

NEW PRODUCT NEWS

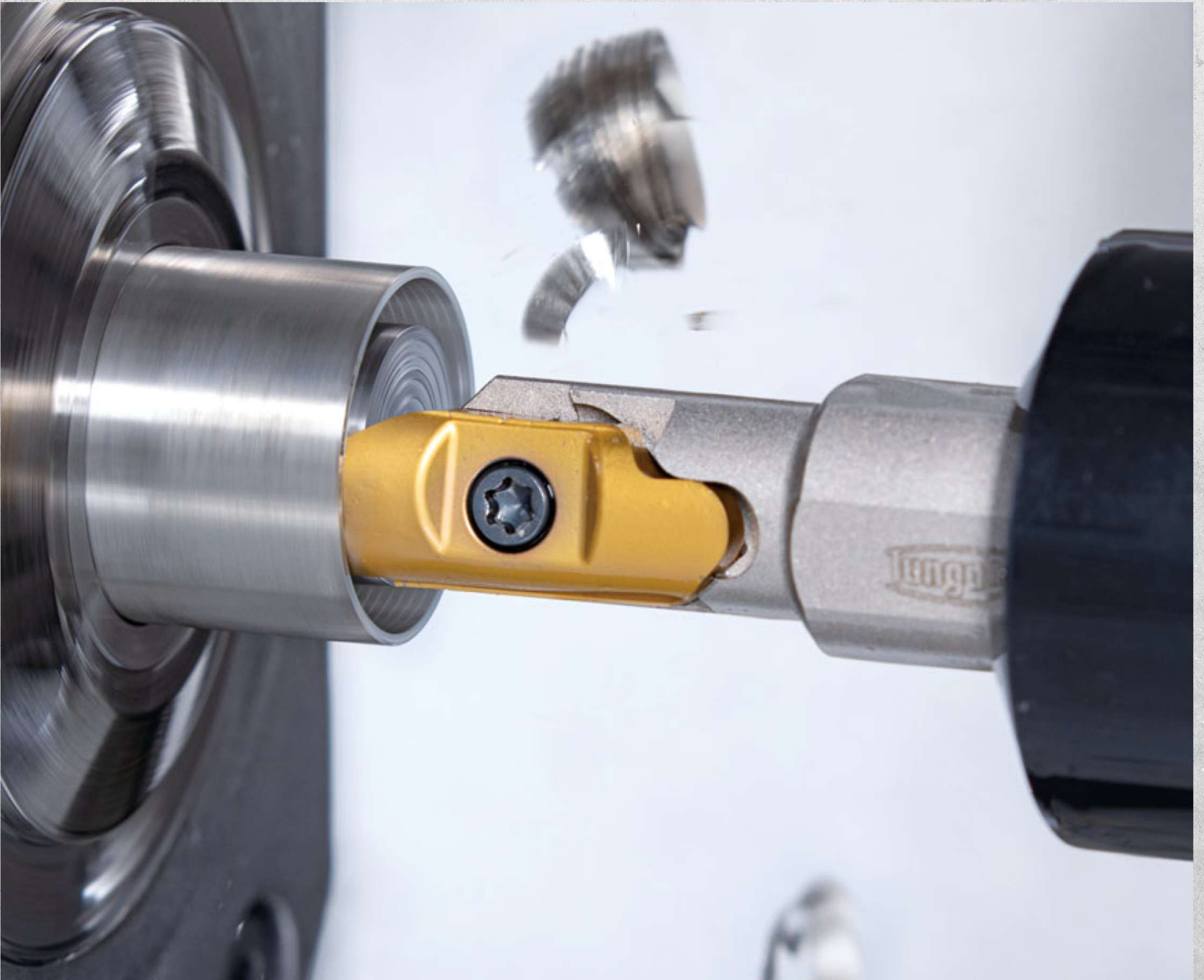


Tungaloy Report No. 562-G

Face grooving

FACE M^{INI}CUT

NEW ULTIMALE DEEP FACE GROOVING TOOL



NEW PRODUCT NEWS



Tungaloy Report No. 562-G



FACE M^{INI} CUT

TUNGALOY
ADD FORCE
ADD FGROOVE
ACCELERATED PARTING AND GROOVING



Extremely rigid insert clamping and superior chip evacuation

FACE M^{INI} CUT

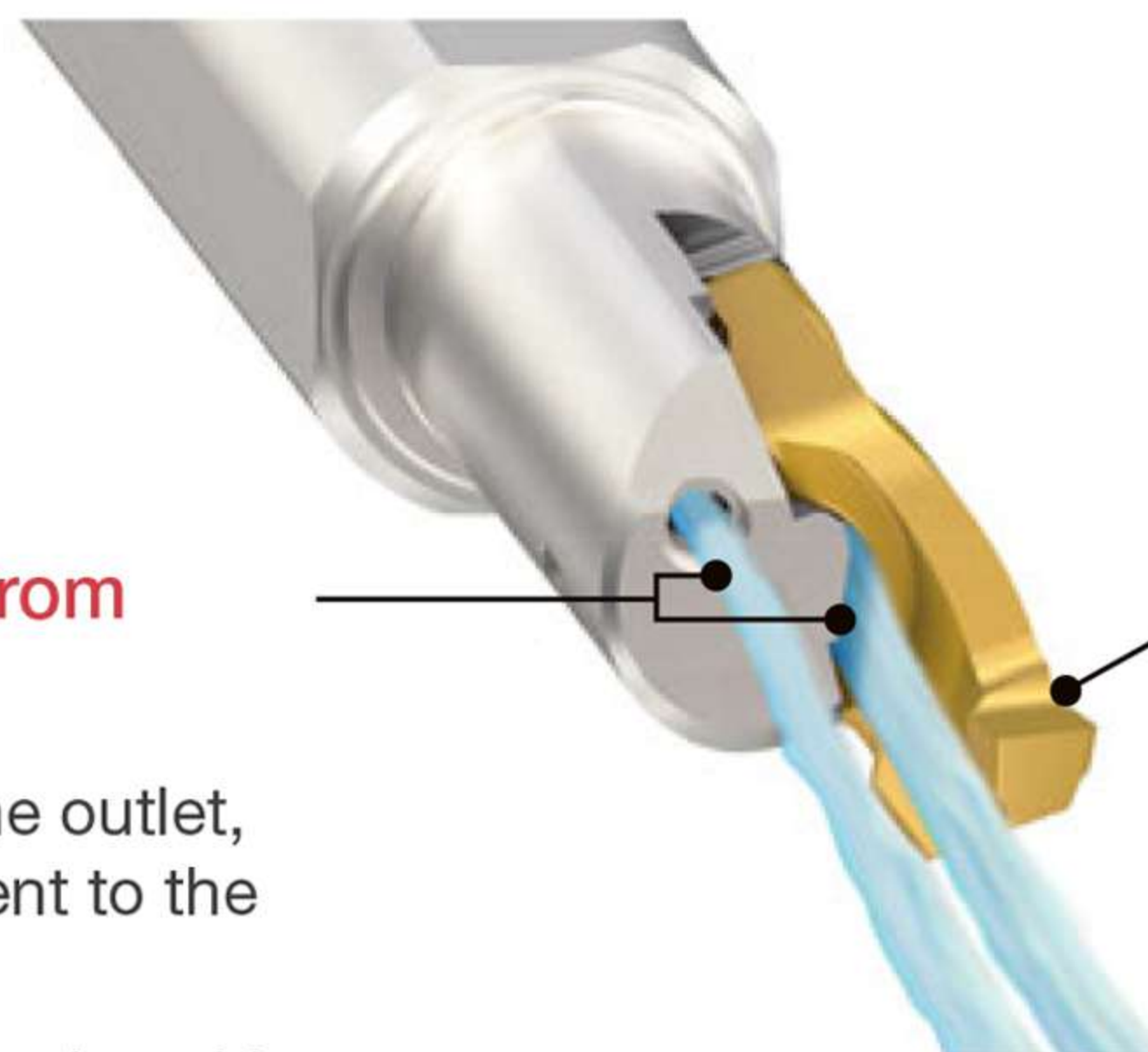
Deep face grooving of up to 10 mm DAXN and up to 9 mm groove depth is possible

