NEW PRODUCT NEWS

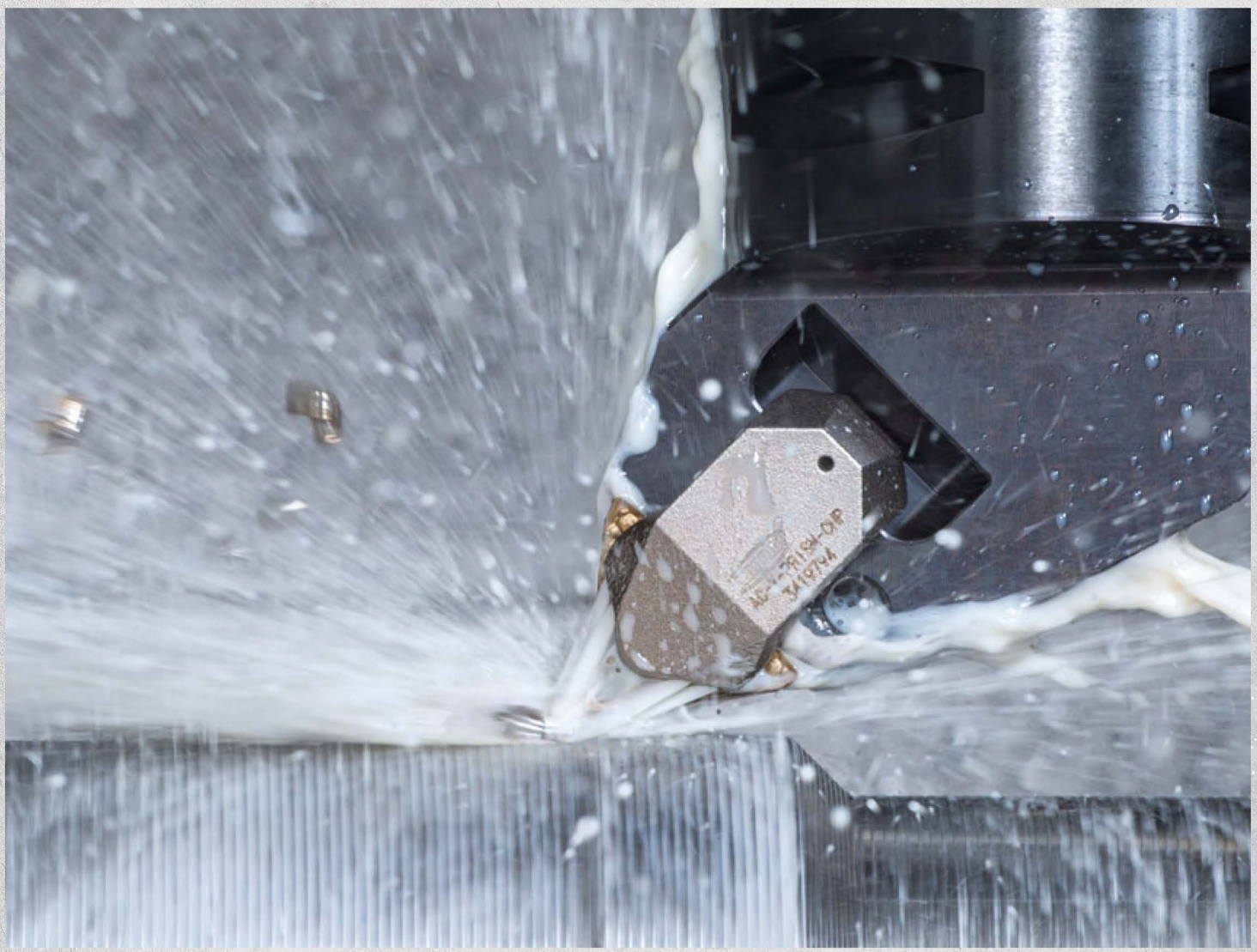
mgt
MEGA TECH METALWORK

Tungaloy Report No. 550-G

External turning tool

ADDMULTI TURN

Expansion of internal coolant tool holder for multi directional turning tool



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TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

Tungaloy Report No. 550-G

mgt
MEGA TECH METALWORK

Member IMC Group Tungaloy INDUSTRY 4.0

TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

Tungaloy Report No. 550-G

mgt
MEGA TECH METALWORK

ADDMULTITURN

Ultra high productivity of Front Turning, Back Turning, Profiling, and Face Turning with **ONE SINGLE TOOL**

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TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

Tungaloy Report No. 550-G

mgt MEGA TECH METALWORK

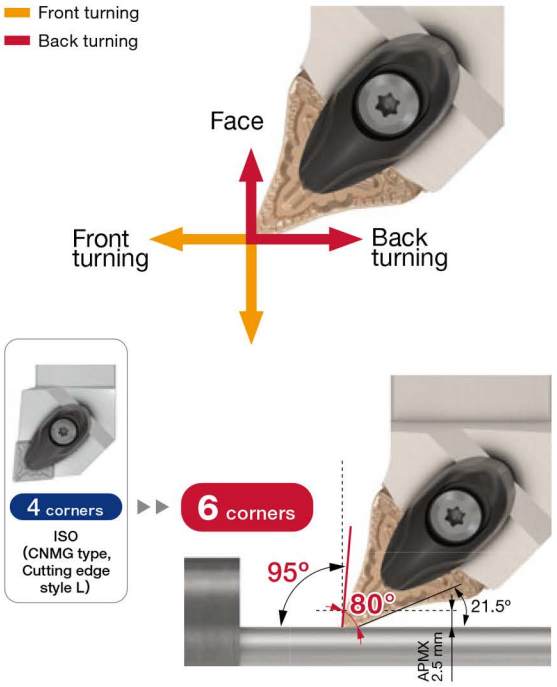
ADDMULTI TURN

Innovative geometry for high productivity and process security

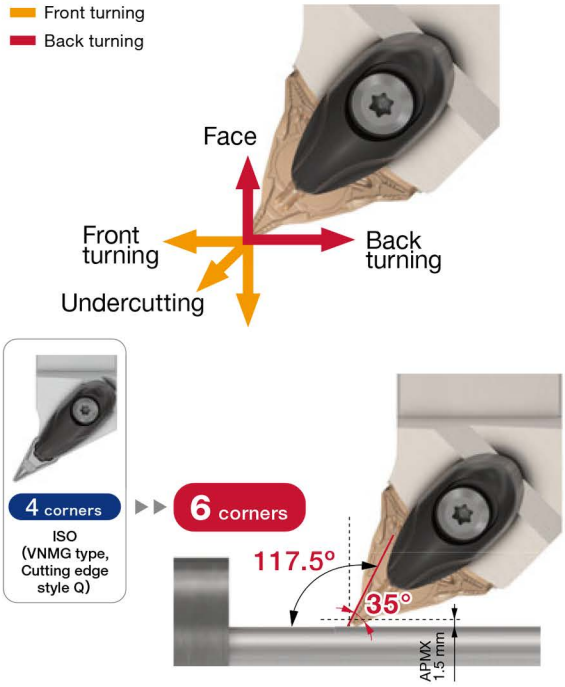
Double-sided 6-corner insert with 80° or 35° corner angle for versatile applications

