we improve...
we evolve...
we ADD



Tungaloy Accelerated Lines - Leading in Innovation



tungaloy.com



#### Tungaloy's Insights – Smart Manufacturing

Tungaloy, as one of the leaders in the metal removal industry, offers the latest innovations in grades and geometries for superb performance and tool life. In a competitive world eager to embrace Industry 4.0, Tungaloy provides an extensive portfolio with the latest digital tools to support our customers in making better tooling decisions to improve their competitiveness and productivity.

Find all product details in Tungaloy's updated e-catalog.

## **TUNGALOY THE APP**

Get access to all of Tungaloy's digital info and tools!



Push Notifications
Barcode Scanner

Access to:

Press Releases

Technical Articles

Videos

News

Online shop

e-Catalog

TungNavi

Products

Industries

Insert Converter

and much more....

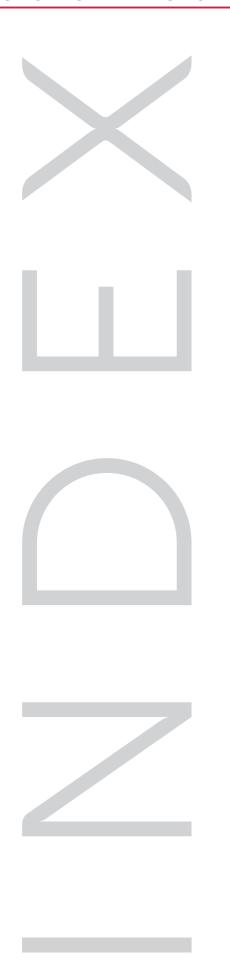








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#### GRADES

Superior CVD & PVD Grades CBN Innovations

12

#### GROOVING

AddForceCut
TungFeed-Blade
AddInternalCut
MiniVLockGroove
DuoForceCut

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#### TURNING

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AddY-axisTurn
TungTurn-Jet
BoreMeister
ModuMiniTurn
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TungForce-Rec 04

Tung-Tri 04

AddForceBarrel

TungMeister

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#### DRILLING

DrillMeister
AddMeisterDrill
DrillForce-Meister
DeepTriDrill

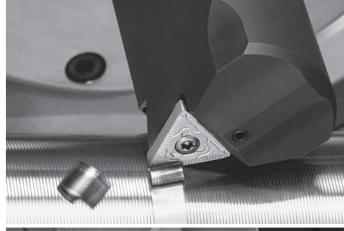
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#### MATRIX

The first step to your cost reduction









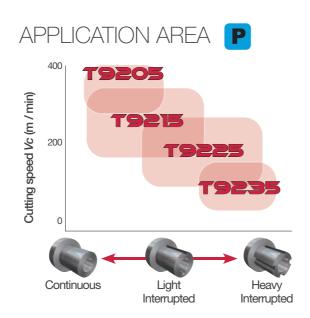




**79200 PMK** 

CVD grades with outstanding productivity, especially for steel turning

Nearly unbreakable CVD series for improved machining efficiency





## **M** 0059HA

Highly reliable CVD & PVD grades for stainless steel turning

Complete grade line up for stainless steel turning

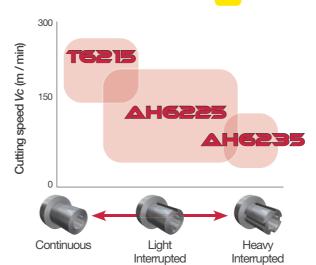


**T500 K** 

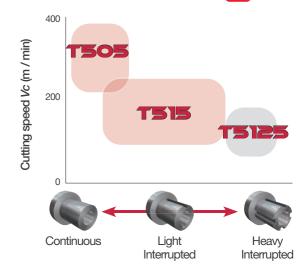
Most optimal CVD grades for high speed machining of cast iron

The thickest coating layer of all Tungaloy's CVD grades ever





#### APPLICATION AREA K





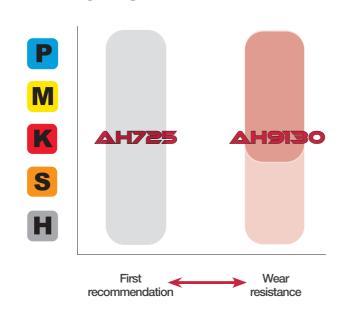


## AH9130

The latest PVD grade developed specifically for hole making applications

A good combination of wear and fracture resistance enhances the grade's tool life and wear prediction.

#### APPLICATION AREA





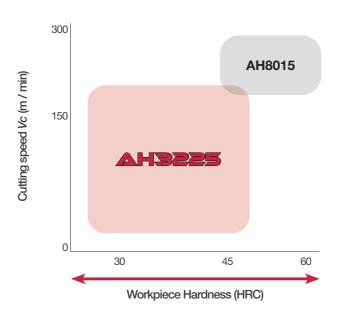
LNMU insert for AddDoFeed

### AH3225 P M

#### A highly reliable grade for milling operations

Eliminates coating delamination and micro edge-chipping while impeding the progression of normal flank wear, providing long and predictable tool life in steel milling operations.