- Effectively removes chips out of the cutting area and eliminates bird nesting
- Extremely rigid insert clamping ensures tool stability during deep face grooving operations
- Sharp cutting edge, combined with SH7025, the latest PVD grade, provides long tool life and superior surface quality

1 Superior chip evacuation

Optimized coolant jet supply from two directions

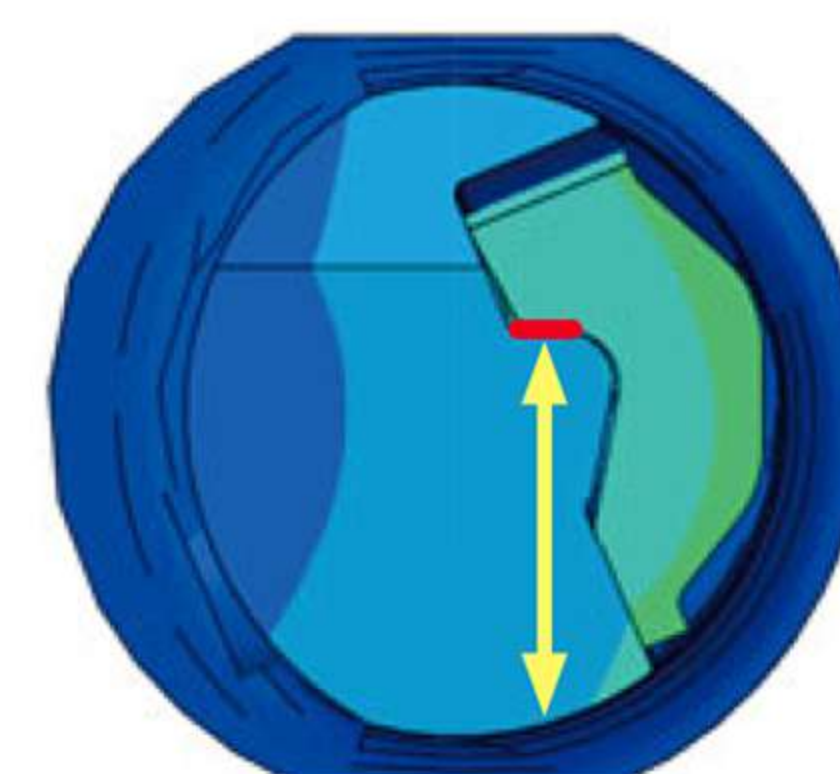
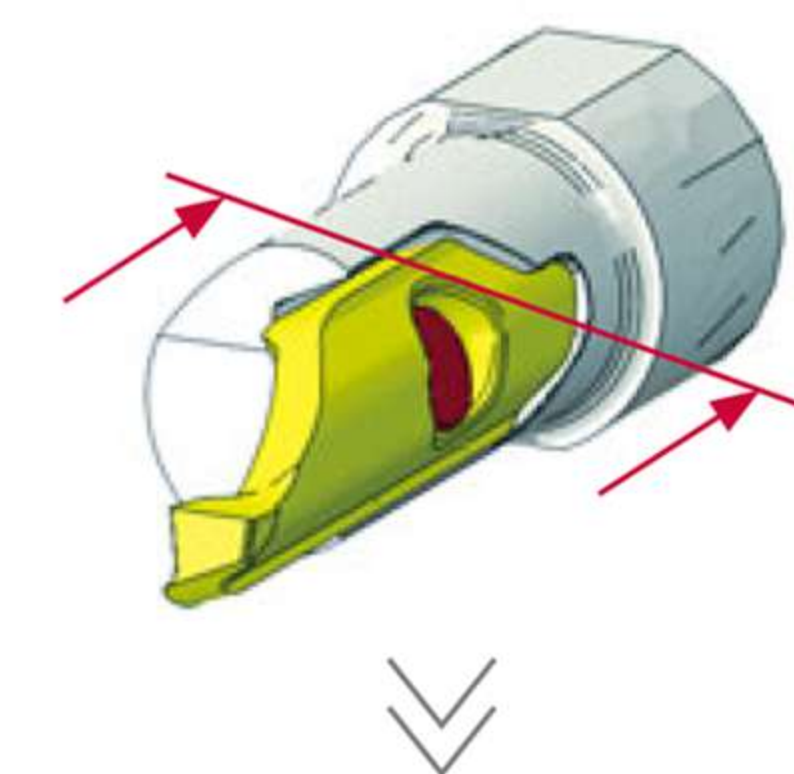
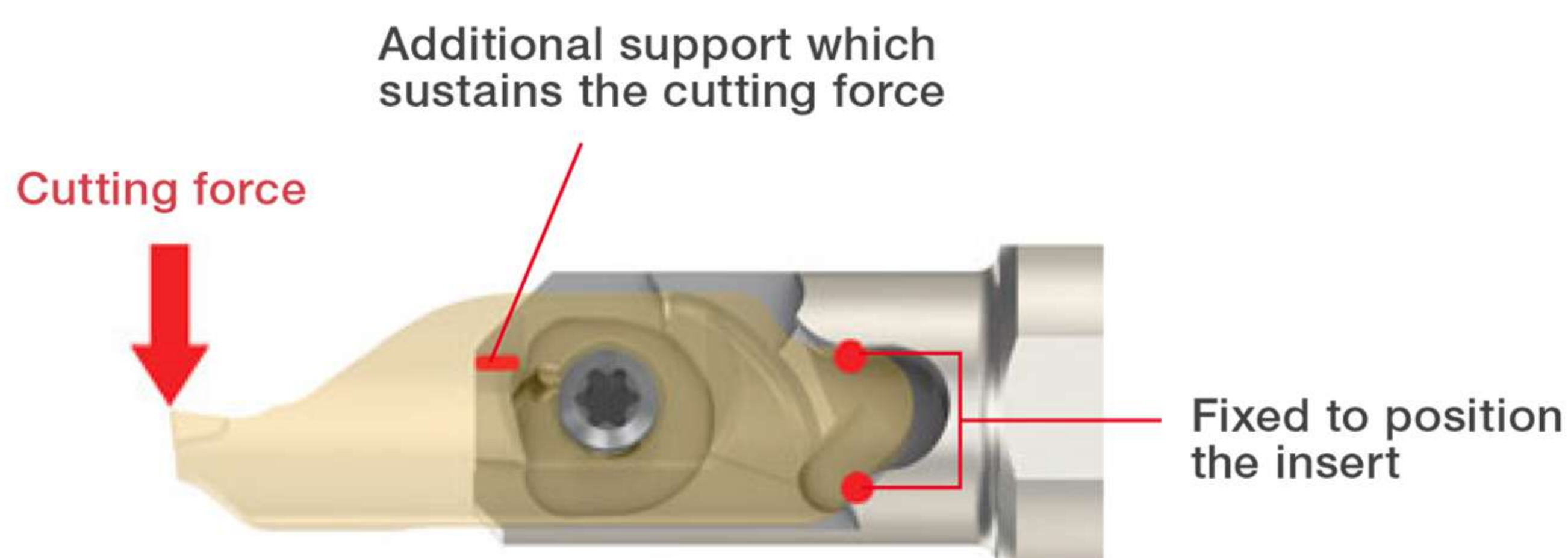
- Coolant jet is supplied through the outlet, as well as through the slot adjacent to the insert
- Coolants are directed to the optimal position close to the cutting tip, allowing excellent chip evacuation during deep face grooving



