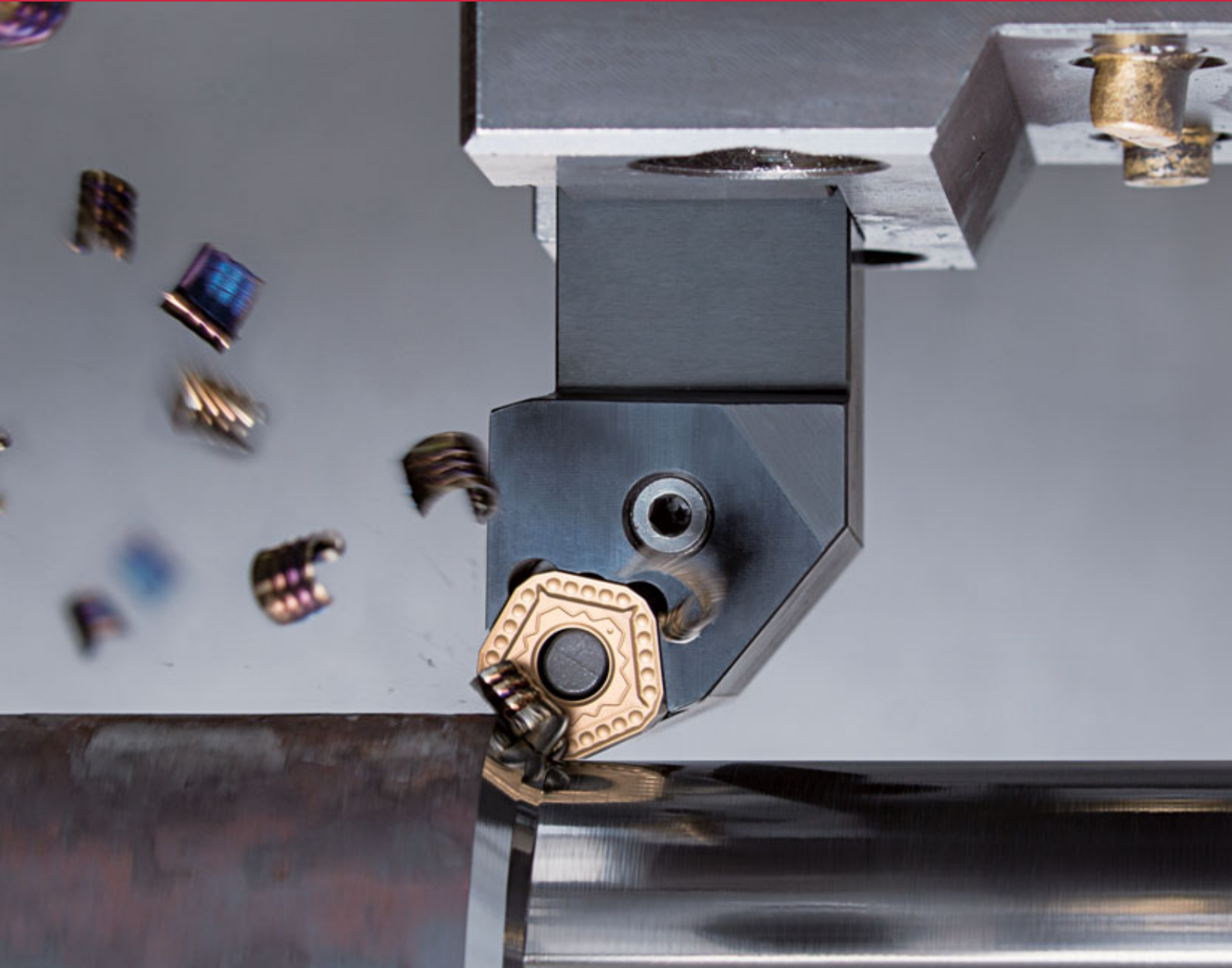


# TURN<sup>TEN</sup>FEED

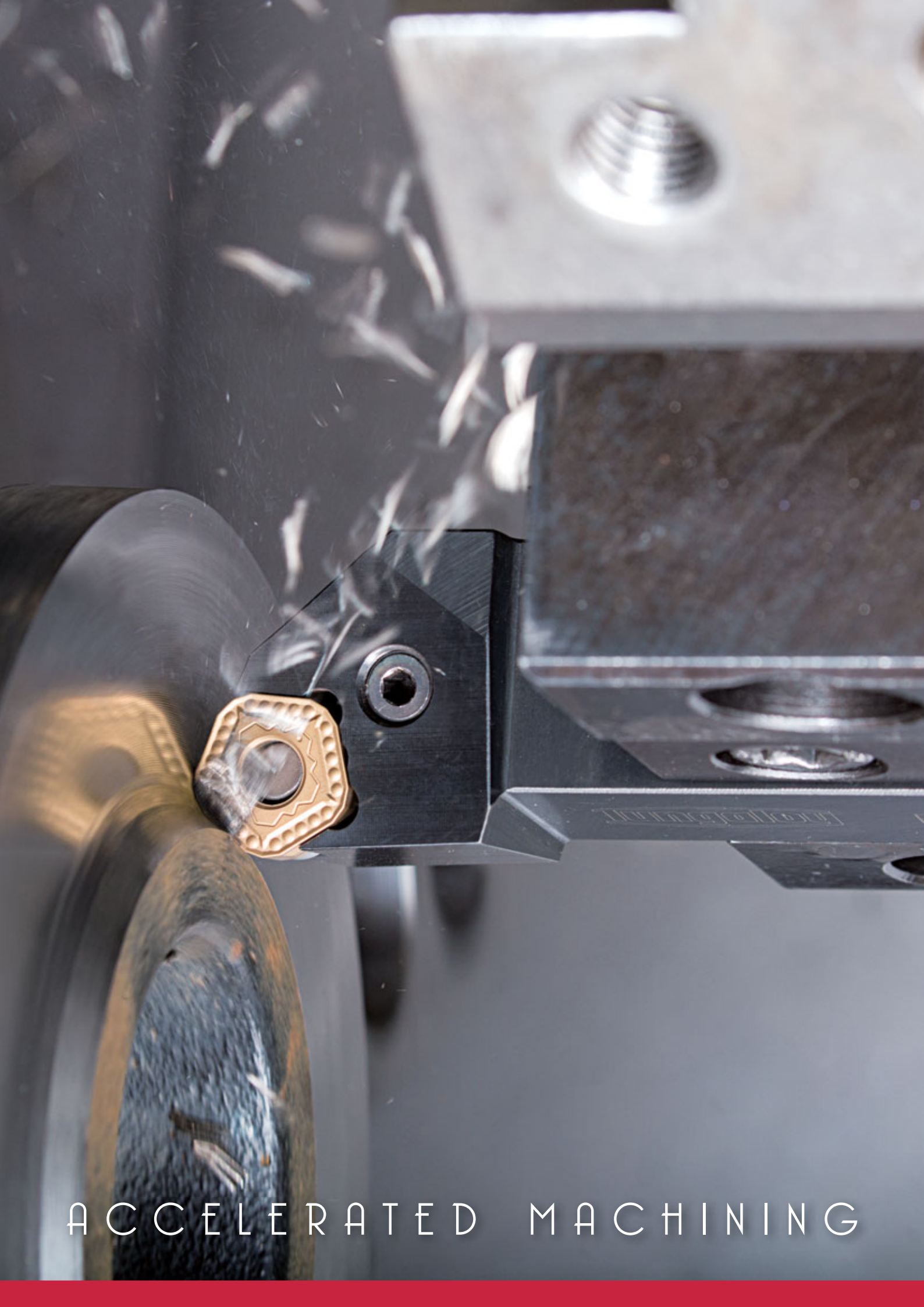
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Tungaloy Report No. 520-G