#### APPLICATION AREA





QGM / QGS inserts for AddForceCut

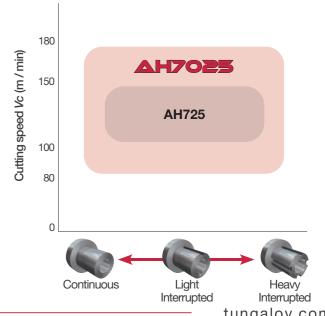
#### AH7025

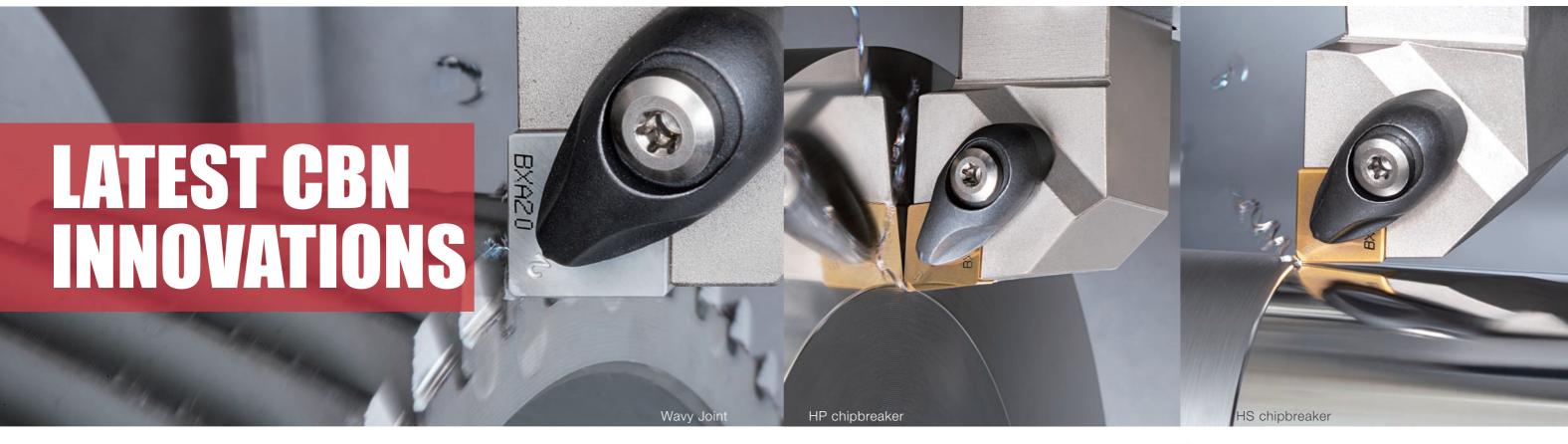
#### Dedicated grade for grooving applications

featuring a good balance of wear and chipping resistance.

AH7025 uses the world's first coating technology of a nano-scale multi-layered AITiN PVD coating with high Al content.

#### APPLICATION AREA









Grade for continuous hardened steel turning

Incredible reliability with excellent wear resistance



OSAXE

Versatile grade for continuous to light interrupted hardened steel turning

Enables stable machining at low to medium cutting speed



**BR35F** 

Efficient grade for heavy interrupted hardened steel turning

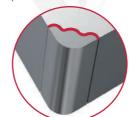
Incredible reliability with high fracture resistance



#### WAVYJOINT

#### For large depth of cut in hard turning up to 0.8 mm

The unique "wavy" contact surface enhances the brazing strength thus improves productivity with 1.6 times higher depth-of-cut compared to the conventional type.



**CBN Tip Size:** 200% larger for improved wear control in the cutting zone **Brazing Area:** 160% larger for enhanced brazing strength



#### chipbreaker

#### Designed for precision machining of hardened parts

Optimized chipbreaker geometry significantly reduces cutting forces, ensuring long tool life



The *HP style chipbreaker* provides good chip control and prevents chattering

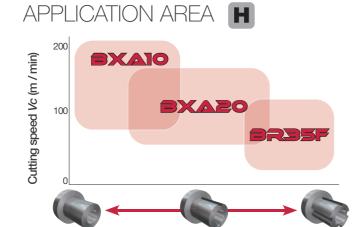


Optimized chipbreaker design for excellent chip control

Designed for high feed machining. Provides excellent chip control for a wide range of D.O.C. and feed rates.



The *HS style chipbreaker*, provides all-round chip breaking capability even at increased feed rates vs. competitors



Light

Interrupted

Heavy

Interrupted

Continuous

## ADDFCUT

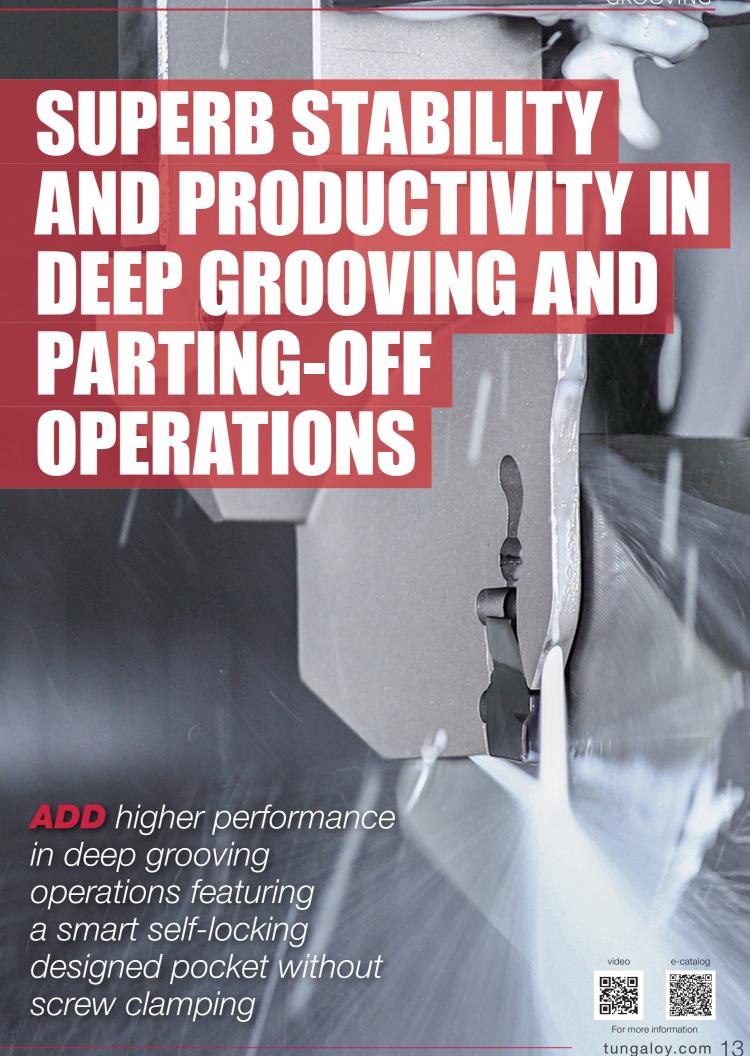
Newly designed insert profile ensures unobstructed chip flow and consistent chip evacuation.