Effective chip redirector

- Optimized geometry that effectively redirects chips out of the groove and to the side
- Eliminates bird nesting of chips during machining

2 High clamping rigidity



Sustains the cutting force

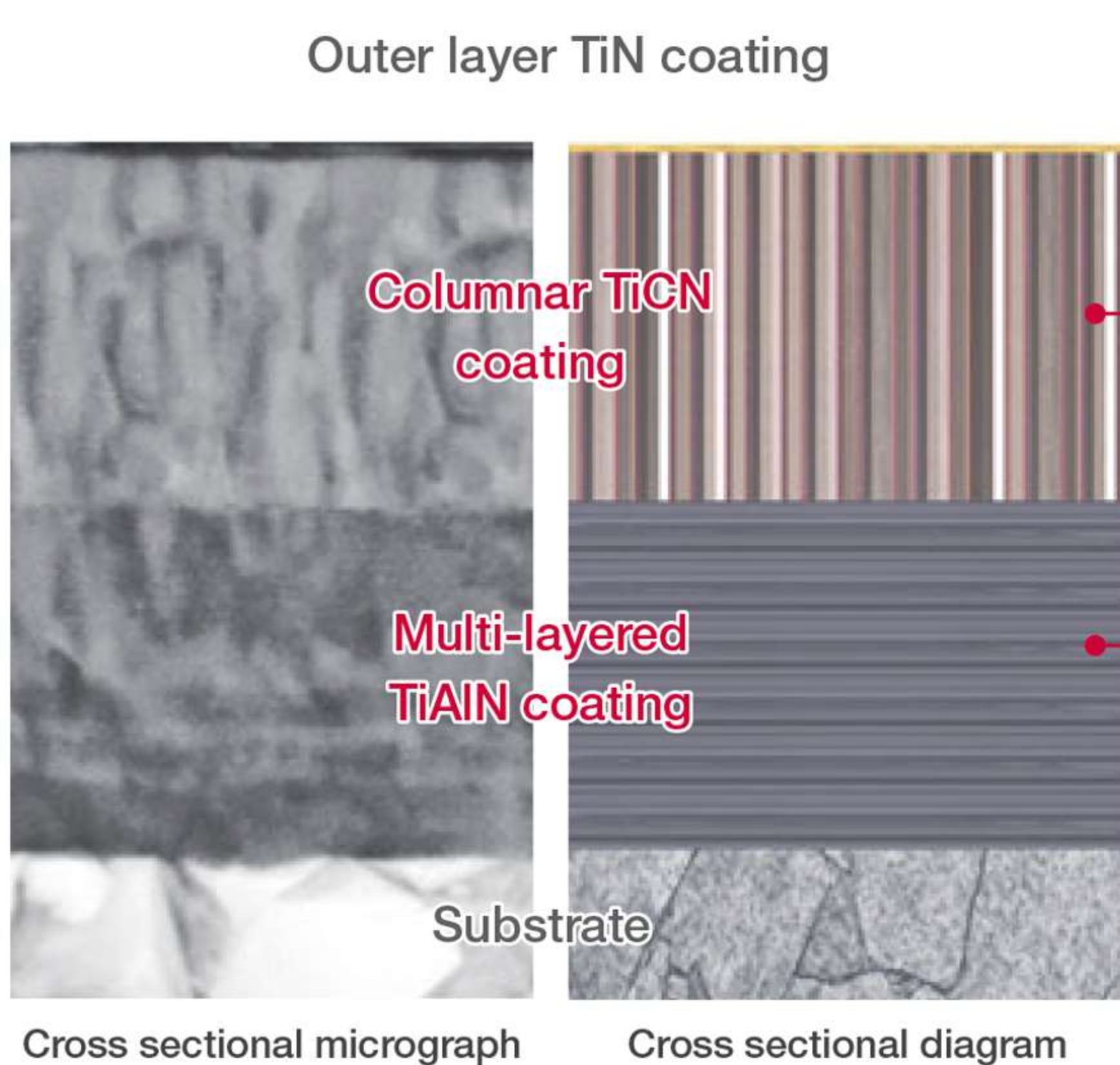
- Thick section of the pocket, eliminating chatter

3 SH7025 - the latest PVD insert grade for superior surface quality and process security



SH7025

- The latest grade with sharp cutting edge designed for small part machining.
- A combination of a columnar-structured TiCN coating and multilayered TiAlN coating provides superior surface quality and process security.