- Back (pull) turning: High feed designed cutting edge improves productivity about 200% higher than existing ISO tools with no need for special programming.
- Front (push) turning: Same machining process is available using the same cutting edge angle as standard ISO tools.

6C-TOMG

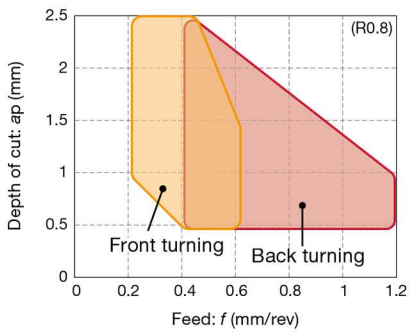


6V-TOMG

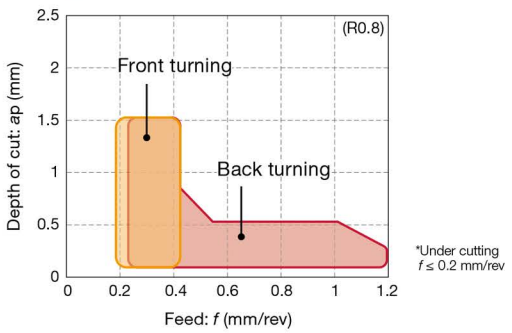


APPLICATION RANGE

Corner angle 80° + TM chipbreaker



Corner angle 35° + TSF chipbreaker



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TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

MEGA TECH METALWORK

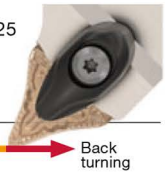
Tungaloy Report No. 550-G

Chip control

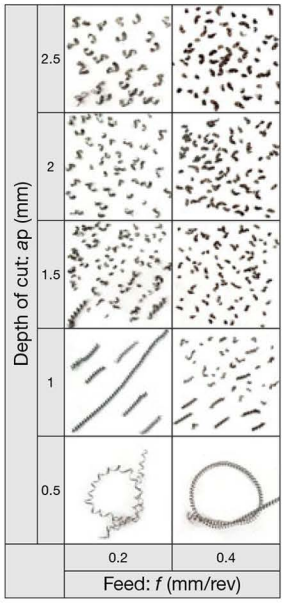
■ Double-sided 6-corner insert

ADDMULTITURN
6C-TOMG**-TM

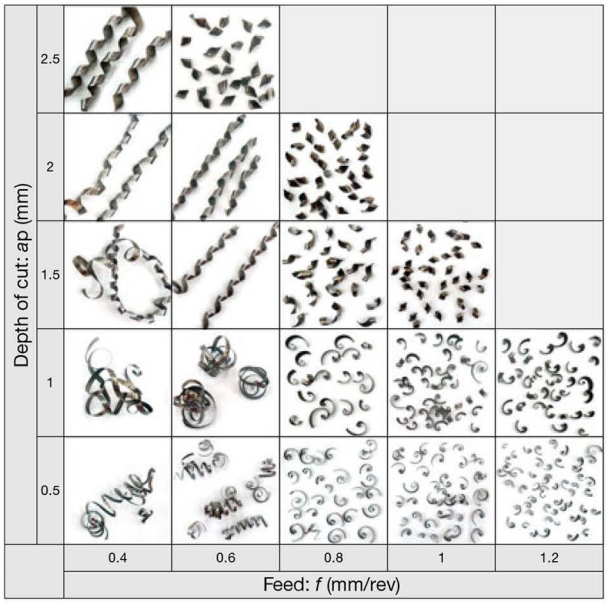
Insert : 6C-TOMG250608M-TM T9225
Workpiece material : S45C / C45
Cutting speed : *Vc* = 200 m/min
Coolant : Wet



Front turning



Back turning

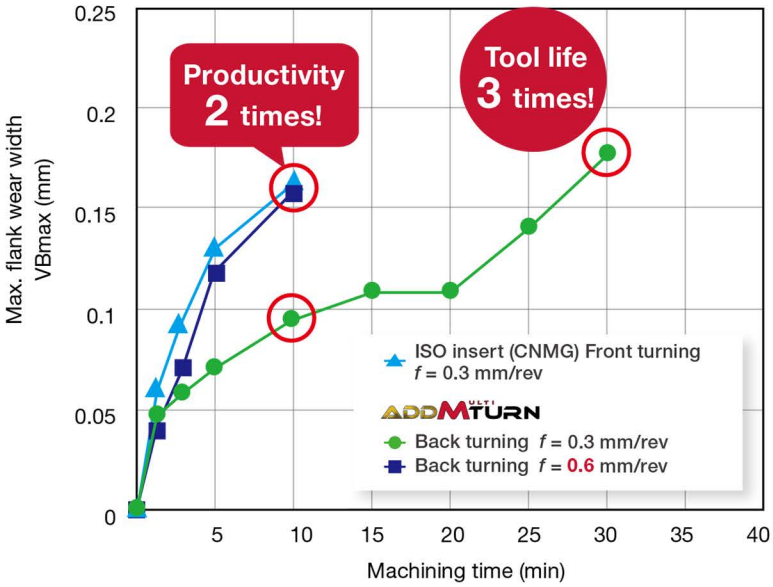


For 6V-TOMG**-TSF chip control

Medium operation
- Front turning: Excellent chip control
- Back turning: Excellent chip control in high feed

Tool life

■ Double-sided 6-corner insert



Insert : 6C-TOMG**-TM T9225
Workpiece material : S45C / C45
Cutting speed : *Vc* = 250 m/min
Depth of cut : *ap* = 1.5 mm
Coolant : Wet

ISO insert (CNMG)
Front turning (10 minutes)

Feed: *f* = 0.3 mm/rev

ADDMULTITURN
Back turning (10 minutes)

Feed: *f* = 0.3 mm/rev Feed: *f* = 0.6 mm/rev

AddMultiTurn insert provided triple tool life when fed at the same feed rate as ISO insert.
Double the feed rate with AddMultiTurn compared with ISO insert without compromising tool life.

