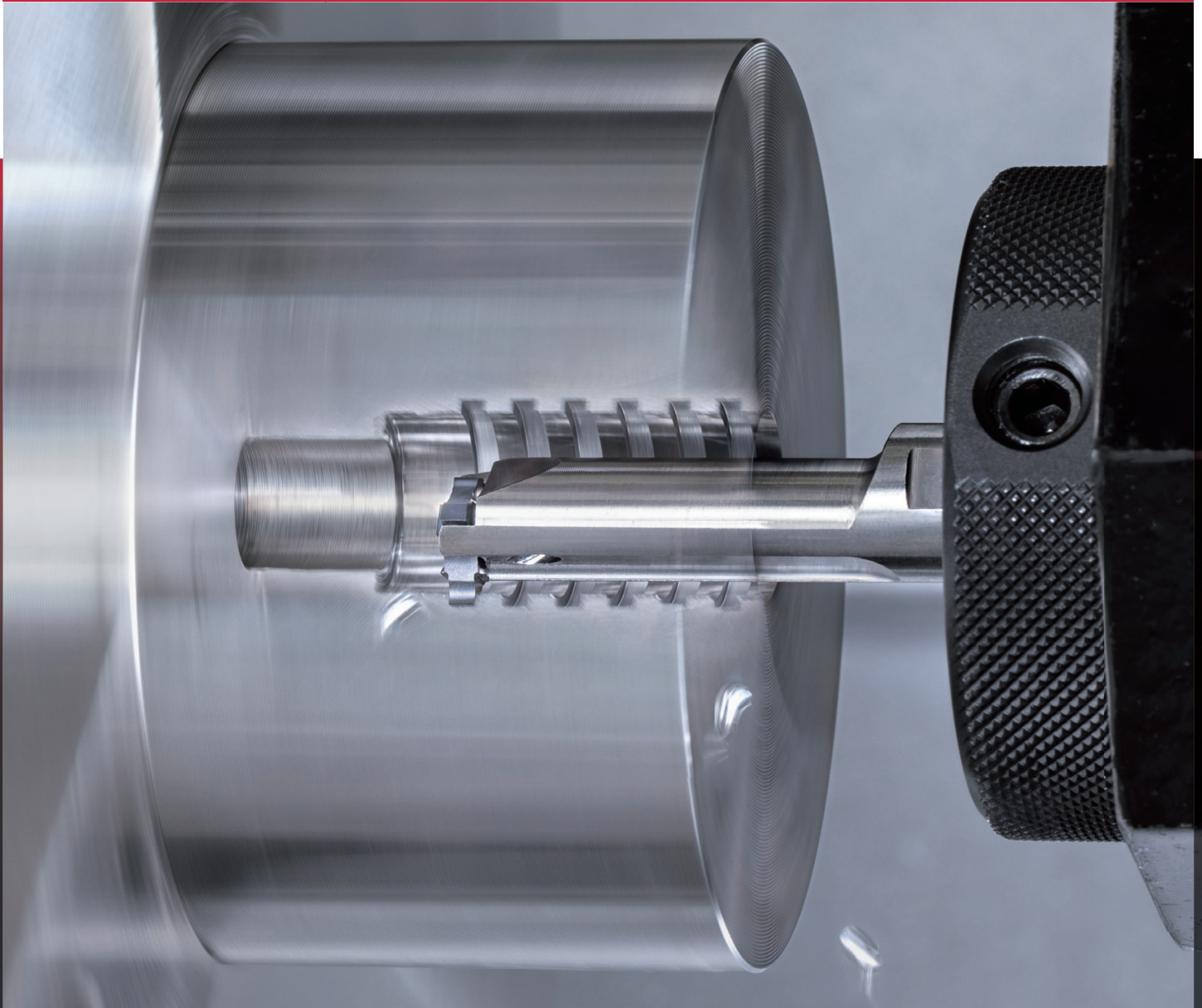


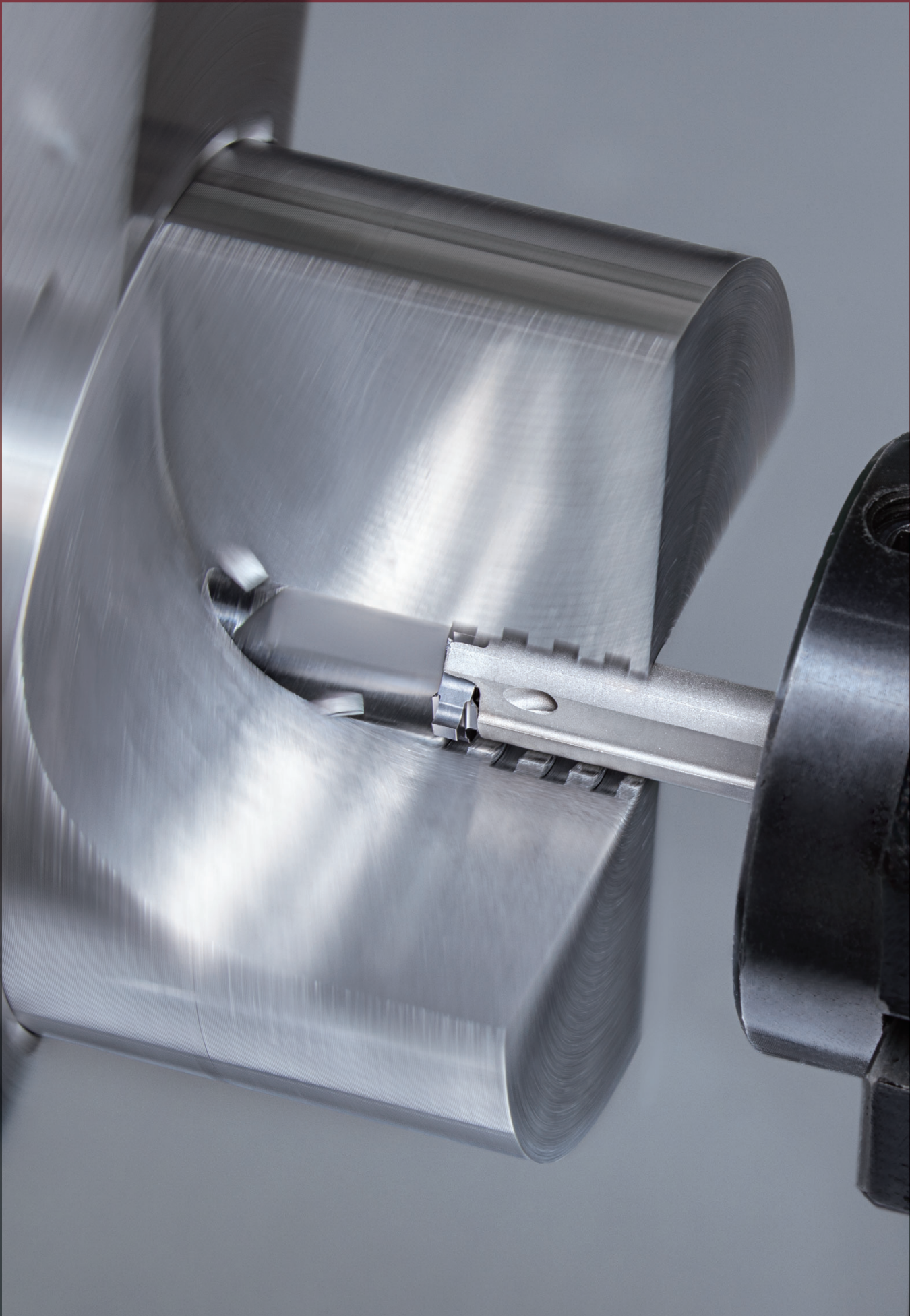
Internal grooving tool

**ADD**INTERNAL  
**CUT**

Tungaloy Report No. 544-G

