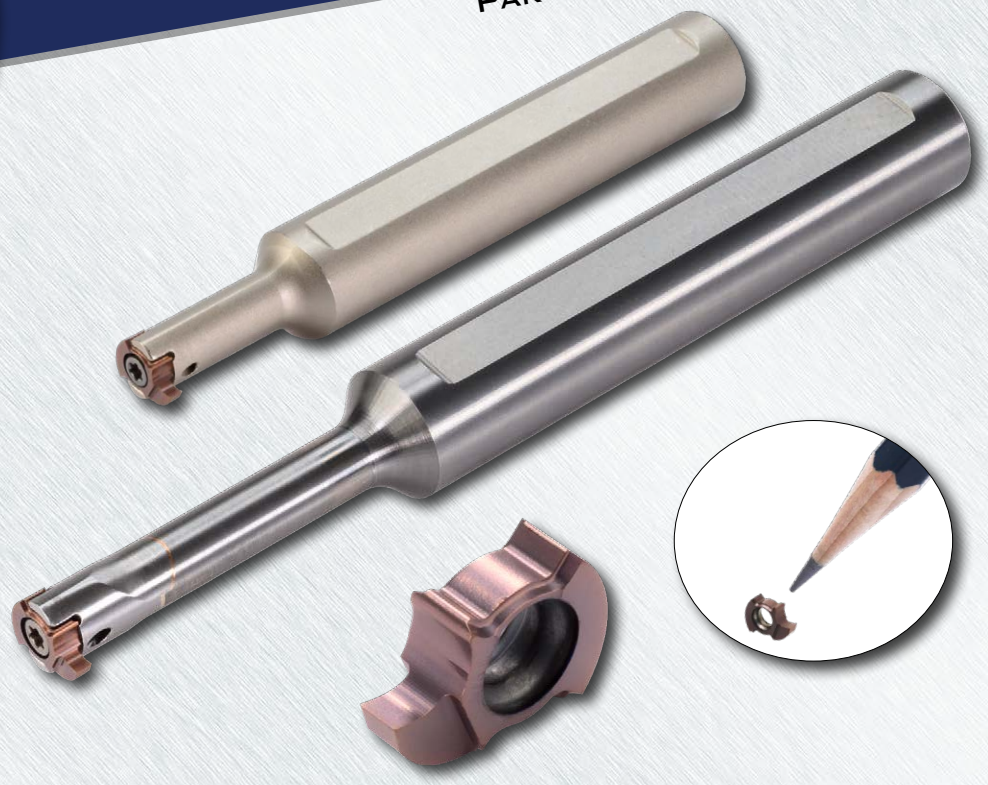
SFEEDUP HIGH SPEED & FEED

INDUSTRY 4.0 NEW PRODUCT ANNOUNCEMENT 2020

MINIFLEX™

PARTING & GROOVING PRODUCTS



Insert Widths:
TMIS8-0.50-0.00 – 0.5mm (.0197")
TMIS8-1.00-0.00 – 1.0mm (.0394")
TMIS8-1.50-0.05 – 1.5mm (.0591")
TMIS8-2.00-0.10 – 2.0mm (.0787")

Max. Cutting Depth:
Up to .059"

Grade:
TT4430
- PVD-AlTiCrN coated
- Ideal for small parts machining
- Steel, stainless steel, titanium

ID Grooving Bars:
.500" Diameter
Carbide and Steel
2xD, 3xD & 4xD

Miniature Size Inserts and Holders for Shallow Internal Grooving

Ingersoll is pleased to introduce a new internal grooving system for bores as small as .394" (10mm). This system features a unique, stable and flexible insert clamping system along with a new TT4430 grade specifically developed for small parts manufacturing.

Features & Benefits:

- Suitable for small diameter internal grooves with minimum bore diameter down to .394" (10mm)
- Robust, 3-point contact design with screw clamping prevents vibration and generates an excellent surface finish
- Neutral holder design allows inserts to be mounted in 4 different ways, eliminating the need for handed tools and allowing either CW or CCW spindle rotation
- Internal coolant supply for longer tool life
- Steel and carbide shank options
- Economical alternative to solid carbide grooving tools
- Inserts feature new PVD-coated grade TT4430 and a sharp cutting edge