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TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

Tungaloy Report No. 550-G

mgt MEGA TECH METALWORK

ADDMULTI TURN

Expansion of PSC & square shank internal coolant tool holder for double-sided 6-corner inserts

New

PSC tool holder

P9

New

Square shank tool holder

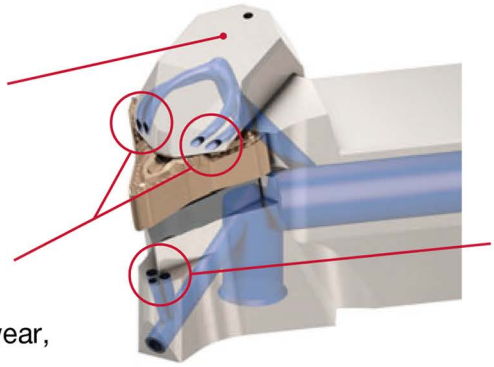
P10 Will be released in 2025

Features

- High rigidity clamping system optimized for multi-directional and high feed turning

- Top 4 coolant holes covers front and back turning

- Effective for preventing crater wear, better chip control

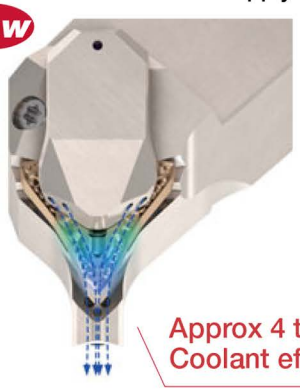


- Bottom 3 coolant holes effective for preventing flank wear and better surface finish

Internal coolant efficiency

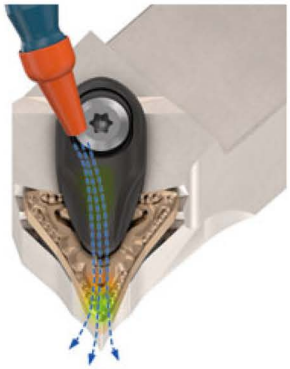
Internal coolant supply

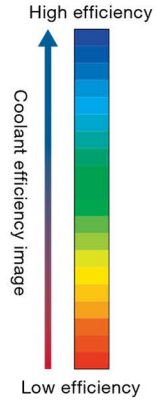
New



Approx 4 times higher Coolant efficiency!

External coolant supply





*Internal evaluation

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TUNGALOY ADDFORCE ACCELERATED LINES

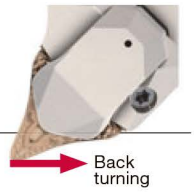
NEW PRODUCT NEWS

mgt MEGA TECH METALWORK

Tungaloy Report No. 550-G

Improve chip control and tool life with internal coolant

P Alloy steel
SCM440 / 42CrMo4



1

Insert	: 6C-TOMG250608M-TM T9215
Toolholder	: ATXOR2525X25-CHP
Cutting speed	: *Vc* = 250 m/min
Feed	: *f* = 0.5 mm/rev
Depth of cut	: *ap* = 1 mm

Back turning

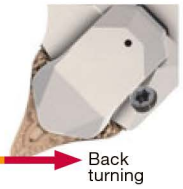
		New Internal coolant 14 MPa	New Internal coolant 7 MPa	External coolant (Normal pressure)
Depth of cut: *ap* (mm)	1			
	0.5			
	Feed: *f* (mm/rev)			

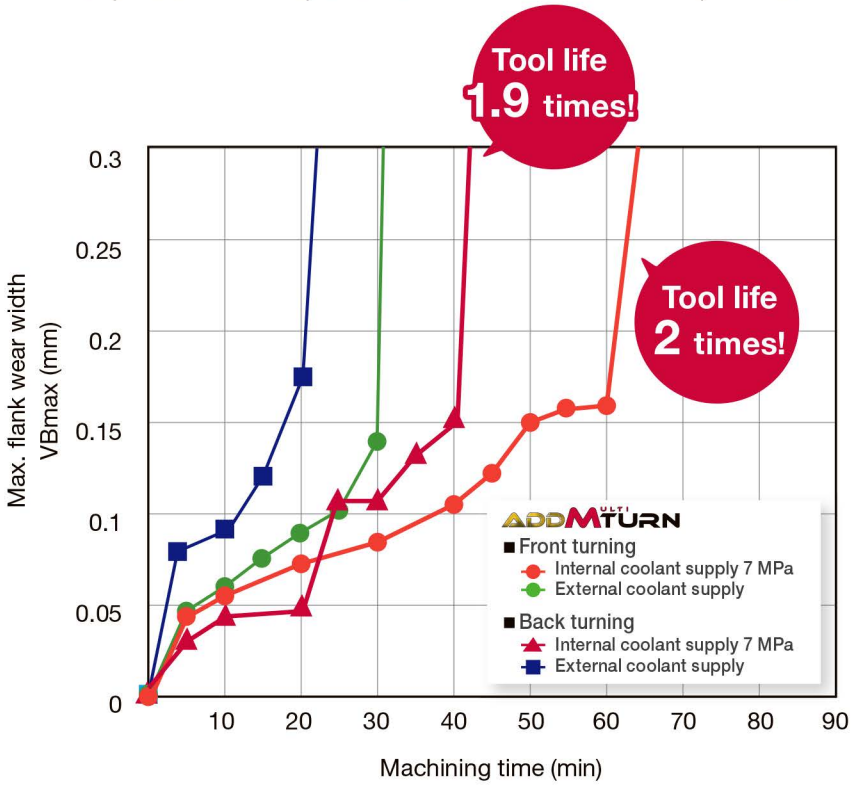
2 **Front turning**

Insert	: 6C-TOMG250608M-TM T9215
Cutting speed	: *Vc* = 250 m/min
Feed	: *f* = 0.3 mm/rev
Depth of cut	: *ap* = 1.5 mm