For high surface quality

Built-up edge resistant TiCN coating improves surface finish quality.

For extremely long tool life

Wear-resistant columnar-structured TiCN coating ensures long tool life.

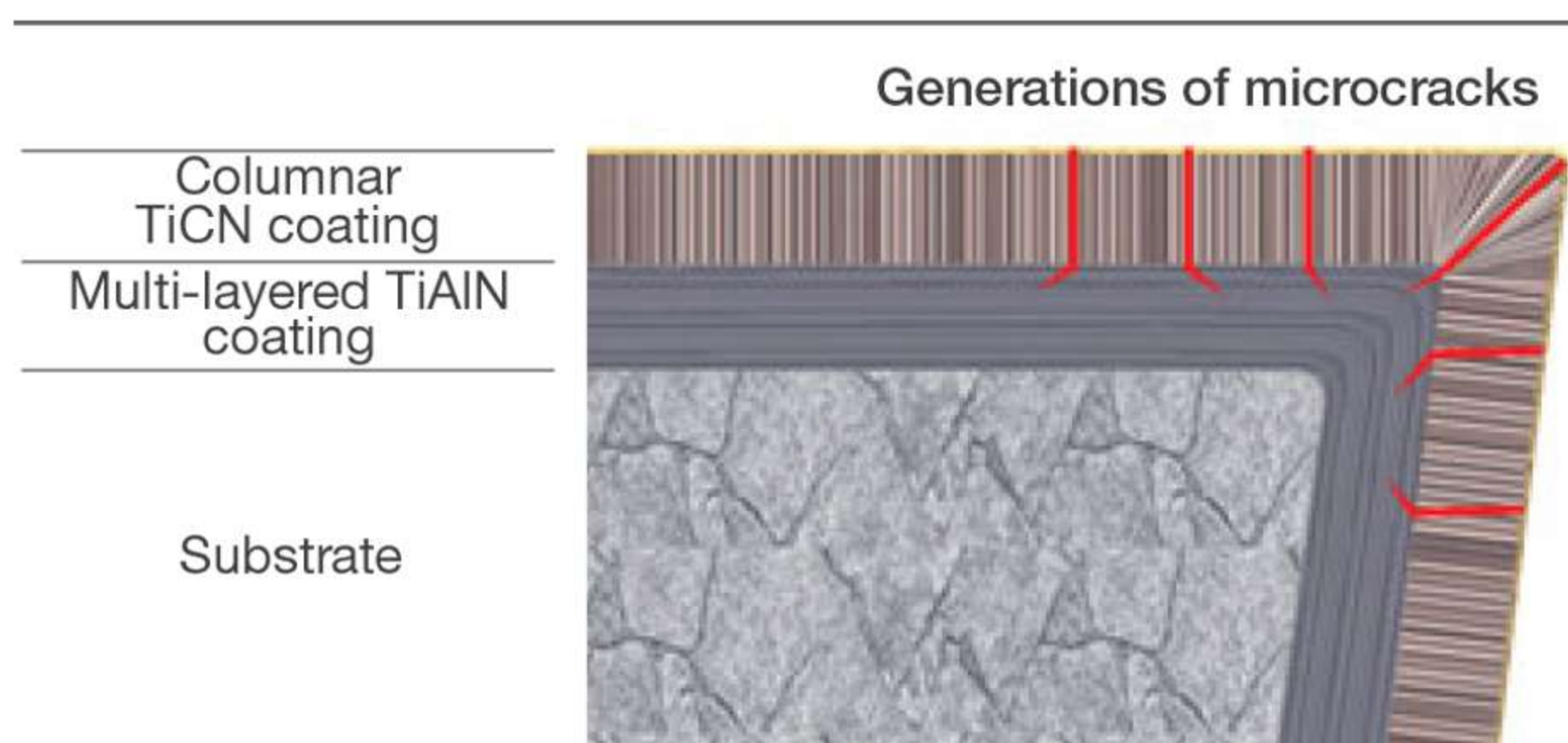
For superior process security

Chipping-resistant multi-layered TiAlN coating provides process security.

Superior process security

Chipping-resistant multi-layered TiAlN coating provides process security.