The insert is locked in three positions with the use of an insert stopper in the pocket. This design provides extremely rigid insert clamping.

**QGM**, **QGS** and **QTX** inserts **CW** = 2, 3, 4, 5, 6 and 8 mm Max. grooving depths (for monoblock shanks): **CDX** = 33 mm









## TUNGFALADE

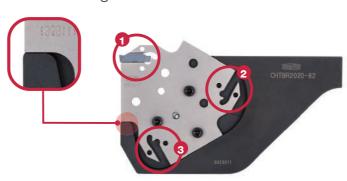
Strong holder design ensures tool stability and productivity gains during demanding cutting conditions.



Specially designed tool block has two contact faces to provide enhanced tool rigidity.



The blade provides reduced tooling cost with three insert pockets, while its strong backing beneath the insert withstands heavy cutting loads during machining.



The blades for TungCut series and the blades for the latest *AddForceCut* can share the same tool block.

The blade for TungCut inserts also ensures strong insert clamping, providing high tool reliability.

The latest *AddForceCut* blades that use a single-ended insert improves parting/cutting-off operations at increased feed rates.

Available inserts: *DGM*, *DGS*, *SGM*, *SGS*, *QGM*, *QGS*, and *QTX* 

Max. parting diameters: *CUTDIA* = Ø52, Ø82, and Ø120 mm





# UNIQUE 4-EDGED INSERT FOR SMALL INTERNAL GROOVING OPERATIONS

**ADD** stability and repeatability in small internal grooving operations with the unique insert clamping system







## HIGH PRECISION **GROOVING AND** THREADING TOOL SERIES FOR CNC automatic lathes

**ADD** a unique insert clamping system for extra tool rigidity

## MINIVEROOVE

Perfect for grooving and threading bar stocks of 12 mm or smaller diameters

Available in 8x8, 10x10, and 12x12 mm square shanks with high-pressure coolant

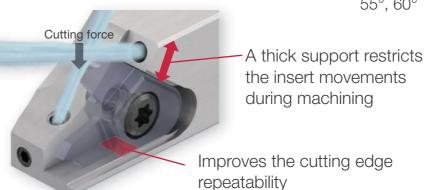
#### VGP08... and **VGP10**

for Grooving 2 corner insert CW = 0.33 - 1 mm



for Threading 2 corner insert Pitch = 0.4 - 2 mm

Cutting edge angle = 55°, 60°



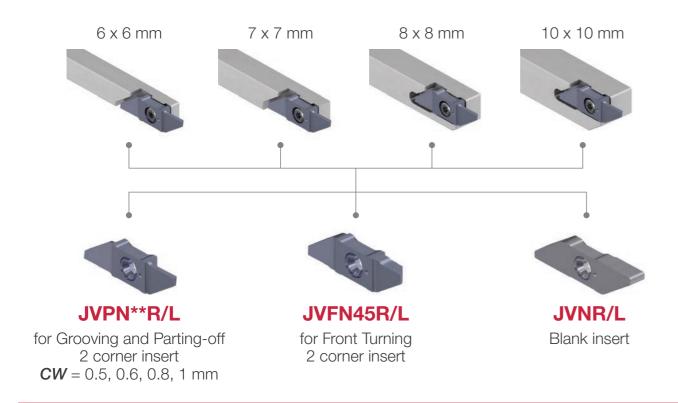




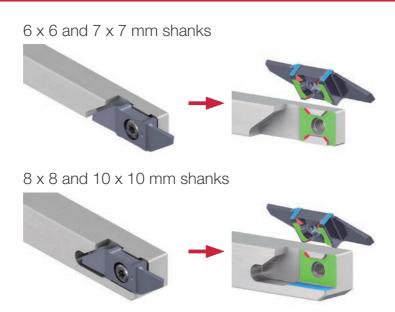


## DUOFCUT

New flexible tool series with unique insert clamping system.
Ideal for machining small parts with 12 mm or smaller diameters.



6 x 6 to 10 x 10 mm shanks are available as standard. Innovative insert clamping allows the use of the same insert with all toolholders of different sizes.