Back turning

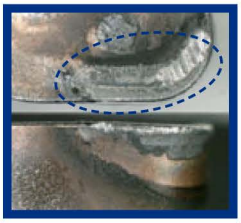
Insert	: 6C-TOMG250608M-TM T9215
Cutting speed	: *Vc* = 250 m/min
Feed	: *f* = 1 mm/rev
Depth of cut	: *ap* = 1 mm



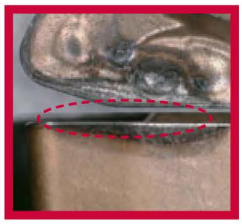


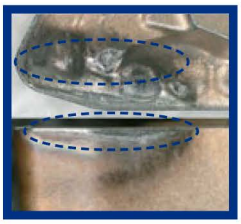
ADDMTURN
Front turning (30 minutes)


Internal coolant supply 7 MPa


External coolant supply (Normal pressure)

ADDMTURN
Back turning (20 minutes)


Internal coolant supply 7 MPa


External coolant supply (Normal pressure)

New Internal coolant tool holder achieved 2 times longer in front turning, 1.9 times longer in back turning compared with external coolant supply!

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TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

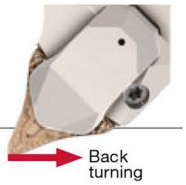
mgt MEGA TECH METALWORK

Tungaloy Report No. 550-G

ADDMTURN ULTI

Improve chip control and tool life with internal coolant

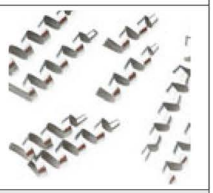
M Stainless steel
SUS304 / X5CrNi18-9



1

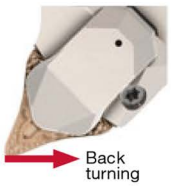
Insert : 6C-TOMG250608M-TM AH8015
Toolholder : ATXOR2525X25-CHP
Cutting speed : *Vc* = 250 m/min
Feed : *f* = 0.5 mm/rev
Depth of cut : *ap* = 1 mm

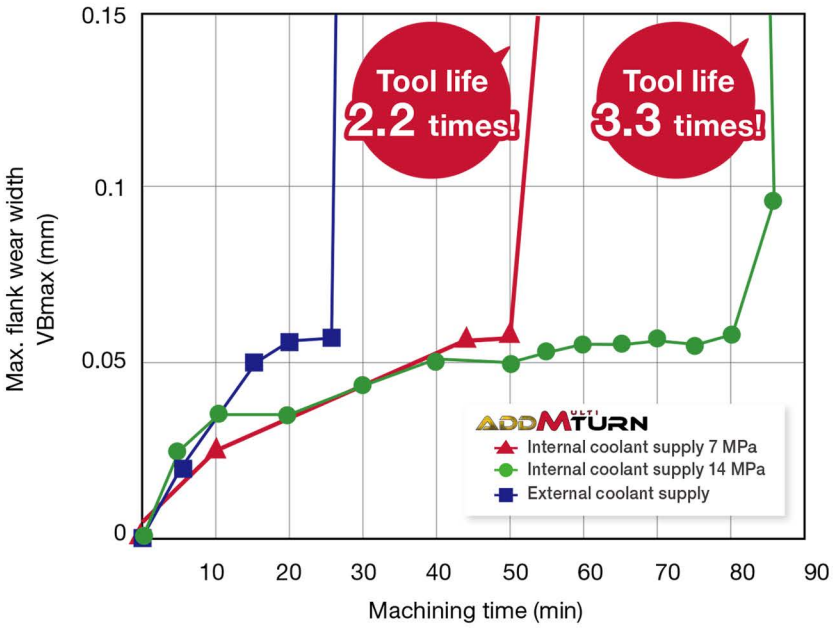
Back turning

		New Internal coolant 14 MPa	New Internal coolant 7 MPa	External coolant (Normal pressure)
Depth of cut: ap (mm)	1			
		0.5		
		Feed: *f* (mm/rev)		

2

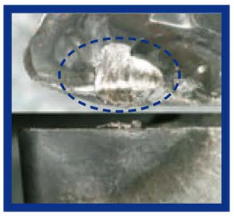
Insert : 6C-TOMG250608M-TM AH8015
Workpiece material : SUS304 / X5CrNi18-9
Cutting speed : *Vc* = 150 m/min
Feed : *f* = 0.8 mm/rev.
Depth of cut : *ap* = 1 mm





ADDMTURN
Back turning (20 minutes)


Internal coolant supply
7 MPa


External coolant supply
(Normal pressure)

New Internal coolant tool holder achieved 2.2 times longer tool life compared with external coolant supply! Tool life extended to 3.3 times longer with high-pressure coolant.

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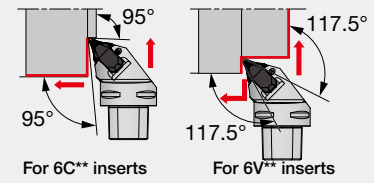
TUNGALOY ADDFORCE ACCELERATED LINES

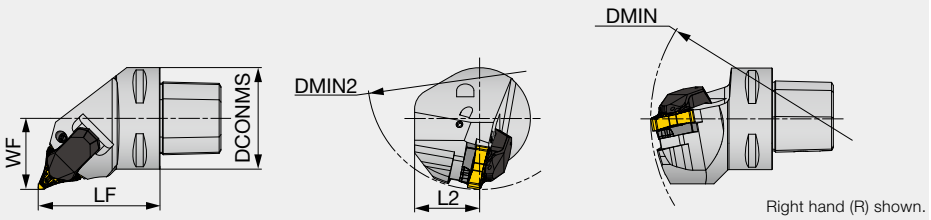
New

C-ATXOR/L-CHP

Double-clamp toolholder, with 95° approach angle, for negative 80°/70° rhombic inserts (TurningA)



Cutting edge style **X**



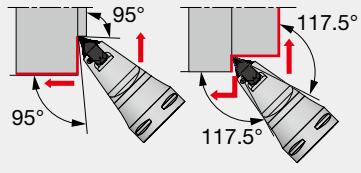
Designation	DCONMS	LF	L2	WF	DMIN	DMIN2	RE	Insert	Torque*
C4ATXOR/L27050-25-CHP	40	50	25	27	140	110	0.8	6C/6V-TOMG2506**	3
C5ATXOR/L35060-25-CHP	50	60	32	35	165	110	0.8	6C/6V-TOMG2506**	3
C6ATXOR/L45065-25-CHP	63	65	32	45	190	120	0.8	6C/6V-TOMG2506**	3

Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

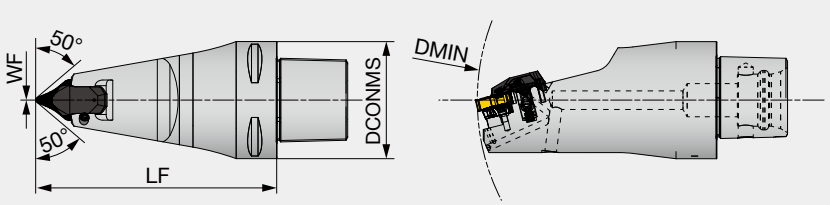
New

C-ATEON-CHP

Double-clamp toolholder, with 50° approach angle, for negative 80°/70° rhombic inserts



Cutting edge style **X**



Designation	DCONMS	LF	WF	DMIN	RE**	Insert	Torque*
C6ATEON00130-25-CHP	63	130	0	190	0.8	6C/6V-TOMG2506**	3

Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

SPARE PARTS

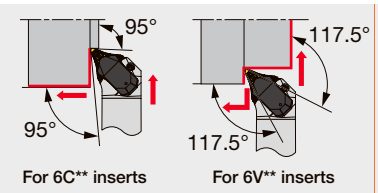
Designation	Clamp	Clamp screw	Shim	Shim screw	Spring	Wrench	O-ring
C*ATXOR/L*****-25-CHP, C6ATEON00130-25-CHP	AC-Y-PRISM-CHP	SR 11800782	LST33	CSTB-3.5	BP-4.5	T-15F	ORAS568-2.62X6.02

New

ATXOR/L-CHP

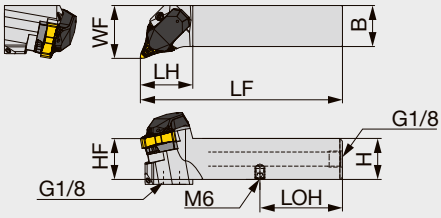
★: Will be released in 2025

Double-clamp toolholder with 95° and 117.5° approach angle, for negative 80° and 35° triangular inserts



For 6C** inserts For 6V** inserts

Cutting edge style **X**



Right hand (R) shown.

Designation	H	B	LF	LH	LOH	HF	WF	RE**	Insert	Torque*
ATXOR/L2020X25-CHP	20	20	122	32	61.75	20	25	0.8	6C/6V-TOMG2506**	3
ATXOR/L2525X25-CHP	25	25	122	32	56.25	25	32	0.8	6C/6V-TOMG2506**	3

Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius
Applicable for 14 MPa pressure coolant

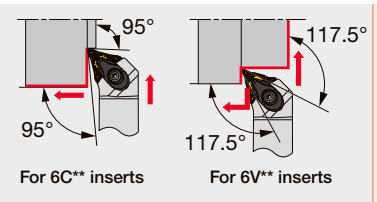
Parts for coolant hose infomation

SPARE PARTS

Designation	Clamp	Clamp screw	Shim	Shim screw	Spring	Wrench	O-ring
ATXOR/L****X25-CHP	AC-Y-PRISM-CHP	SR 11800782	LST33	CSTB-3.5	BP-4.5	T-15F	ORAS568-2.62X6.02

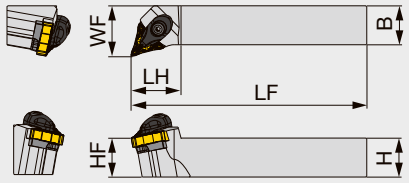
ATXOR/L

Double-clamp toolholder with 95° and 117.5° approach angle, for negative 80° and 35° triangular inserts



For 6C** inserts For 6V** inserts

Cutting edge style **X**



Right hand (R) shown.

Designation	H	B	LF	LH	HF	WF	RE**	Insert	Torque*
ATXOR/L2020K25-A	20	20	125	32	20	25	0.8	6C/6V-TOMG2506...	3
ATXOR/L2525M25-A	25	25	150	32	25	32	0.8	6C/6V-TOMG2506...	3
ATXOR/L3232P25-A	32	32	170	32	32	40	0.8	6C/6V-TOMG2506...	3

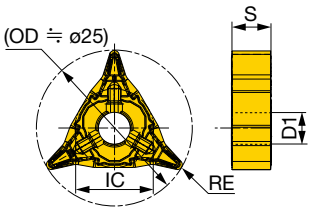
Torque*: Recommended clamping torque (N·m)
RE**: Standard corner radius

SPARE PARTS

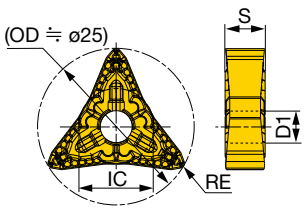
Designation	Clamp	Clamp screw	Spring	Spring pin	Shim	Shim screw	Wrench
ATXOR/L**25-A	ACP4S	ACS-5W	BP-7	SP-2.5	LST33 KS15F	CSTB-3.5	T-15F

INSERT

6V-TOMG**F-TSF



6C-TOMG**M-TM



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

★ : First choice
☆ : Second choice

Designation	RE	Coated												IC	S	D1
		T9215	T9225	AH8015												
6V-TOMG250604F-TSF	0.4	●	●	●										12.7	6.35	5.16
6V-TOMG250608F-TSF	0.8	●	●	●										12.7	6.35	5.16
6C-TOMG250608M-TM	0.8	●	●	●										12.1	6.35	5.16
6C-TOMG250612M-TM	1.2	●	●	●										12.1	6.35	5.16