Member IMC Group Ingersoll Cutting Tools

MINIFLEX™ FEATURES

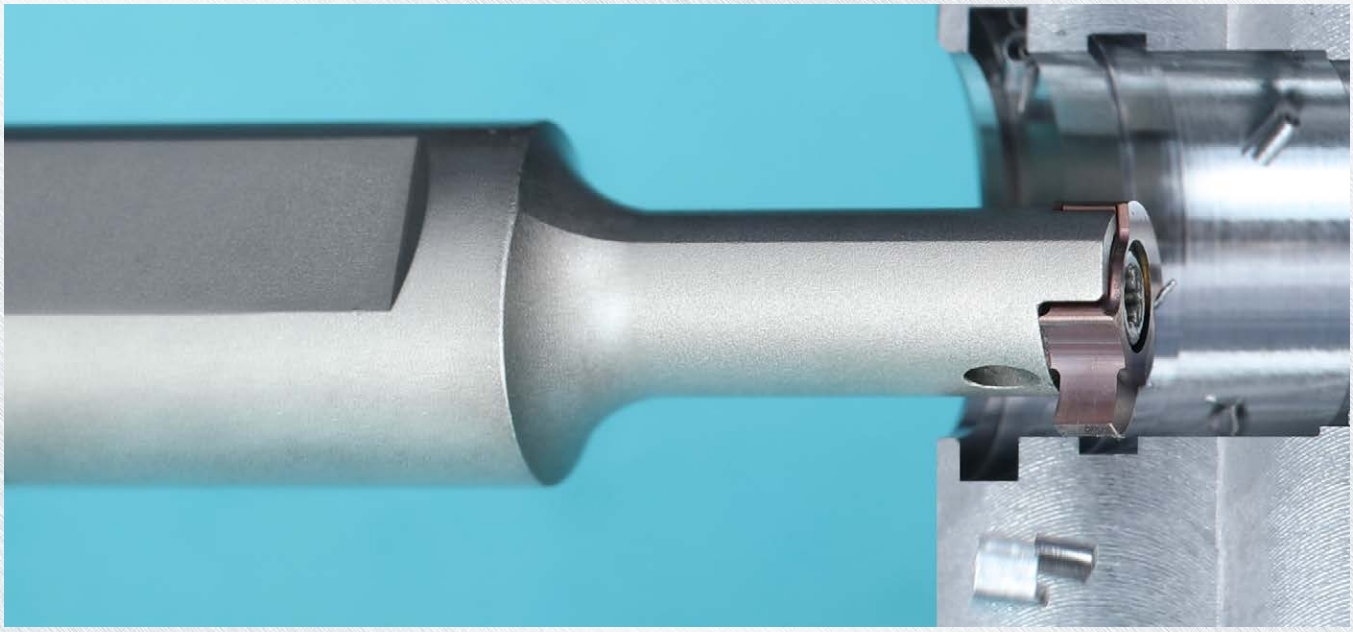
It's not uncommon to experience vibration during small diameter grooving operations due to long length-to-diameter ratios. This results in a poor surface finish and shortened tool life.

To solve this problem, Ingersoll has introduced MiniFlex, a small diameter internal grooving solution with a robust 3-point contact design and top screw mounting system. This unique clamping design stabilizes the insert connection, and also ensures the repeatability accuracy of the insert position in the holder, resulting in excellent surface finish and durability.

The neutral holder is designed such that the insert can be mounted in four different ways, eliminating a need for handed tools, and allowing for spindle rotation in either direction. This reduces inventory requirements and provides flexibility during set-ups.

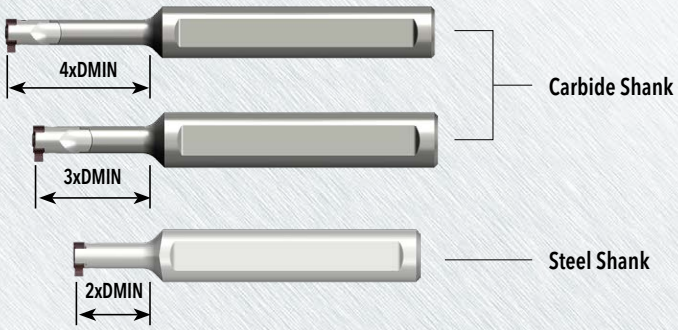
MiniFlex is optimally suited for internal grooving and turning from a bore diameter down to Ø .394" (10mm). Initial cutting widths range from .0197" ~ .0787" (0.5mm~2.0mm).

A new grade, TT4430, has been developed specifically for small parts machining. This PVD-AlTiCrN coated grade features a tough, submicron substrate that provides anti-chipping, long tool life and very reliable performance. The sharp cutting edge is ideal for machining small parts in a variety of materials including steel, stainless steel and titanium, and is ideal for minimizing burrs and build-up.