# New 4-edged insert for ID grooving



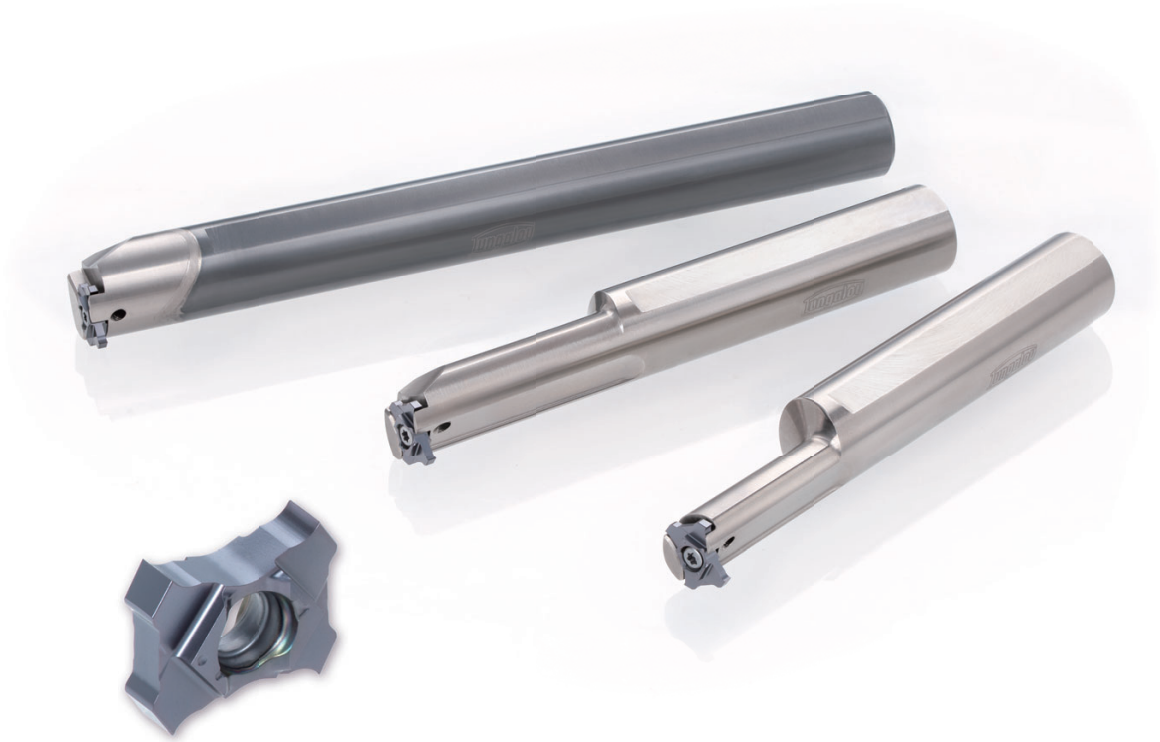


**INDUSTRY 4.0**  
*FEED the SPEED!*



## ADD<sup>INTERNAL</sup>CUT

---

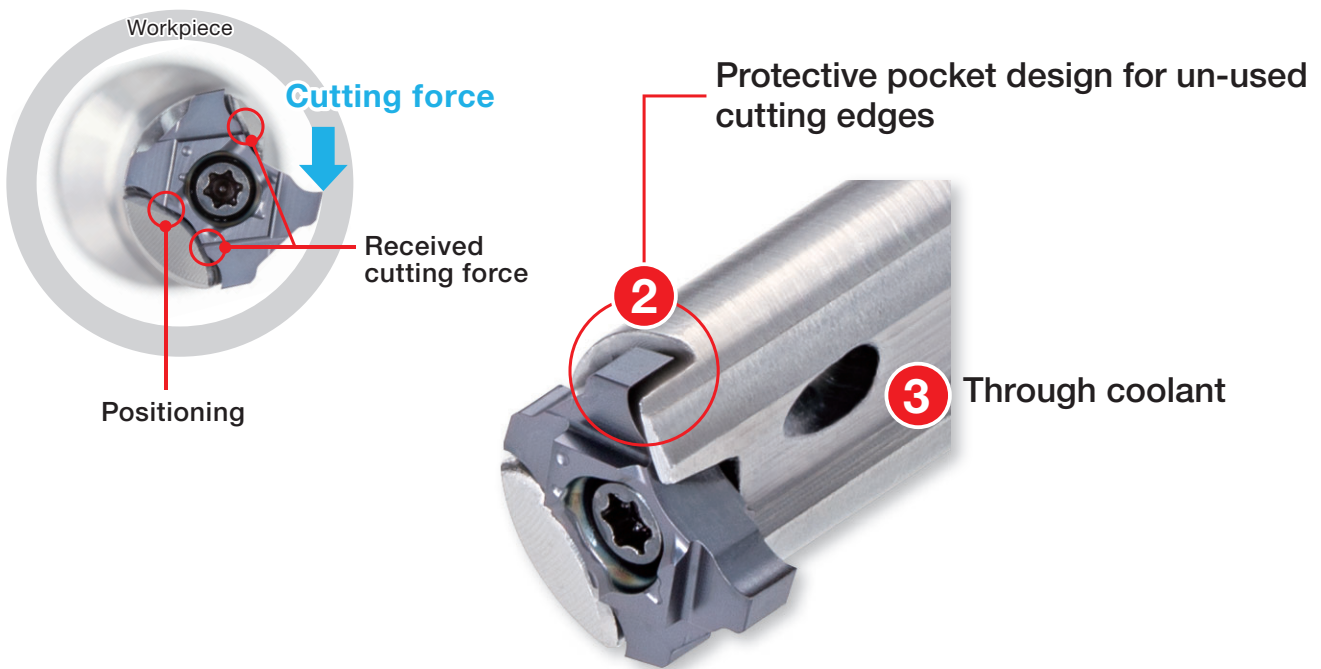