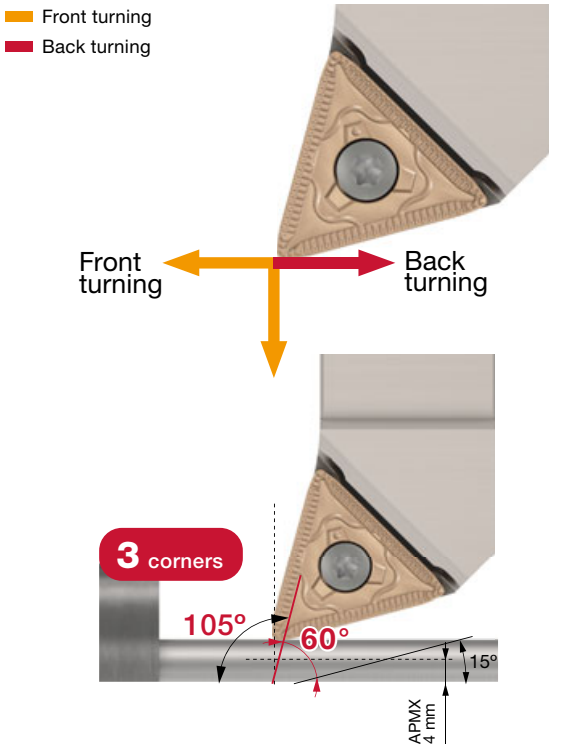
● : Line up

Please note: When machining using the pull face-turning method, the **6V**-TOMG2506... insert may interfere with workpieces having an external diameter of 70 mm or smaller, and the **6C**-TOMG2506... insert may interfere with workpieces of 30 mm or smaller.

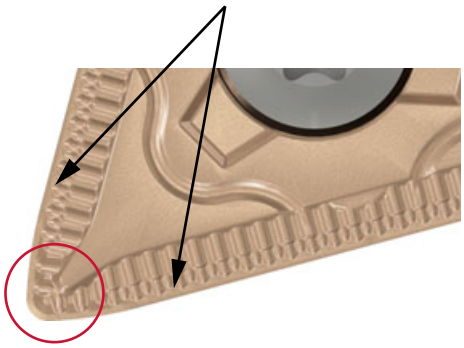
Single-sided 3-corner insert for super high productivity

- Back (pull) turning: High feed designed cutting edge improves productivity 300 - 400% higher than standard ISO tools.
- Front (push) turning: Applicable for large D.O.C.

3C-TCMT

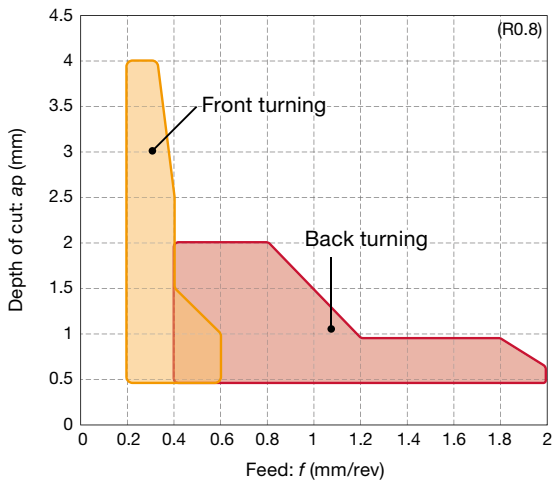


Unique cutting edge (Corner R + large radius arc)
enables higher feed rates to be applied
and better wear resistance for long tool life



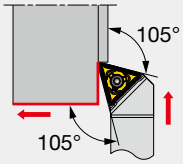
APPLICATION RANGE

Single-sided 3-corner + **TM** chipbreaker

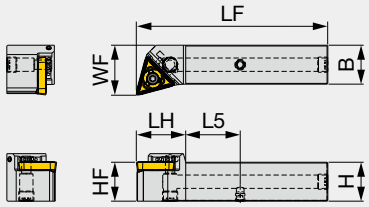


STXCR/L-CHP-MC

Screw-on toolholder with 105° approach angle, for positive triangular inserts



Cutting edge style **X**



Right hand (R) shown.

Designation	H	B	LF	LH	HF	WF	L5	Insert	Torque*
STXCR/L2525X29-CHP-MC	25	25	122	32	25	32	35	3C-TCMT29X6...	5

Torque*: Recommended clamping torque (N·m)

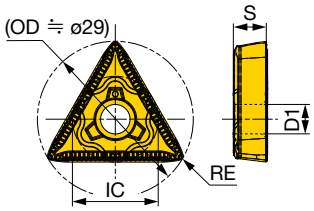
SPARE PARTS




Designation	Clamping screw	Grip	Torx bit	Coolant plug
STXCR/L2525X29-CHP-MC	CSTB-5	H-TB2W	BT20M	PLUGG1/8-6.5TL360

INSERT

3C-TCMT**-TM



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

★ : First choice
☆ : Second choice

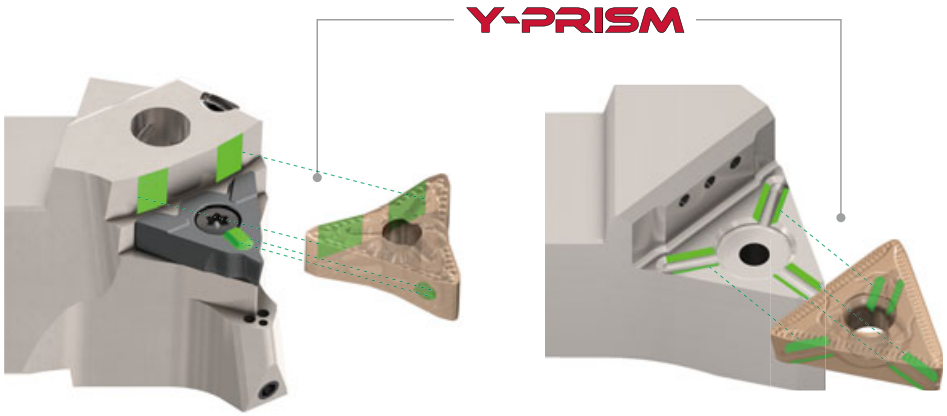
Designation	RE	Coated T9215	IC	S	D1
3C-TCMT29X608-TM	0.8	●	16	6.15	5.5

Please note that 3C-TCMT... insert is not recommended for pull face-turning method (pulling the insert away from the part center).

● : Line up

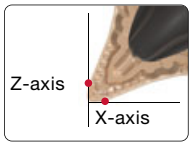
Y-PRISM Secure insert clamping system

- **Y-PRISM**'s safe lock design has a rail on the shim/toolholder and matching slot on the insert for tight interlocking and secure clamping.
- Prevents the cutting forces from affecting the tool position in any direction and ensures high stability.

