Member IMC Group Tungaloy

GrooveLine

For more information

Face grooving

FACEMINI CUT

Tungaloy Report No. 562-G

New ultimate deep face grooving tool

TUNGALOY ADDFORCE ACCELERATED LINES

TUNGALOY

ADDFORCE GROOVE

ACCELERATED PARTING AND GROOVING

FACE MINI CUT

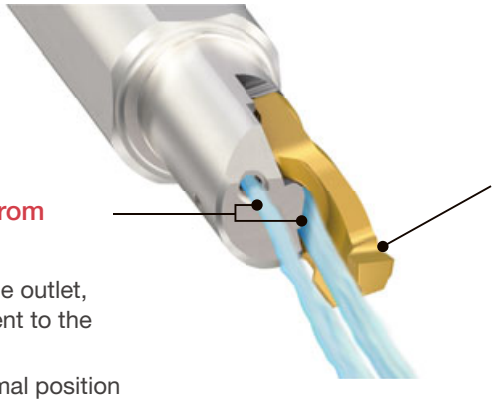
Product Video

Extremely rigid insert clamping and superior chip evacuation

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



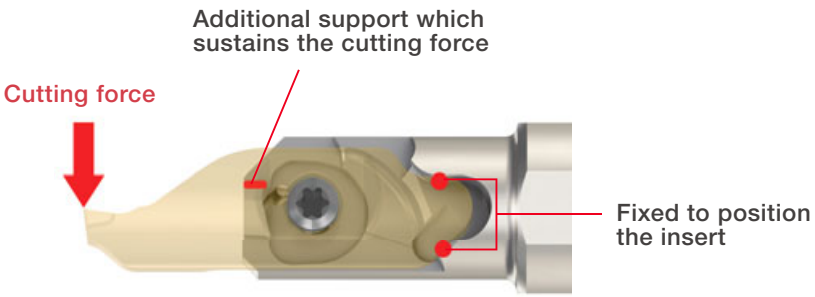
Optimized coolant jet supply from two directions

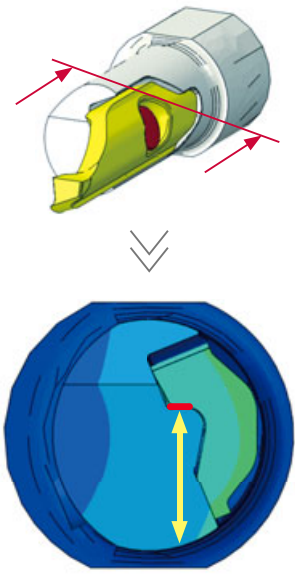
- Coolant jet is supplied through the outlet, as well as through the slot adjacent to the insert
- Coolants are directed to the optimal position close to the cutting tip, allowing excellent chip evacuation during deep face grooving

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





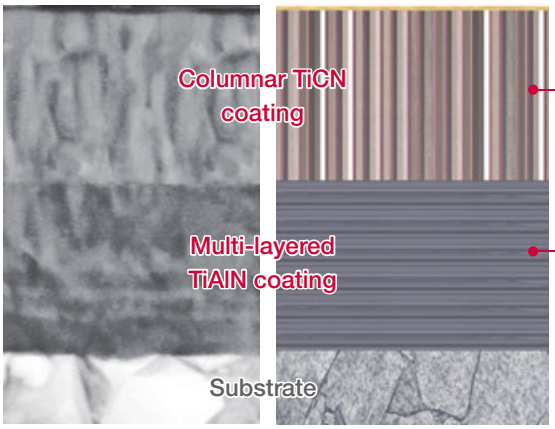
Sustains the cutting force

- 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.



