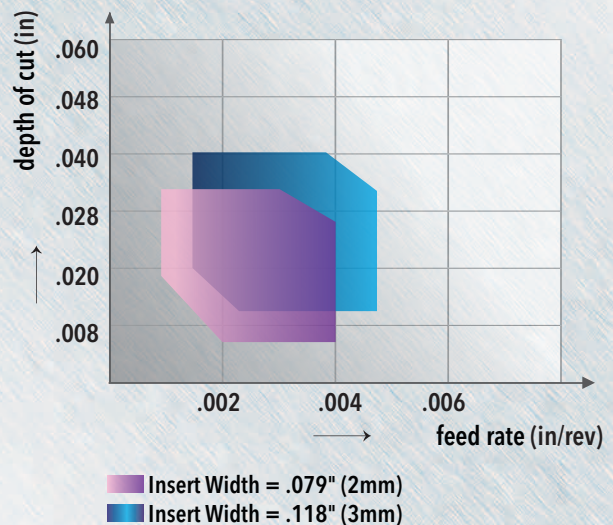
ISO	Material	Condition	Tensile Strength Rm(N/mm ²)	Hardness HB	Internal Grooving (sfm)	
					TT9080	TT9030
H	Hardened steel	Hardened			55 HRc	
					60 HRc	
	Chilled cast iron	Cast			400	
	Cast iron	Hardened		55 HRc		55 HRc

TDIM, TDIP RECOMMENDED CUTTING CONDITIONS

GROOVING APPLICATIONS



TURNING APPLICATIONS



Availability

In stock

Price

Available in the GAL system