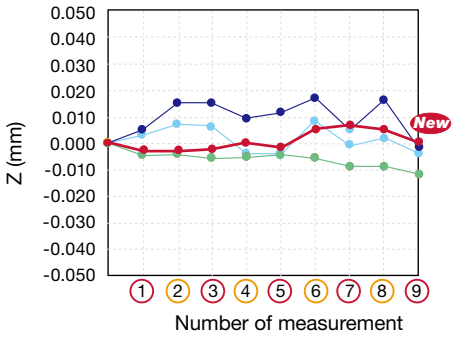


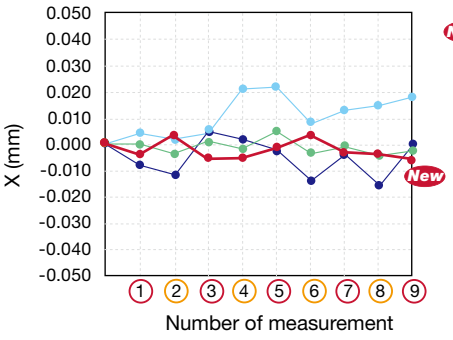
Clamp rigidity – cutting point displacements after machining (Back turning → Front turning)

Y-PRISM achieved high accuracy cutting edge position!!



Odd cycles: for back turning
Even cycles: for front turning





ADDMULTITURN
Insert: 6C-TOMG250608M-TM

New Insert: 6C-TOMG250608M-TM

ADDMULTITURN
Insert: 3C-TCMT29X608-TM

Competitor

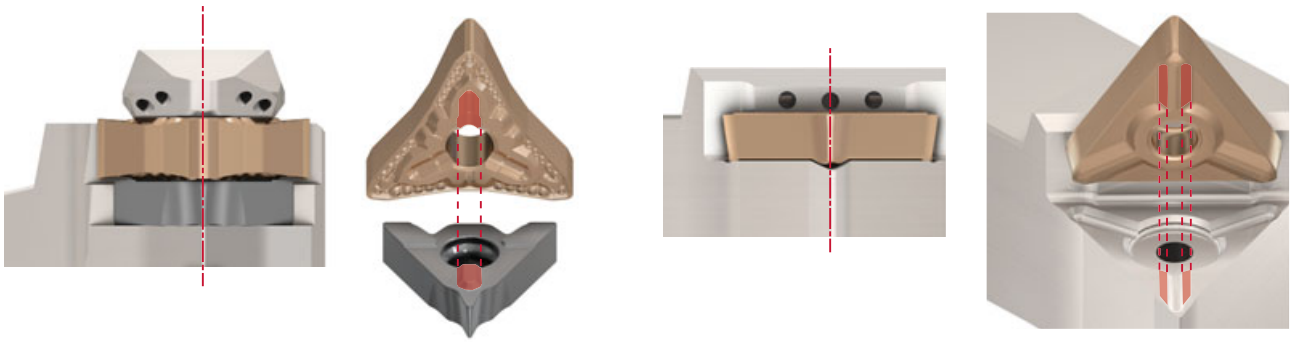
Workpiece material : S45C / C45
Cutting speed : *Vc* = 250 m/min

Back turning
Feed : *f* = 1 mm/rev
Depth of cut : *ap* = 1 mm

Front turning
Feed : *f* = 0.4 mm/rev
Depth of cut : *ap* = 1.5 mm

Cautions when mounting the insert on the holder

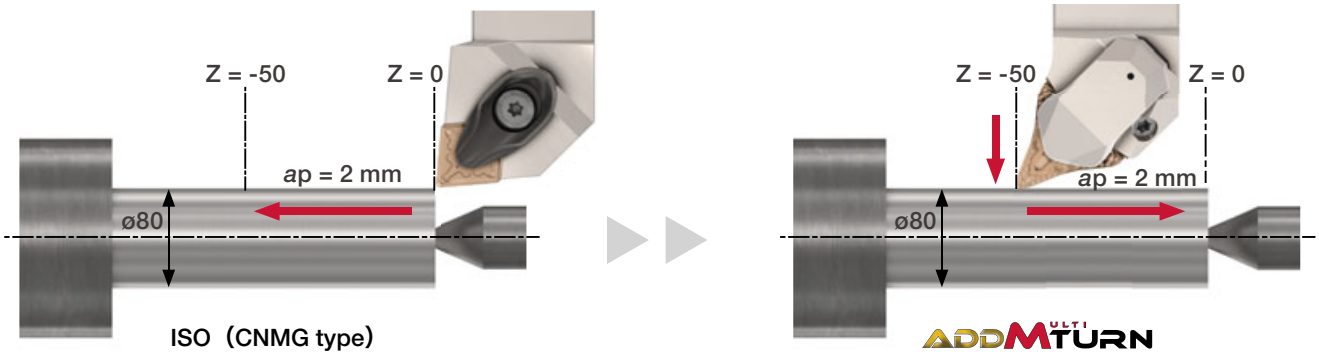
1 Ensure that the rail on the shim/toolholder is positioned on the matching slot on the insert



2 Ensure that the clamp is tightened on the shim and insert using the proper torque

Note: As the insert and shim/toolholder are interlocked on the rail and slot,
it is no problem to have the clearance shown above.

3 Programming sample to change from front turning to back turning



ISO (CNMG type)

```
G90 G00  Z1.0
         X76.0
    G01  Z-50.0   F0.3
G91 X2.0 Z1.0
G90 G00  X120.0
```

ADDMULTITURN

```
G90 G00  Z-50.0
         X82.0
    G01  X76.0  F0.2
         Z1.0   F0.6
G90 G00  X120.0
```

*When entering the cut, feed the tool at 0.2 mm/rev or use roll-in approach.
*When turning away from the main chuck, the cutting edge contact with the workpiece becomes larger, generating greater cutting load than when turning towards the chuck. Always use the tailstock support.