Cross sectional micrograph | Cross sectional diagram

For high surface quality

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

For extremely long tool life

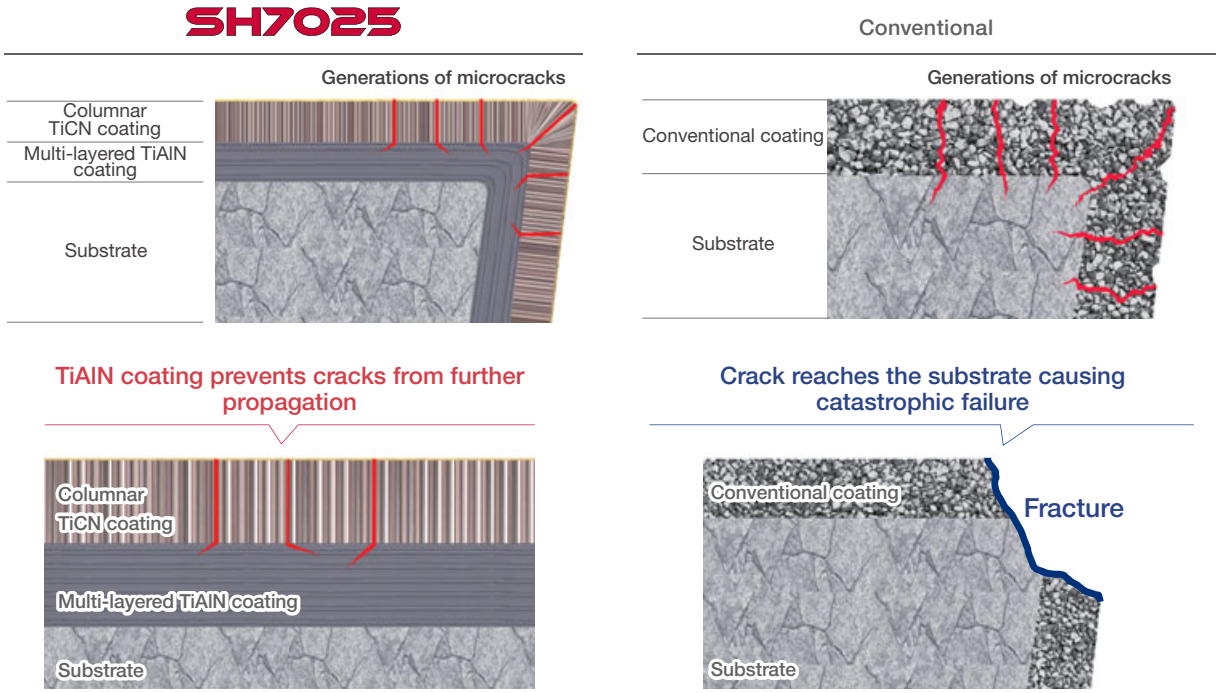
Wear-resistant columnar-structured TiCN coating ensures long tool life.

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.



CUTTING PERFORMANCE

■ Chip control

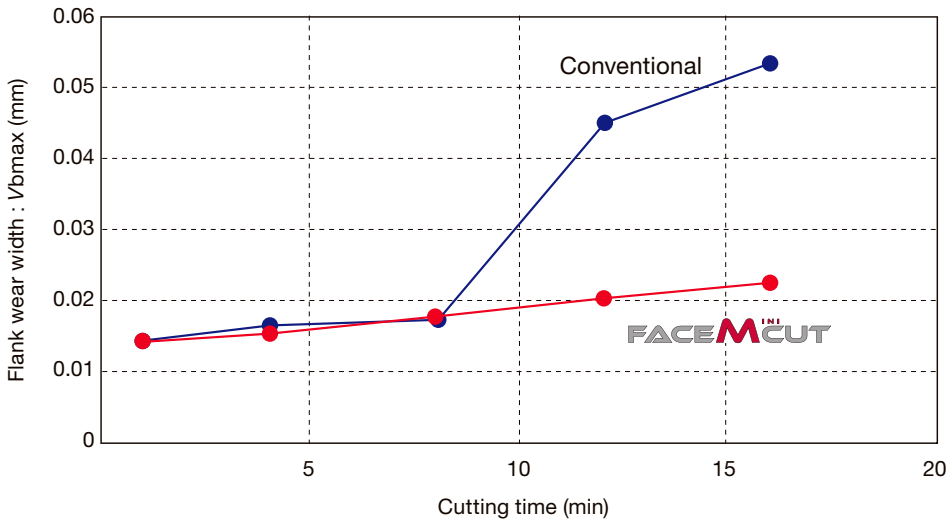
FACEMINICUT

Conventional (Solid bar)

M SUS316L / X2CrNiMo17-12-2

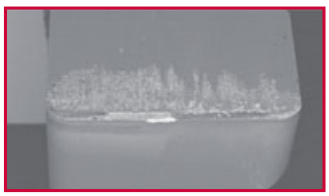
Toolholder	:	A12G-MFR10-D100
Insert	:	MFGR10-200-020 SH7025
Cutting speed	:	*Vc* = 60 m/min
Feed	:	*f* = 0.02 mm/rev
Depth of cut	:	CW = 2 mm
Groove depth	:	9 mm
Machining	:	Face grooving
Coolant	:	Wet (Internal)