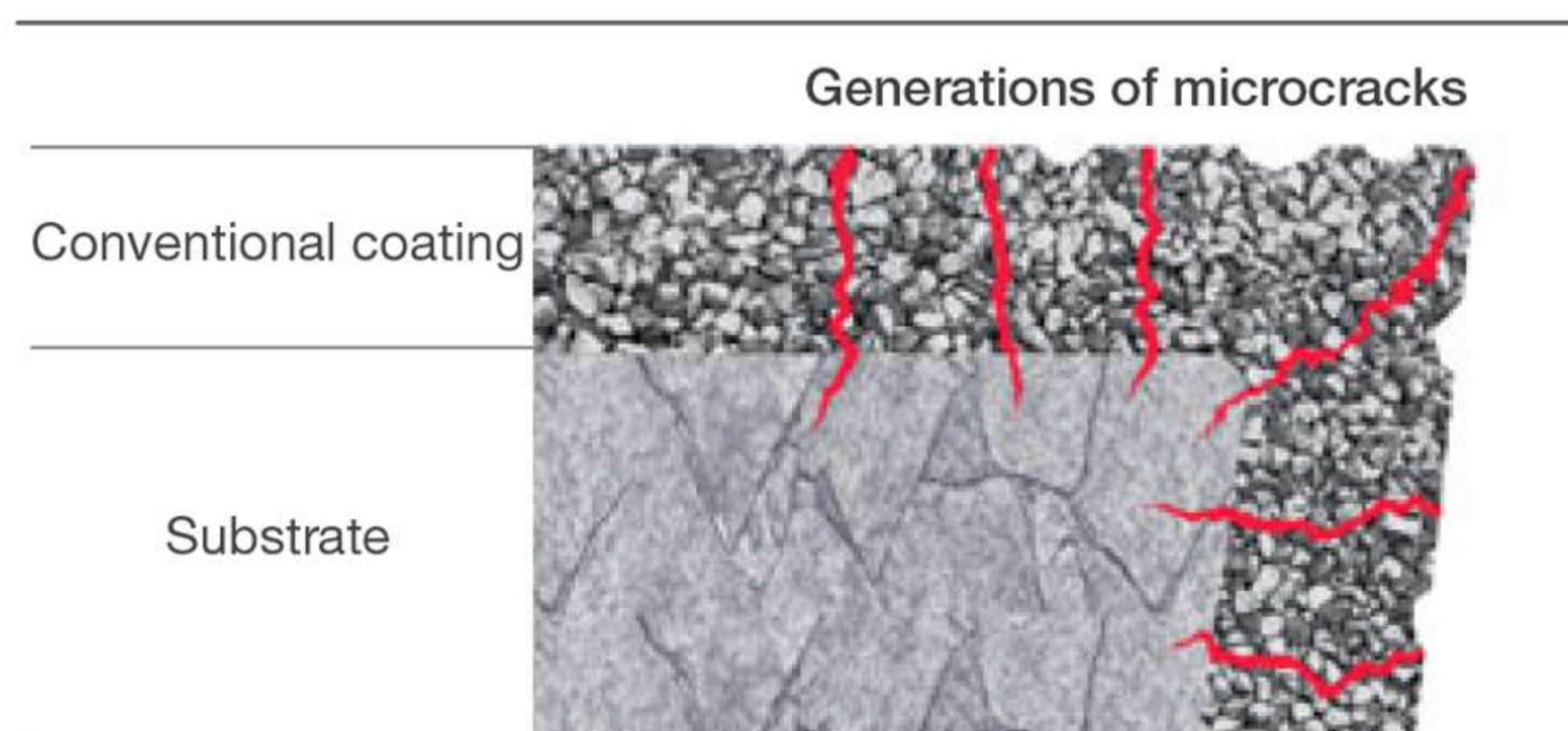
SH7025



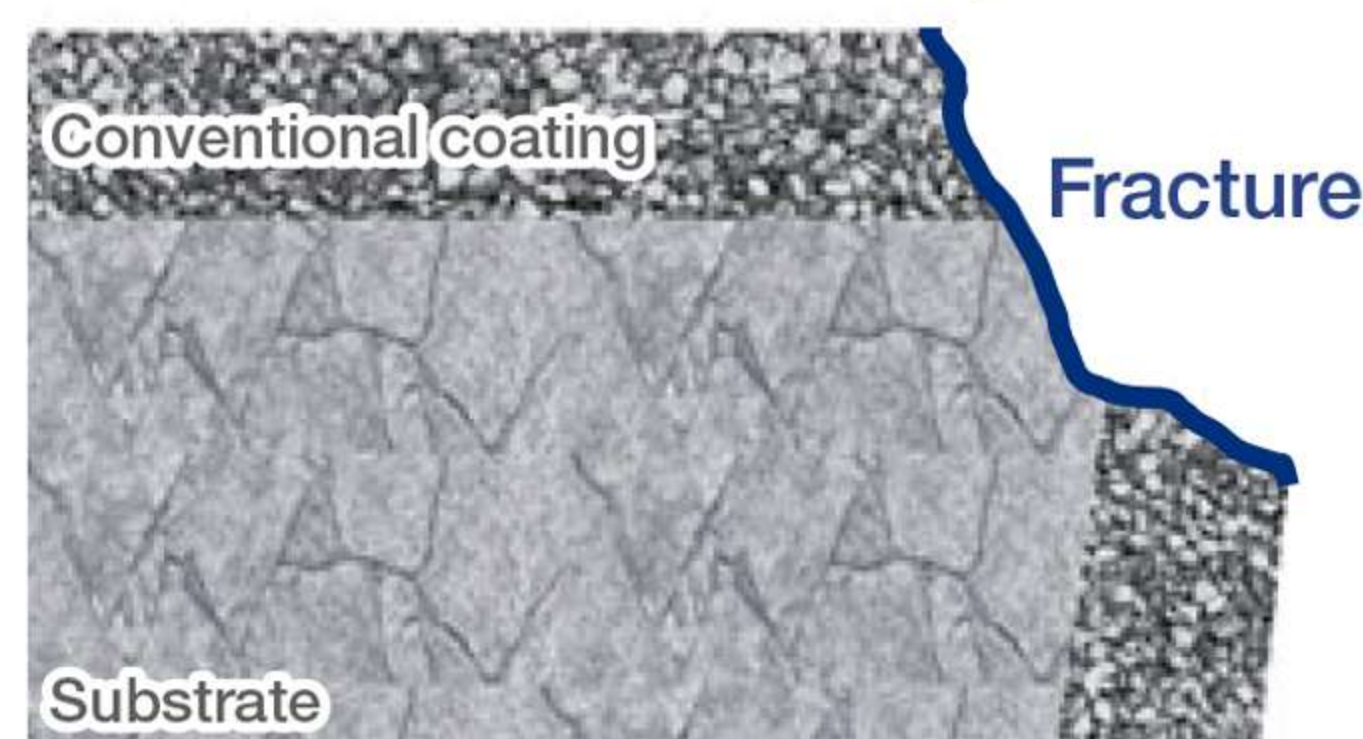
TiAlN coating prevents cracks from further propagation