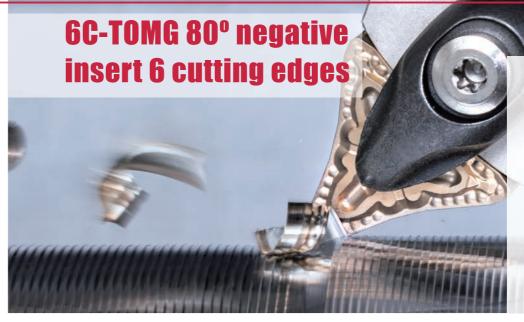
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## ADDMTURN



## THE ULTIMATE TOOL FOR MULTIPLICITY

**ADD** Front Turning, Back Turning, Profiling, and Face Turning, with **ONE SINGLE TOOL** 



shape on the bottom of the insert provides outstanding clamping rigidity and securely locks the insert in place ensuring tool reliability when turning in any direction.

Unique concave-convex

Cutting edge with a low approach angle allows high feed machining.

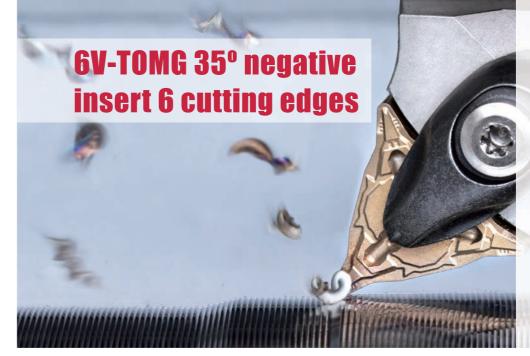
Also effective for removing burrs.

The positive triangular insert features 86° nose angle for enhanced cutting edge robustness.

The positive triangular insert has integrated wipers, which provide high surface finish quality at significantly increased feed rate.

Two types of double-sided negative inserts are available with 80° or 35° nose angles.

AddMultiTurn can combine multiple processes in a single operation, maximizing machine utilization and productivity.







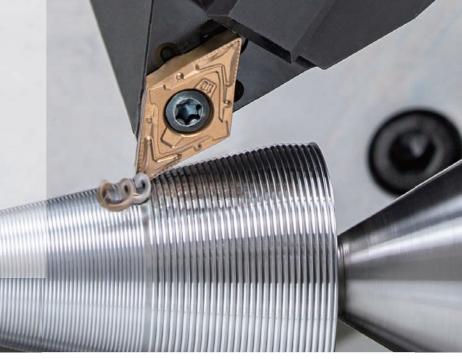


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AddYaxisTurn
combines multiple
processes into a
single operation,
providing reduced
tool inventory and

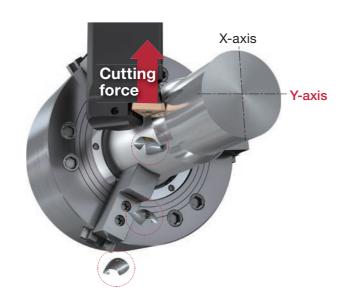


By using the Y-axis instead of the conventional X-axis the tool can direct the cutting force in the longitudinal axis of the holder, the strongest part of the tool. This provides more security during the cutting process.

**Y-PRISM's** safe lock design has a rail on the toolholder and matching slot on the insert for tight interlocking and secure clamping.

Prevents the cutting forces from affecting the insert position in any direction and ensures high stability.





By simply rotating the tool along the axis, the cutting edge angle can be set to an optimum angle that enables the most effective entry into the cut.

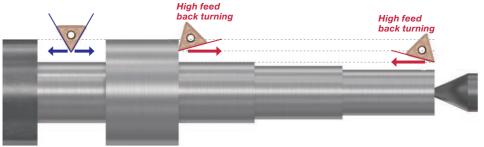
The same tool can be used when turning either from the end of the part towards the chuck or turning away from the chuck to the end of the part.

#### **TCMT** type

costs.

Single sided, 3 cutting edges Max feed rate: 2 mm/rev

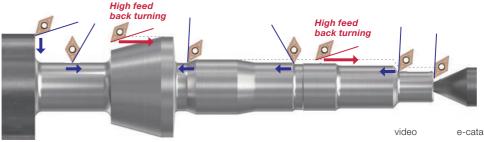




#### **DCMT** type

Single sided, 2 cutting edges Max feed rate: 1.2 mm/rev









For more information tungaloy.com 25



## TUNGTIET

Maximize your productivity with a wide range of high pressure coolant tools for each application

General Turning - Tung Cap - Modular Tools Grooving Tools - Threading Tools - Miniature Tools



Two streams of coolant jets are directed to the rake and clearance surfaces of the cutting point, significantly increasing productivity.

Helps prevent crater wear from developing on the insert rake surface during high speed machining.

Provides effective chip breaking in high temperature alloys with chip control difficulty. Provides extended tool life in stainless steel and high temperature alloys.

Also available in through-coolant toolholder system for Swiss machine applications that requires no coolant hose connection. Improves tool setup and machine downtime.

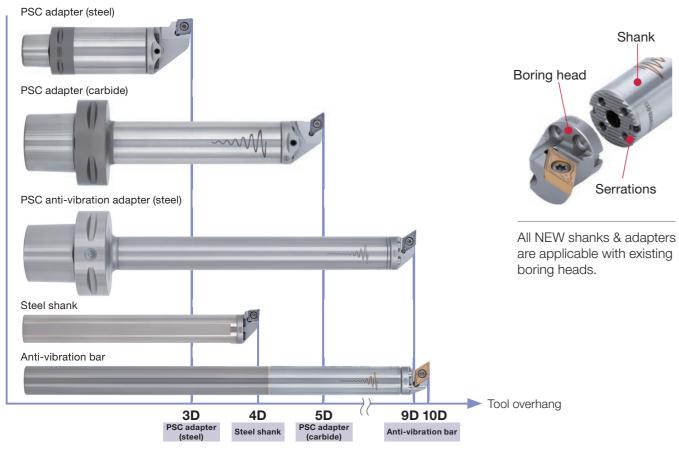
The top coolant nozzle can be adjusted for optimum coolant direction close to the cutting point.