Unique insert clamping system ensures high indexing repeatability and clamping rigidity

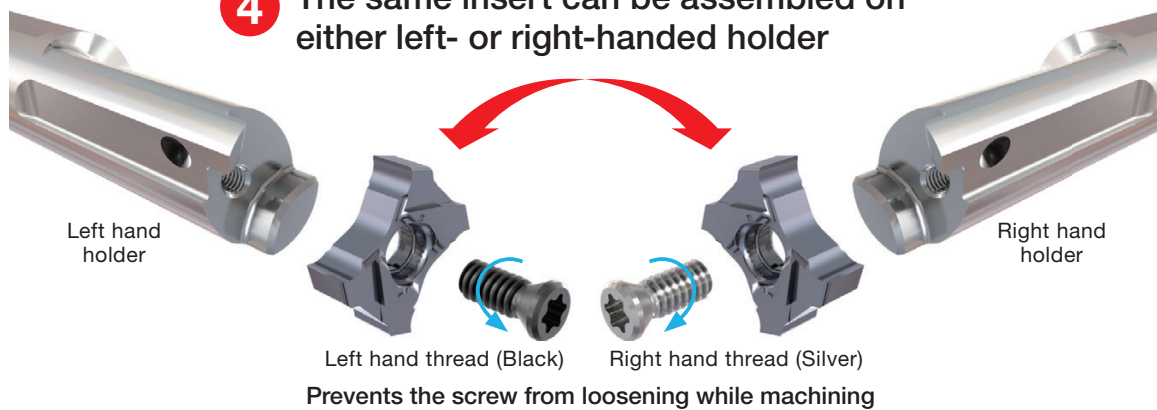
## Unique clamping system for high precision grooving

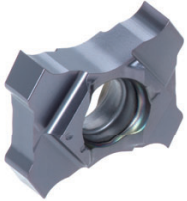
### Features

- 1** The insert is supported at three optimized positions for rigid clamping and superior repeatability