## Innovative Tool for Machining Efficiency and Tool Economy



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

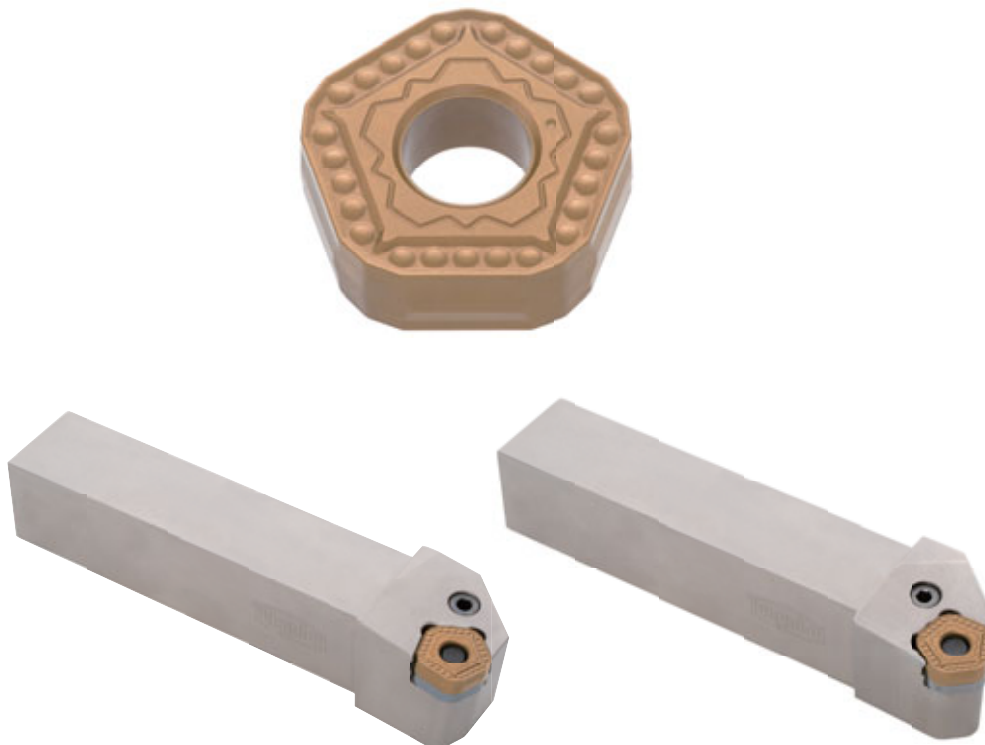


ACCELERATED MACHINING

TurnLine

**TURN**<sup>TEN</sup>**FEED**  
TUNGALOY

**TUNG** ACCELERATED MACHINING **FORCE** **TURN**



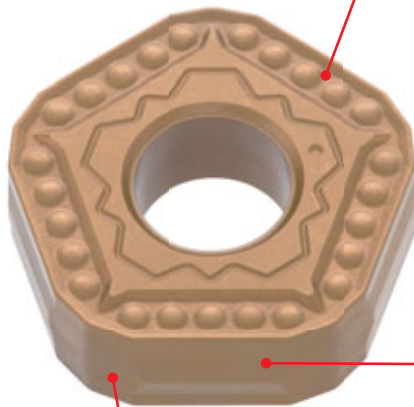
Unique insert geometry, combined with two types of dedicated holders, for *Accelerated Machining*

# Economical, 10-cornered insert ensures high machining efficiency

- Available in 2 types of holders: HD type for large depths of cut and HF type for high feed turning
- Maximum 7 mm depth of cut, or maximum 2.0 mm feed per rev is attainable!

## Economical 10-cornered, double-sided, M-class insert

Achieves outstanding cost efficiency over standard ISO inserts



### Flat Wiper

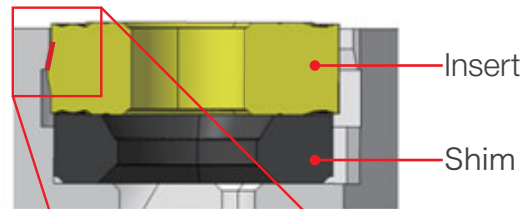
Built in the cutting edge to achieve superior machining surface at higher feed rates!

### New – MNW style chipbreaker

Features protrusions on the rake face to facilitate smooth chip control, while achieving high crater wear resistance

### Dovetail clamping

Ensures secure insert retention while promoting smooth chip flow thanks to the integration of lever lock and dovetail clamping methods.