#### BOREMEISTER





Ultimate solution to conquer tool overhang challenges, chattering, noise and short tool life of up to 10xD.

Exchangeable head boring tool system with serrated interfaces for high precision and high rigidity indexing.

Through-coolant capability allows smooth chip evacuation in deep boring operations of up to 10xD.

PSC holders are also available, allowing coupling with a range of machine tools.

Dedicated setting device allows quick and accurate center height settings of the boring bar. A wide range of boring heads are available, providing high parts quality in various boring operations









New AddInternalCut, TungCut, and AddForceCut heads







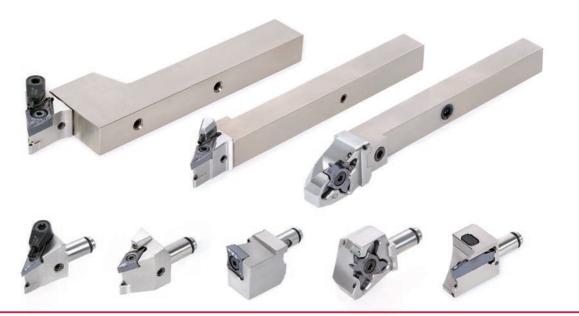


For more information

## ALOY ADDFORCE - FEED the SPEED! **SWISS** ADD flexibility and productivity to your turning operations

## MODUMTURN

Modularity and productivity with a wide selection of turning, grooving and threading heads



Substancially reduced setup time for maximum machine utilization.

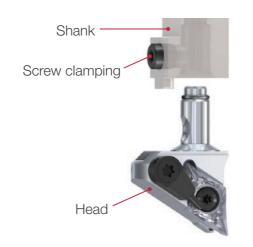
Quick tool change and setup is possible with simple exchanges of turning heads.

Unique coupling method provides stable head-shank connection and secure insert edge position for good repeatability and accuracy. Positioning accuracy for the same insert: ±5 µm

QC10, QC12 & QC16 type series

**ModuMiniTurn** offers precision internal coolant delivery, which improves chip control and tool life.

By feeding in the Y-axis direction, downward-facing chipbreaker directs the chip flow down and away from the cutting point.







## MINIATURE SOLID BORING TOOLS FOR HIGH ACCURACY

**ADD** efficiency and profitability to your small boring operations as small as Ø0.6 mm

Ingenious through-coolant sleeve design optimally directs 4 streams of coolant jets close to the cutting zone, providing long tool life, controlled chips formation and evacuation for better part quality.