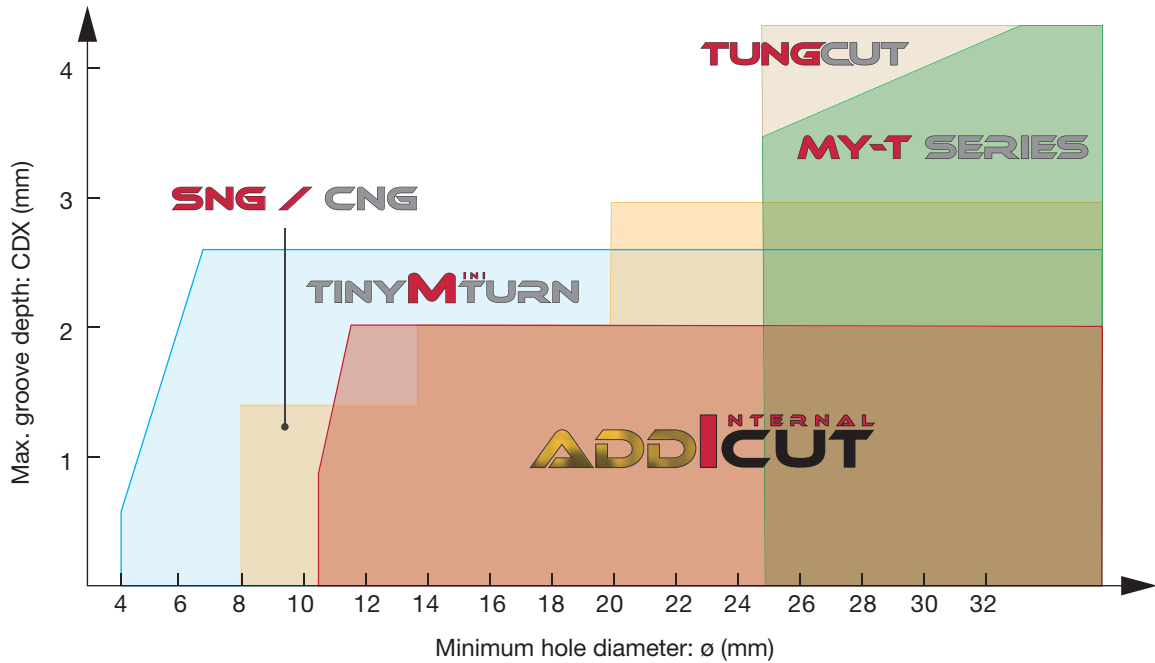
- 4** The same insert can be assembled on either left- or right-handed holder





Free cutting geometry for superior surface finish  
 CW = 1.5 - 2.5 mm

TCIG...



## CUTTING PERFORMANCE

### Chip control

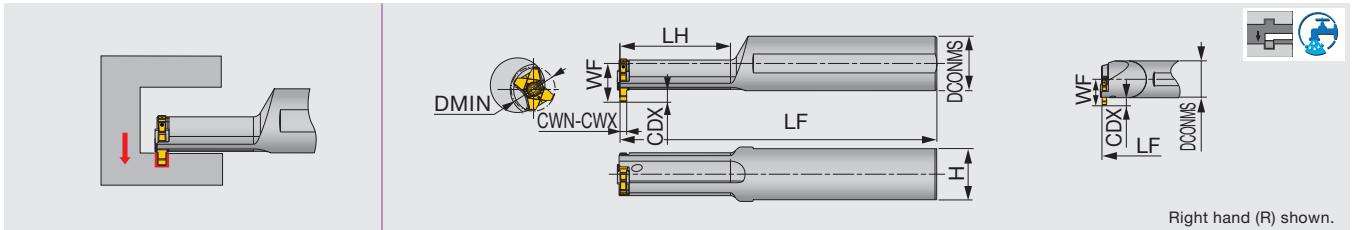
Cutting speed: $V_c$ (m/min)	120			
	100			
	80			
		0.05	0.08	0.1
		Feed: $f$ (mm/rev)		

Toolholder : A12H-STCIR10-D120  
 Insert : TCIG10-200-010 AH725  
 Workpiece material : S45C / C45  
 Groove width : CW = 2 mm  
 Hole diameter : ø12 mm  
 Coolant : Wet

## HOLDER

### A/E-STCIR/L

Internal grooving toolholder



Right hand (R) shown.

Designation	Material	CWN	CWX	Seat size	DMIN	DCONMS	LH	LF	WF	H	Insert	Torque*
A12H-STCIR/L10-D105	Steel	1.5	2.5	10	10.5	12	24	100	8.3	11	TCIG10...	1
A12H-STCIR/L10-D120	Steel	1.5	2.5	10	12	12	30	100	8.3	11	TCIG10...	1
E12K-STCIR/L10-D150	Carbide	1.5	2.5	10	15	12	-	125	8.3	11	TCIG10...	1

\*Torque: Recommended clamping torque (N-m)

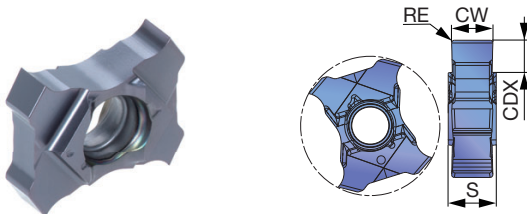
### SPARE PARTS



Designation	Clamping screw
A/E-STCIR10-...	CSTB-2.2L053DR
A/E-STCIL10-...	CSTB-2.2L053DL