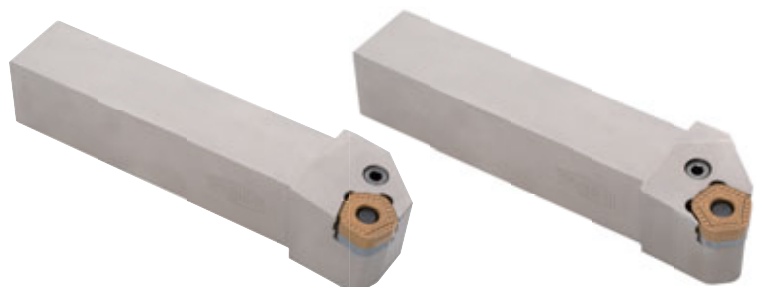


Insert / clamp contact cross section

### Holder selections

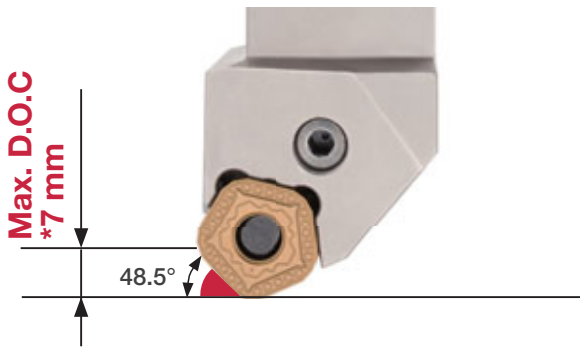
Available in 2 types:

- HD holder for large depths of cut
  - HF holder for high feed turning
- Inserts are interchangeable between these two holders.

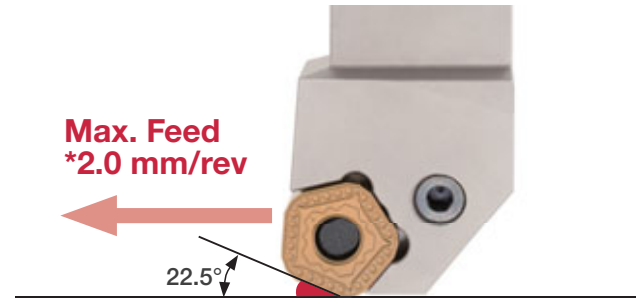


## Features of Holders

**HD holder**  
For **H**igh **D**epth of Cut



**HF holder**  
For **H**igh **F**eed



\* Insert: POMG130612-MNW

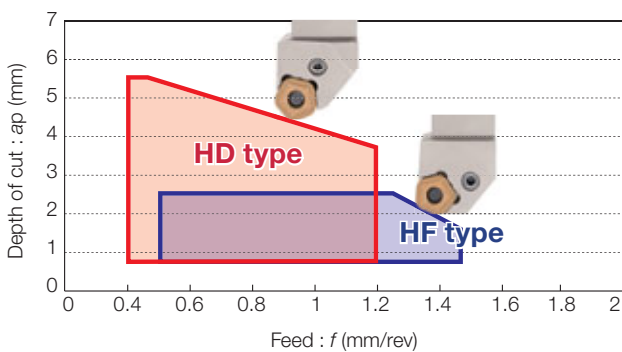
## Grade properties

Application	Grade	Substrate			Coating layer	
		Specific gravity	Hardness (HRA)	T.R.S. (GPa)	Main Composition	Thickness (μm)
<b>P</b>	<b>New</b> T9215	14.0	90.5	2.6	Ti compound + Al <sub>2</sub> O <sub>3</sub>	18
	T9125	13.7	90.0	2.6	Ti (C,N) + Al <sub>2</sub> O <sub>3</sub>	16
	<b>New</b> T9225	13.4	89.8	2.7	Ti compound + Al <sub>2</sub> O <sub>3</sub>	16