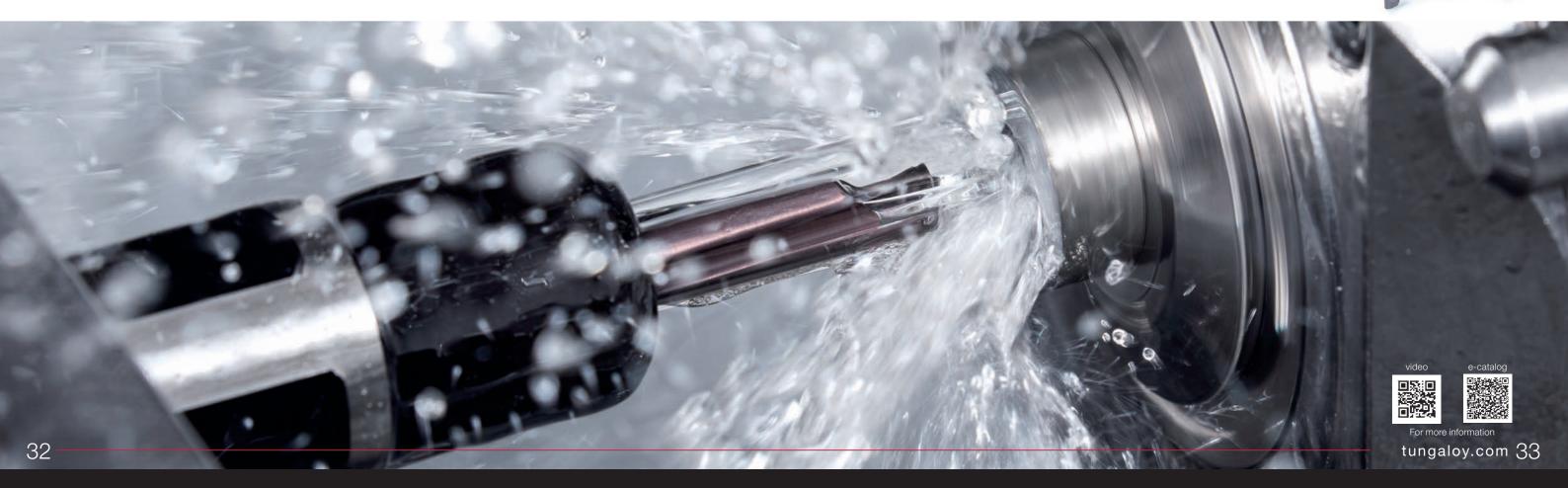
## TINYMTURN

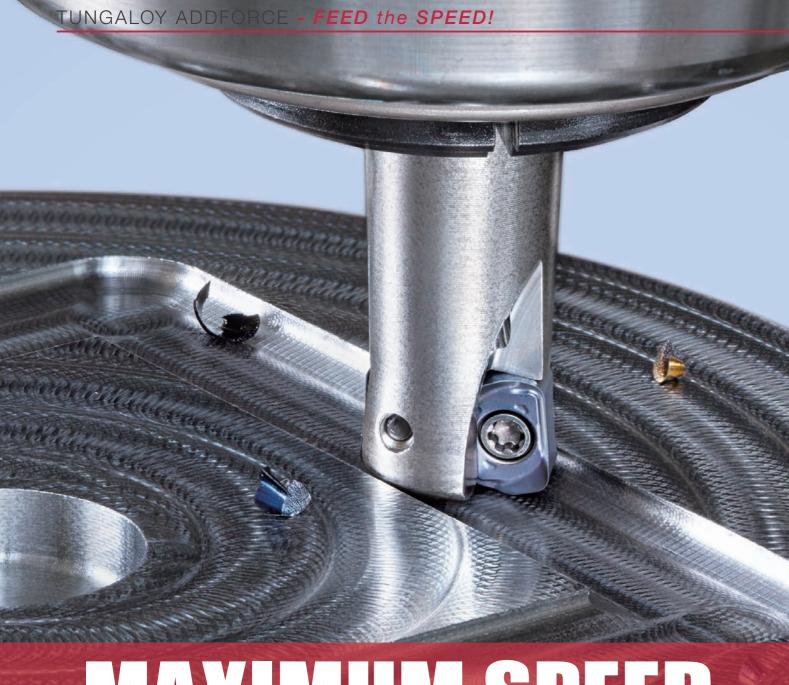
Available with a wide selection of heads for boring, profiling, chamfering, threading and grooving

New *SH725* insert grade provides a good combination of wear and fracture resistance, ensuring long tool life and wear prediction.

Expanded indexable type holders, and inserts with 3D chip breaker for better chip control.







## MAMINUM SPEED AND EFFICIENCY AT MINUM SIZE

ADD more feed and speed in small milling operations for higher productivity



## ADDDFEED

Small diameter high-feed milling cutter for expanded application coverage, featuring cutter bodies as small as ø8 mm

Close pitch cutter design enables high efficiency machining.

Insert clamping screws are optimized to provide correct clamping force, sustaining high feed rates up to 1.2 mm per tooth.

Unique insert design with cutting edge inclination provides gradual workpiece engagement for light cutting action, while guiding chips away from the cutting area. Ideal for slot milling and pocketing applications.

#### **Cutter bodies:**

Shank type: **EXN02R...** (Short type) **EXN02R\*\*L** (Long type)

DCX = Ø8 - Ø25 mm

Modular type: **HXN02R...** 

DCX = Ø8 - Ø25 mm



#### LNMU02-MM

Double-sided, 4-edged insert APMX = 0.5 mm

video





or more information

## HIGH PERFORMANCE AND PROFITABILITY IN HIGH-FEED MILLING OPERATIONS

**ADD** more cutting edges per insert to your machining operations





## as ø6 mm available as standard

## STRONGER

ADD indexable end mills with small Size-04 inserts for stability and productivity

#### Perfect replacement for solid carbide endmills

TUNGFREC

Tool diameters as small

Extremely secure insert clamping, V shape design prevents insert movement during machining.

#### **Cutter bodies:**

Shank type:

#### EPAV04

 $DC = \emptyset6 - \emptyset16 \text{ mm}$ 



#### **AVMT04-MM**

Single-sided, 2-edged insert APMX = 4 mm





#### TUNG-TRI

Small 90° shoulder milling cutter down to ø8 mm for maximum performance

Close-pitch cutter for high efficiency machining.

The thick core cutter diameter provides increased rigidity.



#### TOMT04-MM

Single-sided, 3 edged insert APMX = 3.5 mm **RE** = 0.4, 0.8 mm

#### **Cutter bodies:**

Shank type: **EPA04R...** (Short type)  $DC = \emptyset 8 - \emptyset 25 \text{ mm}$  EPA04R\*\*L (Long type)  $DC = \emptyset 10 - \emptyset 25 \text{ mm}$ 

e-catalog



For more information

## **BARREL-SHAPED INSERTS FOR PROFILE** MILLING WITH OUTSTANDING **PRODUCTIVITY**



### ADDFÄARREL

Reduces the number of passes by 40% compared to ball endmill with 10 mm radius without compromising the surface quality (cusp height).

Excellent clamping reliability with dove-tail back support







Large R for small cusp height

#### **Cutter bodies:**

Modular type: **HFZN10...** DCX = Ø16 - Ø40 mm

#### ZNHU1003R30...

2-corner double sided insert



High productive geometry that provides a large stepover distance for reduced cusp height

#### ZNHU1003R20...

2-corner double sided insert



Profiling geometry with an increased tilt angle for enhanced application versatility