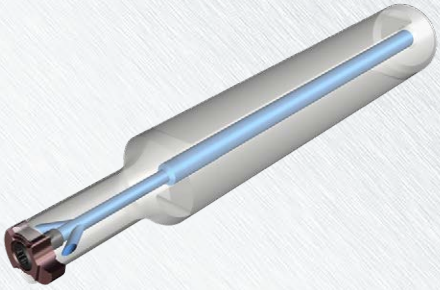


MINIFLEX™

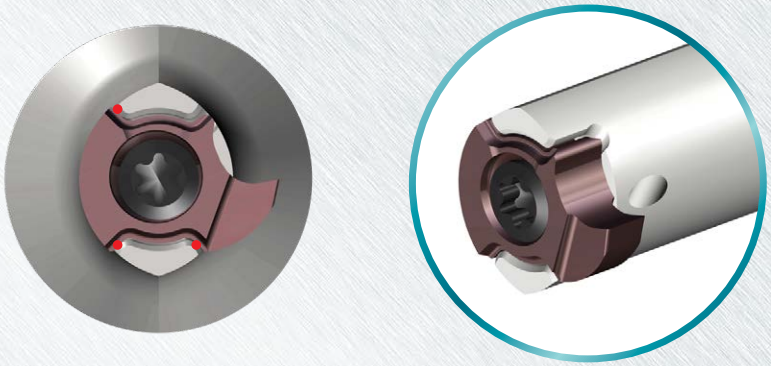
Machining Depth by Shank Material



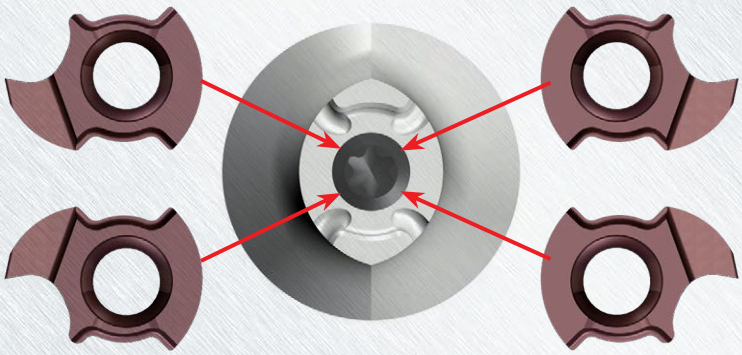
Coolant Through Design



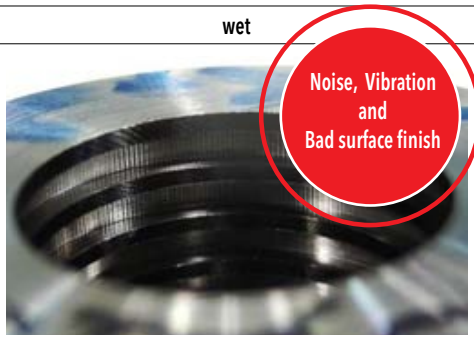
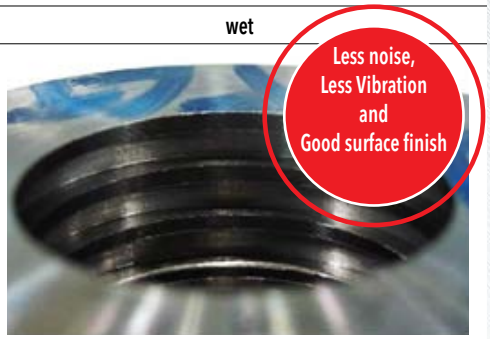
Robust 3-Point Contact and Screw Clamping



Insert can be mounted onto neutral holders in 4 ways, making it very flexible for any set-up.

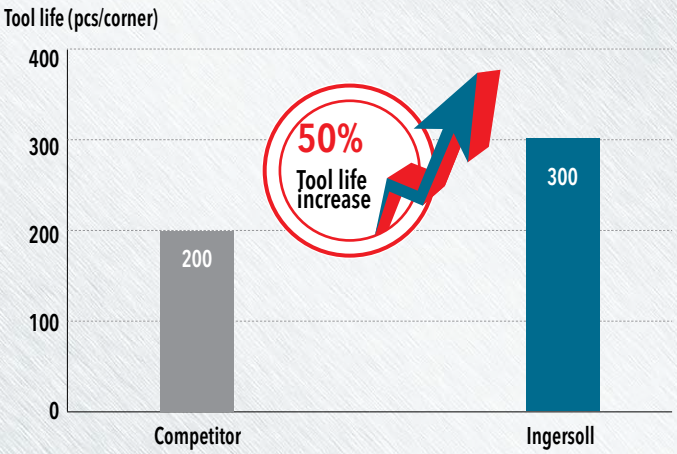


MINIFLEX™ CASE STUDY 1

		Competitor	Ingersoll
Material		AISI 1045	
Operation		Internal grooving (Ø.787" (20mm))	
Insert		Single-ended insert	TMIS 8-2.00-0.10 TT4430
Holder		Ø12 internal grooving holder	TMIHN 12-16-8
Cutting speed	V (sfm)	330	330
Feed rate	f (ipr)	.0004, .0008, .0012	.0004, .0008, .0012
Depth of cut	ap (inch)	.060	.060
Coolant		wet	wet
Machined surface			