Conventional



Crack reaches the substrate causing catastrophic failure



FACE^{INI}CUT

CUTTING PERFORMANCE

Chip control



FACE^{INI}CUT

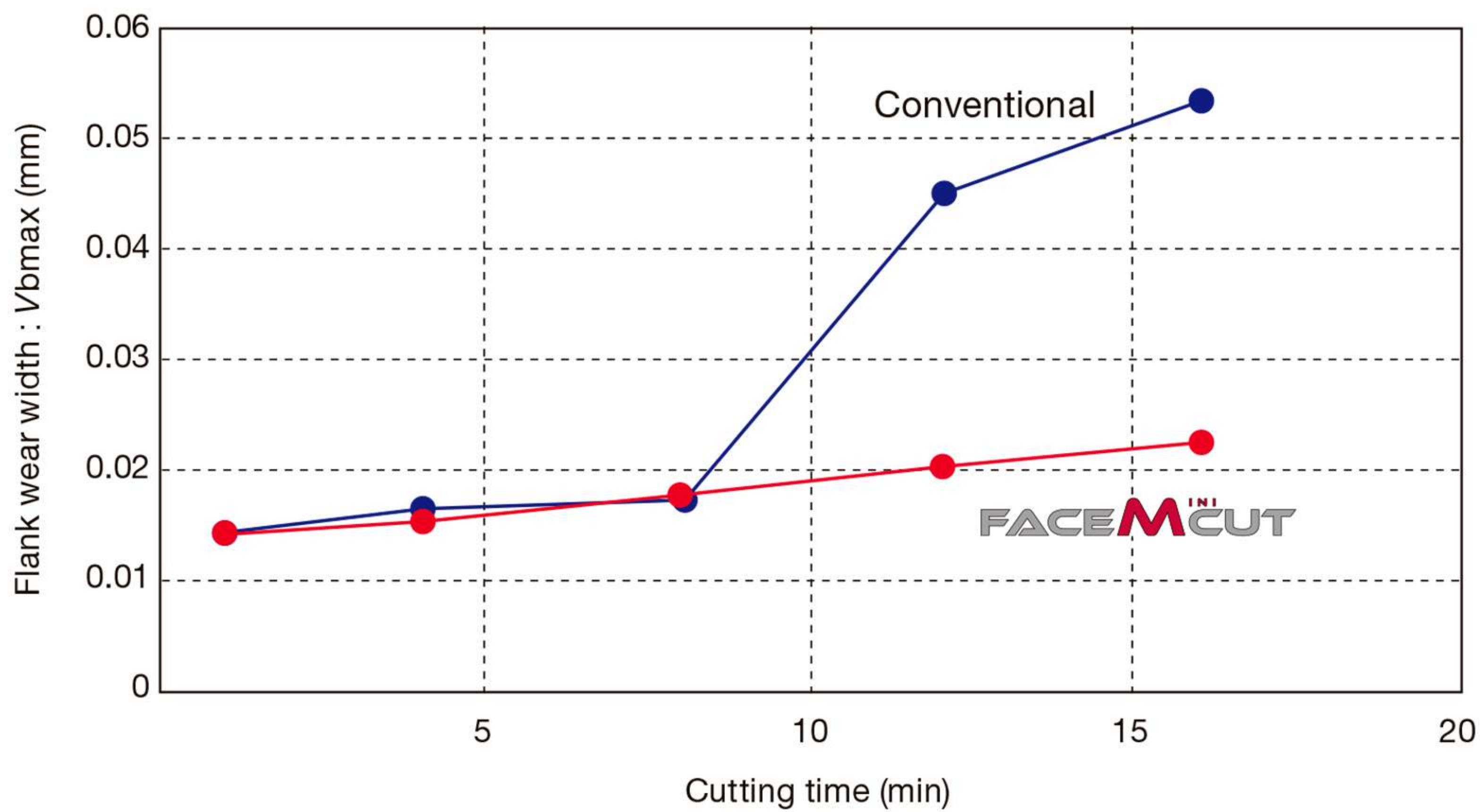


Conventional (Solid bar)

M SUS316L / X2CrNiMo17-12-2

Toolholder : A12G-MFR10-D100
 Insert : MFGR10-200-020 SH7025
 Cutting speed : $V_c = 60$ m/min
 Feed : $f = 0.02$ mm/rev
 Depth of cut : $CW = 2$ mm
 Groove depth : 9 mm
 Machining : Face grooving
 Coolant : Wet (Internal)

Corner flank wear



Built-up edge formed 10 minutes after starting the machining process.



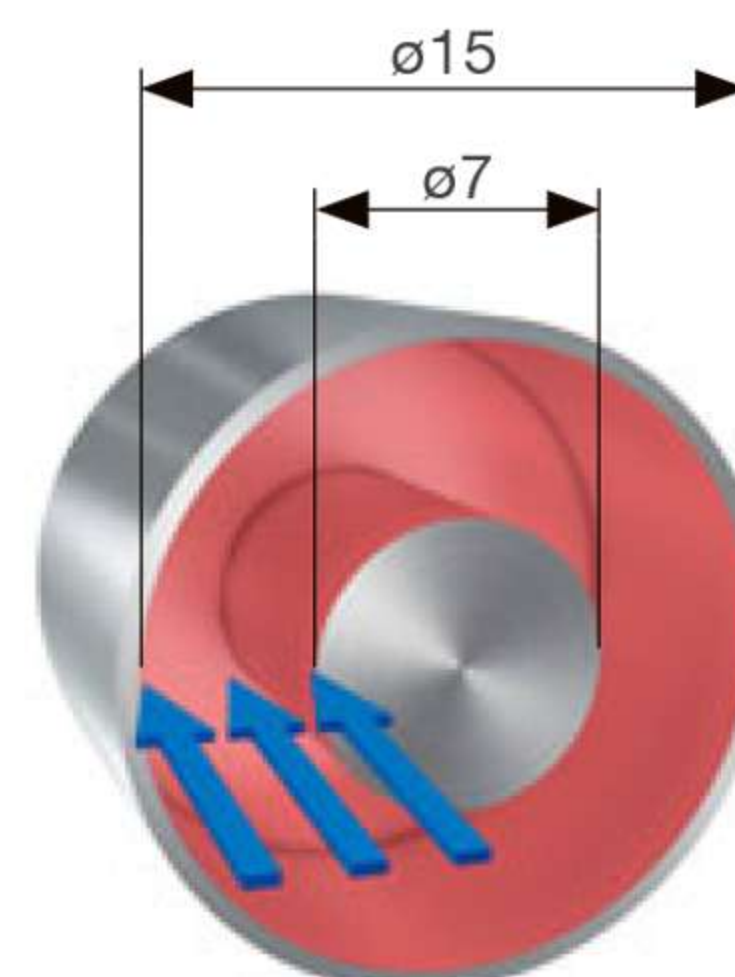
Conventional



SH7025

M SUS316L / X2CrNiMo17-12-2

Toolholder : A12G-MFR10-D100
 Insert : MFGR10-200-020 SH7025
 Cutting speed : $V_c = 60$ m/min
 Feed : $f = 0.02$ mm/rev
 Depth of cut : $CW = 2$ mm
 Groove depth : 9 mm
 Application : Face grooving to expand the groove from $\phi 15$ mm down to $\phi 7$ mm.
 Coolant : Wet (Internal)