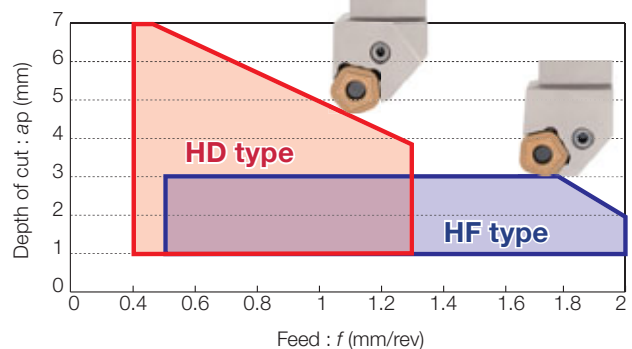
## Application Area

Two types of holders to cover a wide range of applications!!

Insert  
POMG110612-MNW

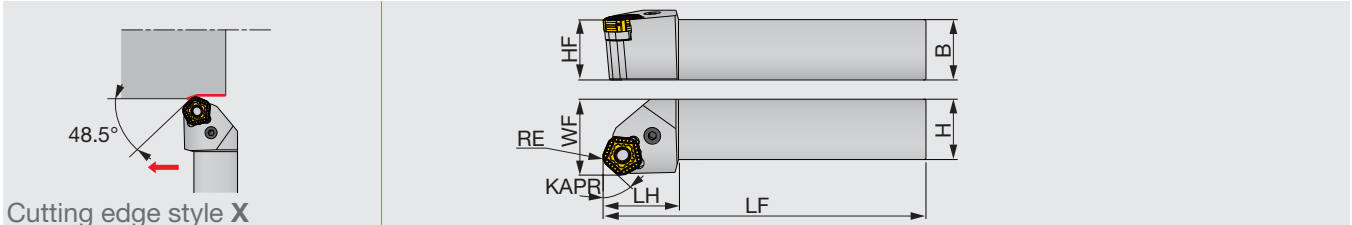


Insert  
POMG130612-MNW



## PPXOR/L-HD

Lever lock holder, with 48.5° approach angle, negative 108° pentagonal insert



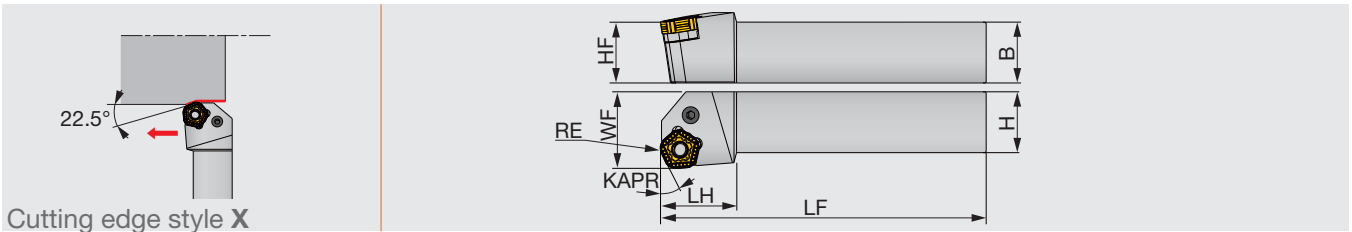
Designation	H	B	LF	LH	HF	WF	KAPR	RE	Insert
PPXOR/L2525M11-HD	25	25	150	35	25	32	48.5	1.2	POMG110612
PPXOR/L3232P13-HD	32	32	170	40	32	40	48.5	1.2	POMG130612

### SPARE PARTS

Designation	Shim	Spring	Lever	Clamping screw	Wrench
PPXOR/L2525M11-HD	LSPO53	LSP5	LCL5	LCS5	P-3
PPXOR/L3232P13-HD	LSPO63	LSP6	LCL6	LCS6	P-4

## PPXOR/L-HF

Lever lock holder, with 22.5° approach angle, for negative 108° pentagonal insert



Designation	H	B	LF	LH	HF	WF	KAPR	RE	Insert
PPXOR/L2525M11-HF	25	25	150	35	25	32	22.5	1.2	POMG110612
PPXOR/L3232P13-HF	32	32	170	40	32	40	22.5	1.2	POMG130612