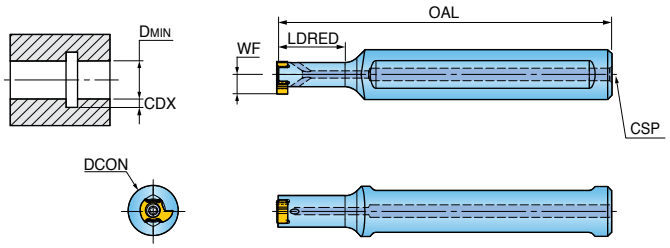
MINIFLEX™ CASE STUDY 1

		Competitor	Ingersoll
Material		AISI 1045	
Operation		Internal grooving	
Insert		Single-ended insert	TMIS 8-2.00-0.10 TT4430
Holder		Ø12 internal grooving holder	TMIHN 12-16-8
Cutting speed	V (sfm)	328	328
Feed rate	f (ipr)	.0016	.0016
Depth of cut	ap (inch)	.040	.040
Coolant		wet	wet
Tool life (pcs/corner)		200	300



MINIFLEX™ SERIES TMIHN

INTERNAL GROOVING HOLDER WITH COOLANT HOLES



Designation	Dimension (inch)					Insert
	DCON Shank Diameter	**DMin** Min. Bore Diameter	**WF** Functional Width	**LDRED** Reduced Body Dia. Length	**OAL** Overall Length	
TMIHN 12.7-16-8	.500	.394	.185	.63	3.0	TMIS 8

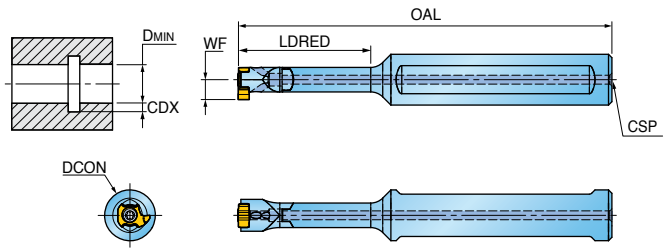
CDX: Refer to insert dimension

Spare Parts

Designation	Screw	Wrench	
			
TMIHN	TS 22052I/HG	T 7	

MINIFLEX™ SERIES TMIHN-C

INTERNAL GROOVING CARBIDE HOLDERS WITH COOLANT HOLES



Designation	Dimension (inch)					Insert
	DCON Shank Diameter	DMin Min. Bore Diameter	WF Functional Width	LDRED Reduced Body Dia. Length	OAL Overall Length	
TMIHN 12.7C-24-8	.500	.394	.185	.94	3.6	TMIS 8
TMIHN 12.7C-32-8	.500	.394	.185	1.26	4.0	

CDX: Refer to insert dimension

Spare Parts

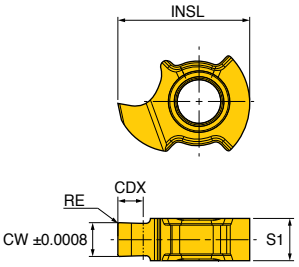
Designation	Screw	Wrench	
			
TMIHN-C	TS 22052I/HG	T 7	

MINIFLEX™ SERIES TMIS 8

PRECISE INSERTS FOR INTERNAL SHALLOW GROOVING


ID Groove


ID Groove/Turn



Designation	Feed (ipr)	Dimension (inch)					Grade
		CW Cutting Width	RE Corner Radius	CDX Cutting Depth Max.	INSL Insert Length	S1 Insert Thickness	TT4430
TMIS 8-0.50-0.00	.0004-.0012	.0197	.000	.028	.307	.098	•
TMIS 8-1.00-0.00	.0004-.0012	.0394	.000	.059	.307	.098	•
TMIS 8-1.50-0.05	.0004-.0012	.0591	.002	.059	.307	.098	•
TMIS 8-2.00-0.10	.0004-.0012	.0787	.004	.059	.307	.098	•

•: Standard items