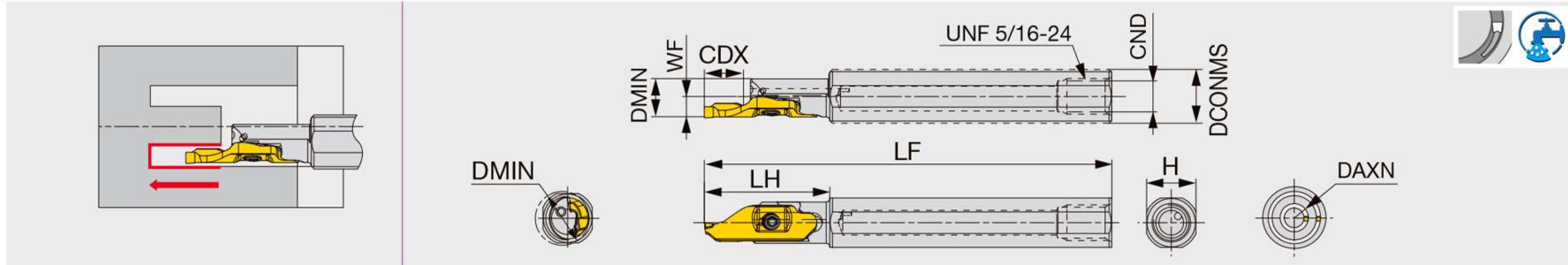


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TOOLHOLDERS

A-MFR10

Face grooving toolholder with round shank



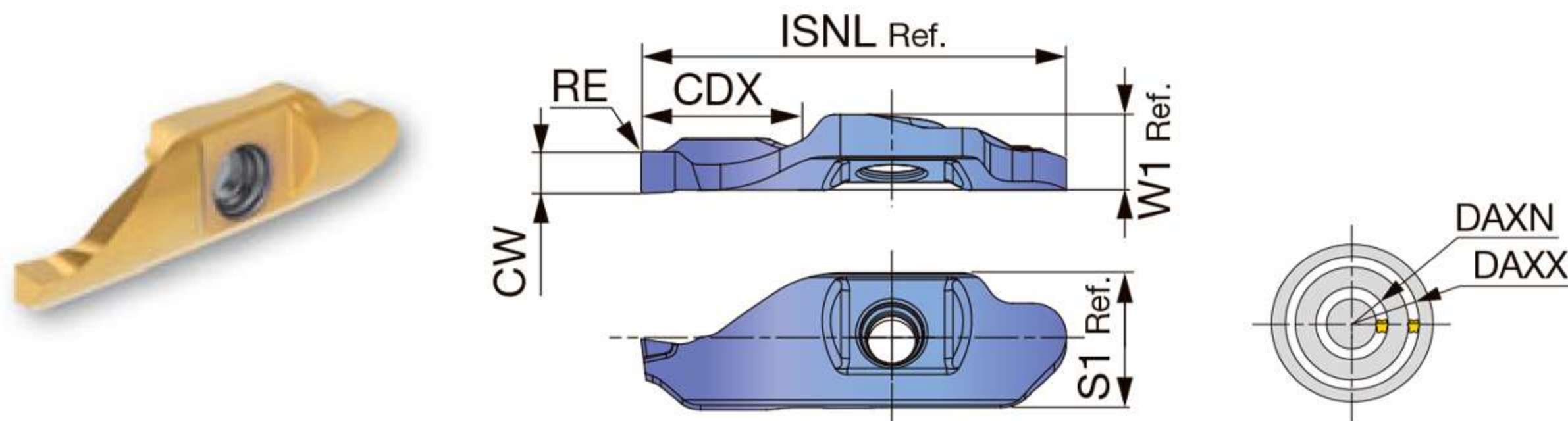
Designation	CDX	DAXN	DCONMS	DMIN	WF	LH	LF	CND	H	Insert	Torque*
A12G-MFR10-D100	9	10	12	10	5	27	90	6.9	11	MFGR10...	1.2
A127G-MFR10-D100	9	10	12.7	10	5	27	90	6.9	11.7	MFGR10...	1.2
A159F-MFR10-D100	9	10	15.875	10	5	27	85	6.9	15	MFGR10...	1.2
A16F-MFR10-D100	9	10	16	10	5	27	85	6.9	15	MFGR10...	1.2