## MORE THAN 13,000 POSSIBLE COMBINATIONS

**ADD** an extensive array of exchangeable milling heads for higher productivity

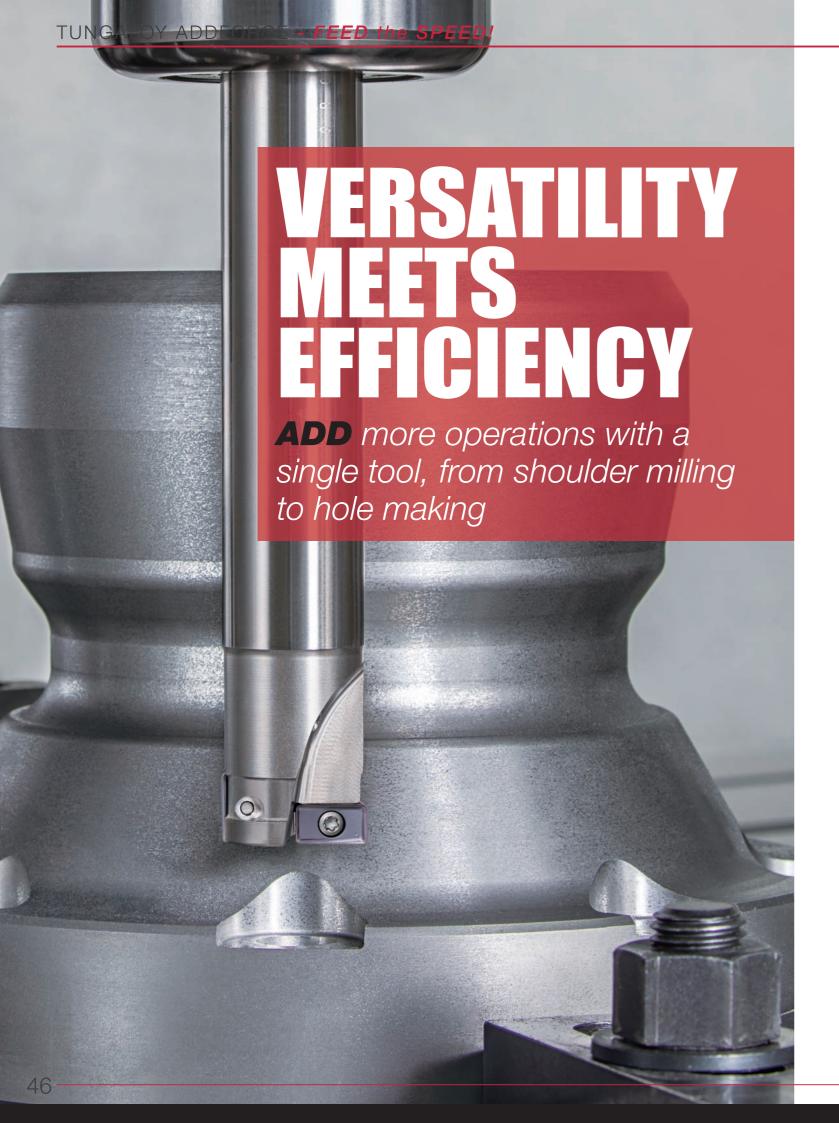
Easy and accurate head-holder coupling provides reduced tool change time and high accuracy of cutting point repeatability

Offers milling solutions for square shoulder milling, high feed milling, ball nose milling, chamfering, hole making, and slotting. A flexible mix of heads and holders allows an optimum tool assembly in all end milling applications.









## DOMREC

Innovative four-edged inserts provide ultimate machining flexibility and economy.

All-round cutter with center cutting capability provides ultimate machining versatility

#### **Applications capabilities**

























ole Drilling Counterbor

#### **Cutter bodies:**

Shank type: **EVLX08/10/12...** (Short type)  $DC = \emptyset 16 - \emptyset 25mm$ 

**EVLX08/10/12\*\*L** (Long type) DC = Ø16 – Ø26mm

Modular type: **HVLX08/10/12...** DC =  $\emptyset$ 16 –  $\emptyset$ 25mm

#### LXMU-MM



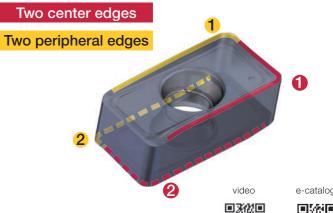
**Size 08: APMX** = 7 mm **Tool dia.:** Ø16 - Ø17 mm



Size 10: APMX = 9 mm Tool dia.: ø20 - ø21 mm



Size 12: APMX = 11 mm Tool dia.: Ø25 - Ø26 mm A single insert can be used either for center edge or peripheral edge and can be used twice in each position – **four cutting edges for highest insert economy.** 







For more information

## EXTENDED FMILL

Extended-flute rough milling cutter with indexable double-sided inserts with exceptional reliability for machining titanium alloys and cast iron