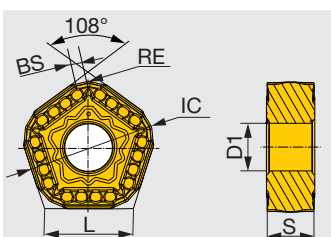
### SPARE PARTS

Designation	Shim	Spring	Lever	Clamping screw	Wrench
PPXOR/L2525M11-HF	LSPO53	LSP5	LCL5	LCS5	P-3
PPXOR/L3232P13-HF	LSPO63	LSP6	LCL6	LCS6	P-4

Note : Since the corner angle of TurnTenFeed insert is 108°, the workpiece corner may require additional post-process to remove stock to achieve a right angle.

## INSERT

### POMG-MNW



Designation	RE	Grade			IC	L	BS	S	D1
		T9215	T9125	T9225					
POMG110612-MNW	1.2	●	●	★	15.875	11.53	1.5	6.35	1.2
POMG130612-MNW	1.2	●	●	★	19.05	13.84	2	6.35	1.2

● : Line-up  
★ : To be released in 2019 summer

## STANDARD CUTTING CONDITIONS


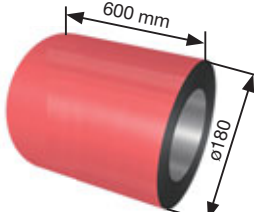
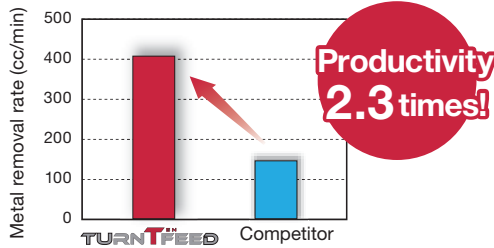
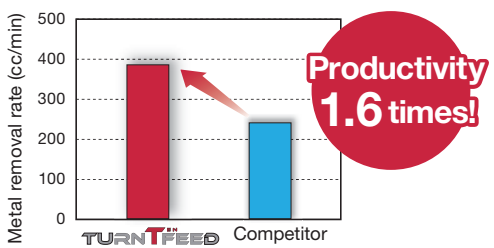
For HD holder  
(High Depth of Cut)

ISO	Insert	Depth of cut $a_p$ (mm)	Feed $f$ (mm/rev)	Cutting speed $V_c$ (m/min)		
				T9215	T9125	T9225
<b>P</b>	POMG110612-MNW	0.8 - 5.5	0.4 - 1.2	150 - 400	80 - 180	120 - 300
	POMG130612-MNW	1.0 - 7.0	0.4 - 1.3	150 - 400	80 - 180	120 - 300

For HF holder  
(High Feed)

ISO	Insert	Depth of cut $a_p$ (mm)	Feed $f$ (mm/rev)	Cutting speed $V_c$ (m/min)		
				T9215	T9125	T9225
<b>P</b>	POMG110612-MNW	1.0 - 2.5	0.5 - 1.5	150 - 400	80 - 180	120 - 300
	POMG130612-MNW	1.0 - 3.0	0.5 - 2.0	150 - 400	80 - 180	120 - 300

## PRACTICAL EXAMPLES

Workpiece type		Forged steel pipe	Bar work
Holder		PPXOR3232P13- <b>HD</b>	PPXOR3232P13- <b>HF</b>
Insert		POMG130612-MNW	POMG130612-MNW
Grade		T9125	T9125
Workpiece material		9%Cr 	SCM430 
Cutting conditions	Cutting speed: $V_c$ (m/min)	100	100
	Feed : $f$ (mm/rev)	1.3	1.5
	Depth of cut : $a_p$ (mm)	4	2.6 x 11 passes
	Coolant	Dry	Wet
Results		 <p>MRR has improved by 2.3 times over standard ISO turning insert. TurnTenFeed ensures machining stability at high feed rates.</p>	 <p>MRR has improved by 1.6 times over standard ISO insert. A combination of high feed geometry insert with MNW chipbreaker provided light cutting action, improving tool life 5 times.</p>

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