■ Corner flank wear



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

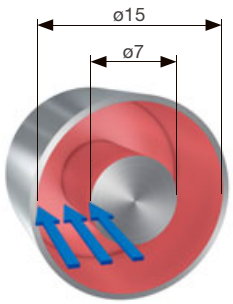
Conventional



SH7025

M SUS316L / X2CrNiMo17-12-2

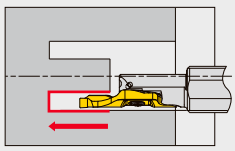
Toolholder	:	A12G-MFR10-D100
Insert	:	MFGR10-200-020 SH7025
Cutting speed	:	*Vc* = 60 m/min
Feed	:	*f* = 0.02 mm/rev
Depth of cut	:	CW = 2 mm
Groove depth	:	9 mm
Application	:	Face grooving to expand the groove from ø15 mm down to ø7 mm.
Coolant	:	Wet (Internal)

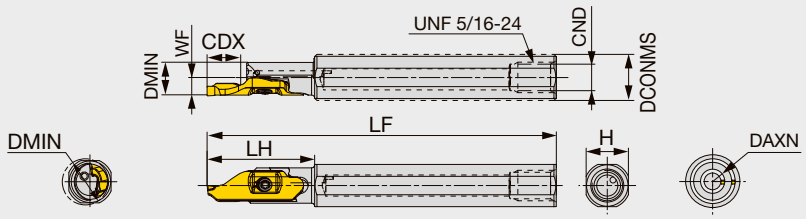


TOOLHOLDERS

A-MFR10

Face grooving toolholder with round shank





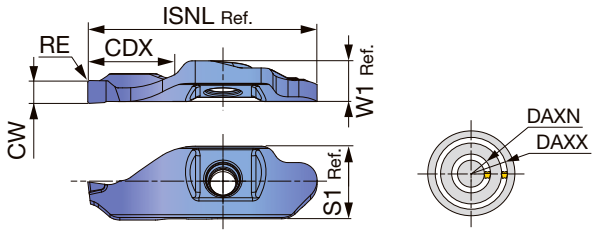
Designation	CDX	DAXN	DCONMS	DMIN	WF	LH	LF	CND	H	Insert	Torque*
A12G-MFR10-D100	9	10	12	10	5	27	90	6.9	11	MFGR10...	1.2
A127G-MFR10-D100	9	10	12.7	10	5	27	90	6.9	11.7	MFGR10...	1.2
A159F-MFR10-D100	9	10	15.875	10	5	27	85	6.9	15	MFGR10...	1.2
A16F-MFR10-D100	9	10	16	10	5	27	85	6.9	15	MFGR10...	1.2

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

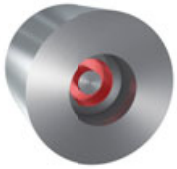
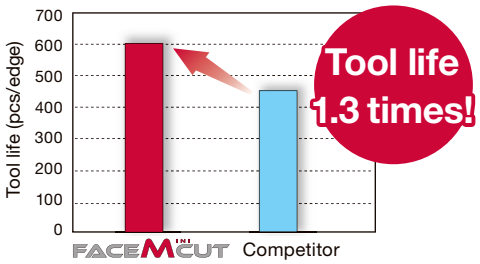
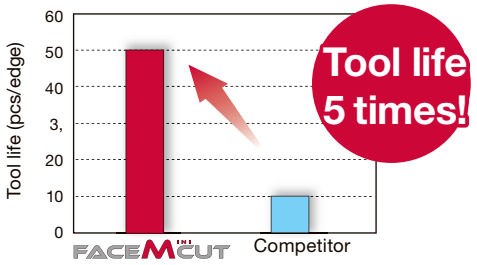
Designation	CW±0.025	RE	Coated SH7025	CDX	DAXN	DAXX	ISNL	W1	S1
MFGR10-200-020	2	0.2	●	9	10	-	25	4.6	7.9
MFGR10-200-100	2	1	●	9	10	-	25	4.6	7.9
MFGR10-250-020	2.5	0.2	●	9	10	16	25	4.6	7.9
MFGR10-250-125	2.5	1.25	●	9	10	-	25	4.6	7.9

● : 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
P	Carbon steels, Alloy steel S55C, SCM440, etc., C55, 42CrMoS4, etc.	SH7025	30 - 120	0.01 - 0.07
P	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  M	SCM415  P
Cutting conditions	Cutting speed: *Vc* (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	 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.	 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.

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