ADDMULTITURN

GRADES

Grade	Recommended workpiece material	Feature
PREMIUMTEC T9215	P M K	- Well-balanced wear and chipping resistance - First choice for steel - High versatility for a wide range of applications
PREMIUMTEC T9225	P	- First choice for roughing to medium cutting - High fracture resistance
PREMIUMTEC AH8015	M S	- PVD coated grade with a balanced resistance to wear and fracture - First choice for stainless steel and heat-resistant superalloys

STANDARD CUTTING CONDITIONS

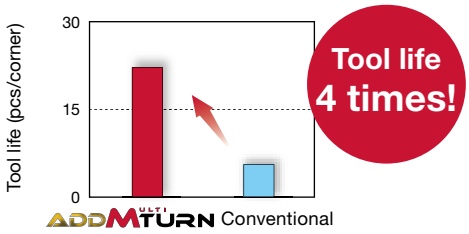
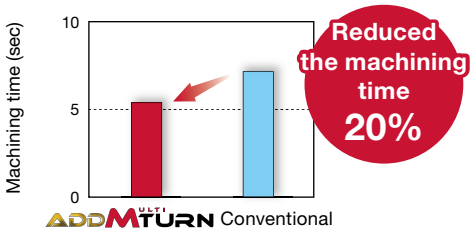
Double-sided 6-corner insert

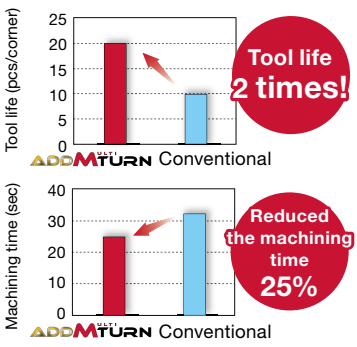
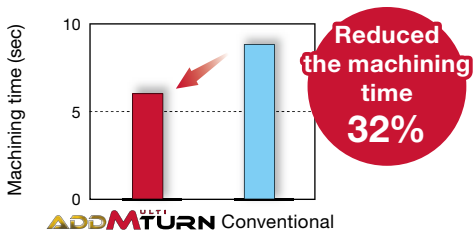
ISO	Operation	Chipbreaker	Grade	Depth of cut: *ap* (mm)		Feed: *f* (mm/rev)		Cutting speed
				Front turning	Back turning	Front turning	Back turning	*Vc* (m/min)
P	Finishing	TSF	T9215	0.2 - 1.5	0.2 - 1.5	0.08 - 0.4	0.2 - 1.2	150 - 400
		TSF	T9225	0.2 - 1.5	0.2 - 1.5	0.08 - 0.4	0.2 - 1.2	80 - 300
	Medium to heavy cutting	TM	T9215	0.5 - 2.5	0.5 - 2.5	0.2 - 0.6	0.4 - 1.2	150 - 400
		TM	T9225	0.5 - 2.5	0.5 - 2.5	0.2 - 0.6	0.4 - 1.2	80 - 300
M	Finishing	TSF	T9215	0.2 - 1.5	0.2 - 1.5	0.08 - 0.4	0.2 - 1.2	100 - 250
		TSF	AH8015	0.2 - 1.5	0.2 - 1.5	0.08 - 0.4	0.2 - 1.2	90 - 190
	Medium to heavy cutting	TM	T9215	0.5 - 2.5	0.5 - 2.5	0.2 - 0.6	0.4 - 1.2	100 - 250
		TM	AH8015	0.5 - 2.5	0.5 - 2.5	0.2 - 0.6	0.4 - 1.2	90 - 190
K	Finishing	TSF	T9215	0.2 - 1.5	0.2 - 1.5	0.08 - 0.4	0.2 - 1.2	140 - 500
	Medium to heavy cutting	TM	T9215	0.5 - 2.5	0.5 - 2.5	0.2 - 0.6	0.4 - 1.2	140 - 500
S	Finishing	TSF	AH8015	0.2 - 1.5	0.2 - 1.5	0.08 - 0.4	0.2 - 1.2	20 - 80
	Medium to heavy cutting	TM	AH8015	0.5 - 2.5	0.5 - 2.5	0.2 - 0.6	0.4 - 1.2	20 - 80

Single-sided 3-corner insert

ISO	Operation	Chipbreaker	Grade	Depth of cut: *ap* (mm)		Feed: *f* (mm/rev)		Cutting speed
				Front turning	Back turning	Front turning	Back turning	*Vc* (m/min)
P	Medium to heavy cutting	TM	T9215	0.5 - 4	0.5 - 2	0.2 - 0.6	0.4 - 2	150 - 400
M	Medium to heavy cutting	TM	T9215	0.5 - 4	0.5 - 2	0.2 - 0.6	0.4 - 2	100 - 250
K	Medium to heavy cutting	TM	T9215	0.5 - 4	0.5 - 2	0.2 - 0.6	0.4 - 2	140 - 500

PRACTICAL EXAMPLES

Workpiece type		Automotive part	Wheels
Toolholder		ATXOR2525X25-CHP	C5ATXOR35060-25-CHP
Insert		6C-TOMG250612M-TM	6C-TOMG250608M-TM
Grade		T9215	T9215
Workpiece material		SUP10 (51CrV4)	FCD500
		 P	 K
Cutting conditions	Cutting speed : *Vc* (m/min)	200	250
	Feed : *f* (mm/rev)	0.35 - 1	0.35 - 0.6
	Depth of cut : *ap* (mm)	Max 2.5	1.2
	Machining	Face and External turning	Face and External turning
	Coolant	Internal coolant (4MPa)	Internal coolant (Normal pressure)
Results		 New internal coolant **AddMultiTurn** extends tool life by 4 times, thanks to effective coolant supply at 4 MPa.	 New Internal coolant **AddMultiTurn** reduced machining time by 20% thanks to high feed back turning, while tool life was equal to or better than current tools.

Workpiece type		Atomizer part	Input shaft
Toolholder		ATXOR2525X25-CHP	ATXOL2525M25-A
Insert		6C-TOMG250612M-TM	6C-TOMG250608M-TM
Grade		AH8015	T9215
Workpiece material		INCONEL 625	SCr420 / 20Cr4
		 S	 P
Cutting conditions	Cutting speed : *Vc* (m/min)	50	147
	Feed : *f* (mm/rev)	0.25 - 0.44	Face turning: 0.35, External turning: 0.5
	Depth of cut : *ap* (mm)	Max 2	Face turning: 1 - 2, External turning: 0.5
	Machining	External turning	Face turning, External turning
	Coolant	Internal coolant (4MPa)	Wet (External coolant)
Results		 New internal coolant **AddMultiTurn** extended tool life by 2 times and reduced machining time by 25%, thanks to high-feed back turning and effective coolant supply at 4 MPa.	 **AddMultiTurn** reduced machining time by 32% and prevented burr formation thanks to high-feed back turning.

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