## INSERTS

### TCIG



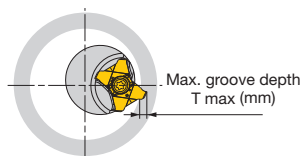
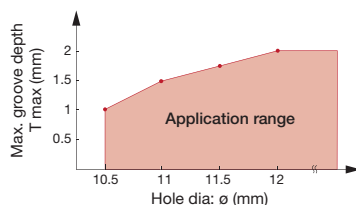
<b>P</b>	Steel	★							
<b>M</b>	Stainless	★							
<b>K</b>	Cast iron	★							
<b>N</b>	Non-ferrous								
<b>S</b>	Superalloys	★							
<b>H</b>	Hard materials								

Designation	CW±0.025	RE	Coated						CDX	S
			AH725							
TCIG10-150-010	1.5	0.1	●						2	3.5
TCIG10-200-010	2	0.1	●						2	3.5
TCIG10-250-020	2.5	0.2	●						2	3.5

Note: Max groove depth for small holes

For hole diameters less than 11.5 mm, the maximum groove depth (T max) for the insert becomes smaller than the specified value. Check the actual value in the chart below for hole diameters < 11.5 mm.

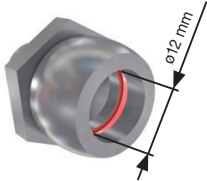
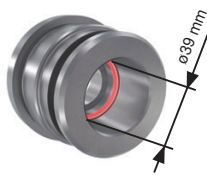
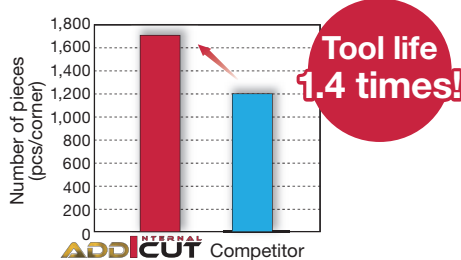
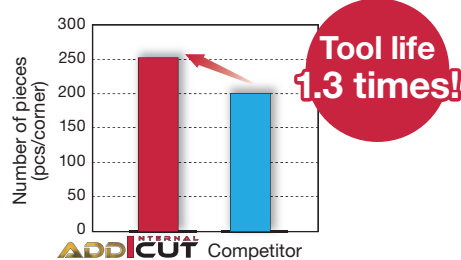
● : Line up



## STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Hardness	Priority	Cutting speed Vc (m/min)	Feed f (mm/rev)
<b>P</b>	Steels S45C, C45, SCM435, 34CrMo4, etc.	< 300 HB	First choice	50 - 180	0.02 - 0.08
<b>M</b>	Stainless steel SUS303, X10CrNiS18-9, etc.	< 200 HB	First choice	50 - 120	0.02 - 0.08
<b>S</b>	Titanium alloys Ti-6Al-4V, etc.	< HRC 40	First choice	20 - 80	0.02 - 0.08

## PRACTICAL EXAMPLES

Workpiece type		Adapter	Cylinder Head	
Toolholder		A12H-STCIR10-D105	A12H-STCIR10-D120	
Insert		TCIG10-200-010	TCIG10-200-010	
Grade		AH725	AH725	
Workpiece material		SUM23 (Free alloy steel)	S45C /C45	
		 <b>P</b>	 <b>P</b>	
Cutting conditions	Grooving width (mm)	2	2	
	Grooving depth (mm)	1	1.15	
	Cutting speed : Vc (m/min)	50	90	
	Feed : f (mm/rev)	0.05	0.05	
	Machining	Internal grooving	Internal grooving	
	Coolant	Wet	Wet	
Results	 <p><b>Tool life 1.4 times!</b></p> <p>AddInternalCut provided part quality consistency thanks to secure insert clamping and also provided 1.4 times tool life increase.</p>		 <p><b>Tool life 1.3 times!</b></p> <p>AddInternalCut provided 1.3 times tool life and excellent surface finish due to highly rigid insert clamping.</p>	

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