SPARE PARTS

Designation	Clamping screw	Wrench
A**-MFR10...	CSTB-2.5	T-8F

INSERTS

MFGR10



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

★ : First choice



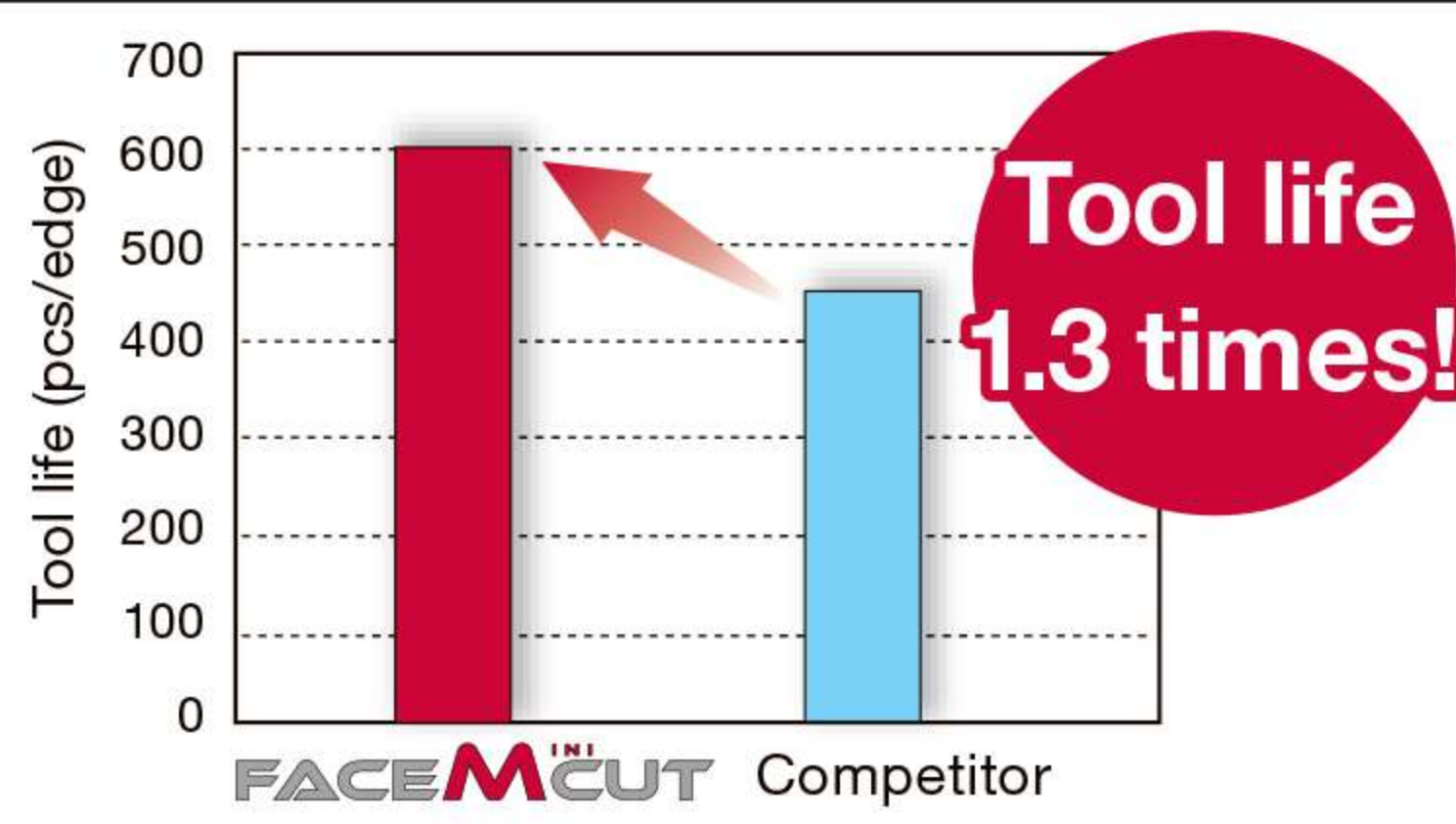
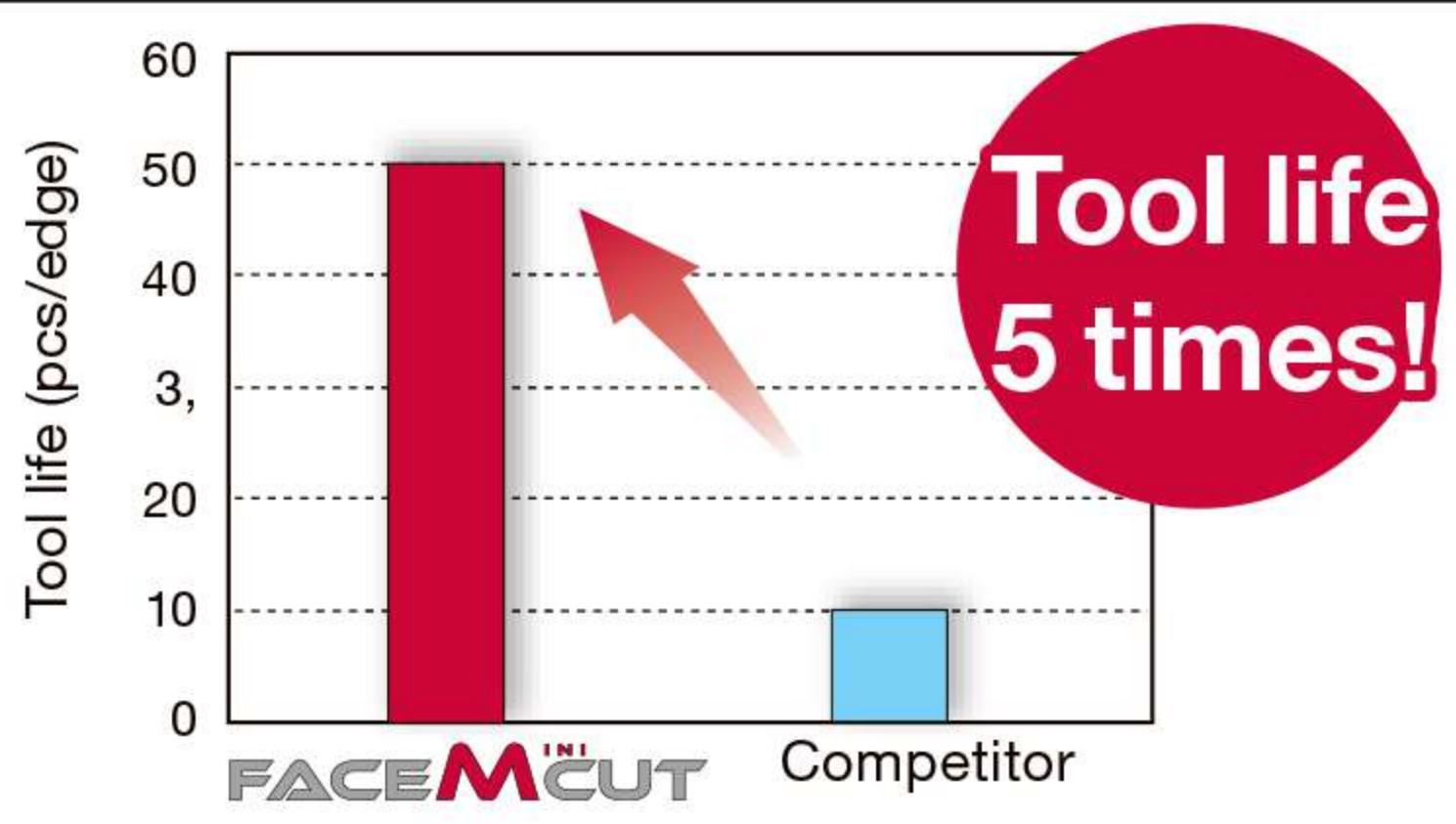
Designation	CW±0.025	RE	Coated				CDX	DAXN	DAXX	ISNL	W1	S1
			SH7025									
MFGR10-200-020	2	0.2	●				9	10	-	25	4.6	7.9
MFGR10-200-100	2	1	●				9	10	-	25	4.6	7.9
MFGR10-250-020	2.5	0.2	●				9	10	16	25	4.6	7.9
MFGR10-250-125	2.5	1.25	●				9	10	-	25	4.6	7.9

● : New

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Grade	Cutting speed Vc (m/min)	Feed: f (mm/rev)
P	Low carbon steel S15C, etc., C15E4, etc.	SH7025	30 - 120	0.01 - 0.07
	Carbon steels, Alloy steel S55C, SCM440, etc., C55, 42CrMoS4, etc.	SH7025	30 - 120	0.01 - 0.07
	Prehardened steel NAK80, PX5, etc.	SH7025	30 - 120	0.01 - 0.07
M	Stainless steel SUS304, etc., X5CrNi18-9, etc.	SH7025	30 - 120	0.01 - 0.07

■ PRACTICAL EXAMPLES

Workpiece type		Guide for linear motion bearing	Spool pin
Toolholder		A12G-MFR10-D100	A12G-MFR10-D100
Insert		MFGR10-200-020	MFGR10-200-020
Grade		SH7025	SH7025
Workpiece material		SUS316 / X5CrNiMo17-12-2	SCM415
		 M	 P
Cutting conditions	Cutting speed: V_c (m/min)	75	50
	Feed : f (mm/rev)	0.03	0.02
	Groove width : CW (mm)	2	2
	Groove depth : CDX (mm)	5	2.5
	Machining	Deep face grooving	Deep face grooving
	Coolant	Wet	Wet
Results		 <p>Tool life 1.3 times!</p> <p>FaceMiniCut eliminated bird nesting of chips and chatter, which were the case with solid carbide boring bars. As the result, 1.3 times tool life increase was achieved.</p>	 <p>Tool life 5 times!</p> <p>FaceMiniCut eliminated bird nesting of chips and allowed continuous machining without stopping the machine for manual chip removal. As the result, 5 times tool life increase was achieved.</p>

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