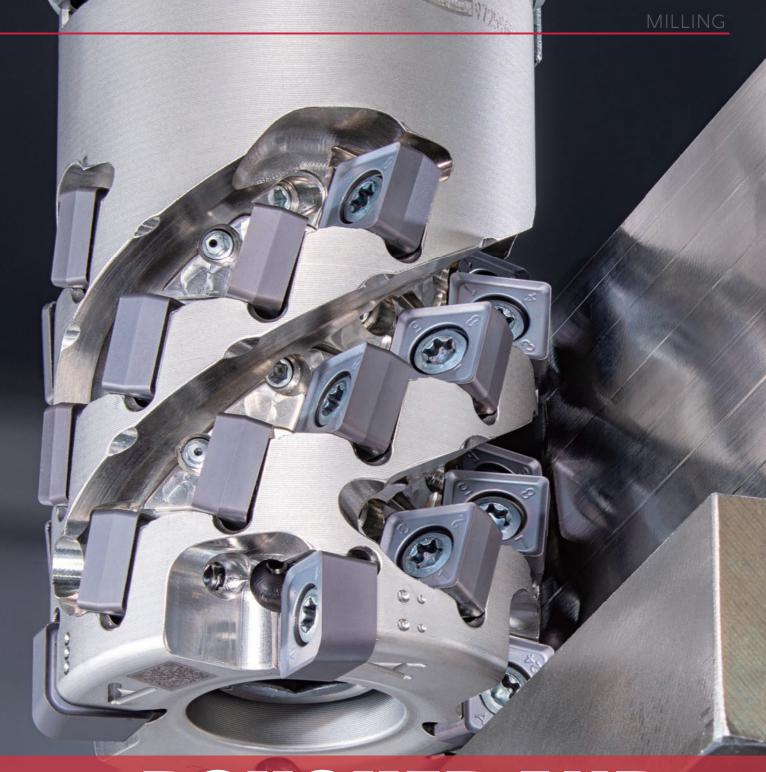
#### **Cutter bodies:**

Bore type: **LPSX10...**DC = Ø50mm
APMX = 54, and 76.5 mm

Bore type (TungCap type): **LPSX10...C** DC = Ø54, and Ø66 mm APMX = 54 mm

Coolant jet is directed precisely to the cutting point through the fixed coolant nozzle, exerting maximum cooling effect for the cutting edge and workpiece.





## ROUGHER AND EFFICIENT

**ADD** maximum productivity and cost efficiency for roughing operations of titanium alloy and cast iron parts



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## FOR DRILLING EFFICIENCY

**ADD** higher productivity in your drilling operations

Exchangeable head drill system for superior drilling performance and long tool life

Quick drill tip change for reduced machine downtime.

Tool inventory and management costs are significantly reduced as there is no need for regrinding.

Drill bodies are offered in a wide range of sizes and styles, allowing optimal tool assembly for secure and productive drilling.

#### **Drill bodies:**

**NEW TID-M, Modular type:** 

Available in 2×D, and 3×D

#### **TID-F, Flange type:**

Available in 1.5×D, 3×D, 5×D, and 8×D

#### TID-R, Cylindrical shank type:

Available in 2×D, 3.5×D, 6×D, 8×D, and 12×D

#### TIDC:

Available in 3xD and 5xD suitable for use with TIDCF chamfer holders.

**TIDCF chamfer holder:** Available with 3 types of inserts in chamfering angles of 30°, 45°, and 60°



#### The right geometry for the right operation



#### DMP Drill dia.: ø6 - ø25.9 mm

General purpose drilling head ideal for various drilling applications



DMC Drill dia.: ø6 - ø25.9 mm

High precision drilling head with doublemargined drill periphery and self-centering chisel edge



DMF Drill dia.: ø6 - ø25.9 mm

180° flat edges for counterboring and flat bottoms



DMH Drill dia.: ø6 - ø25.9 mm

General purpose head with enhanced cutting



DMN
Drill dia.:
ø10 - ø19.5 mm

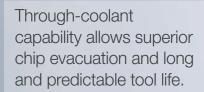
Drill head with sharp edges for non-ferrous materials

video





For more information









Drill dia.: ø4 - ø5.9 mm

**DMP** 

General purpose drilling head ideal for various drilling applications



Drill dia.: ø4 - ø5.9 mm

High precision drilling head with self-centering chisel edge



The tiny drill head is supplied in a dedicated user-friendly key, enabling easy and secure mounting with no setup time

video







or more information



## DRILLFÄËISTER

# PRODUCTIVE HEAD-CHANGEABLE DRILL FOR DRILLING LARGE HOLES

**ADD** a new geometry to the efficient range of drill heads

Drill head with two effective cutting edges provides high productivity and reliability.



#### **SMC**

Drill dia.: ø26 - ø33 mm Self-centring geometry



#### **SMP**

Drill dia.: ø20 - ø41 mm

General purpose drilling head ideal for various drilling applications



#### **SMF**

Drill dia.: ø20 - ø41 mm

For efficient drilling of flat-bottom holes

Unique clamping system, the drill head change is possible without removing the drill body from the tool holder or the spindle, eliminating re-adjustments.

Asymmetric shaped drill head not only secures stability in heavy machining but also error-proofs drill head installation.

#### Drill bodies: TIS, Flange type:

Available in 3×D, 5×D, and 8×D



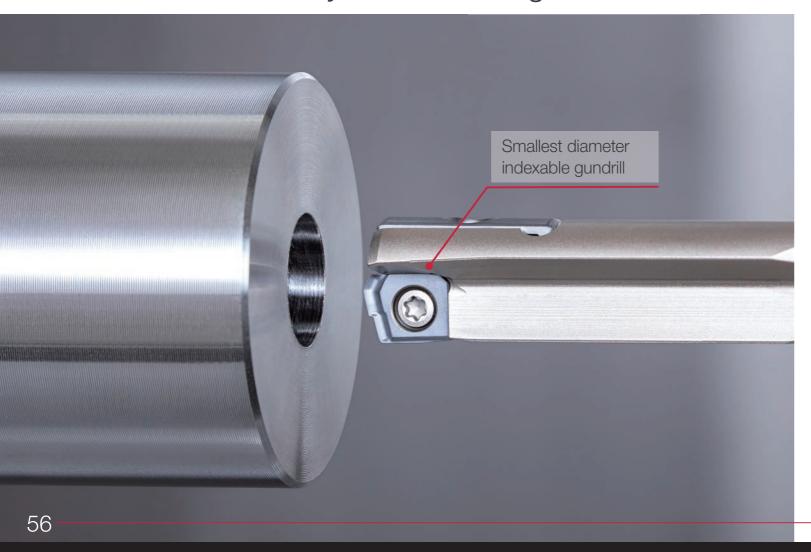
For more information

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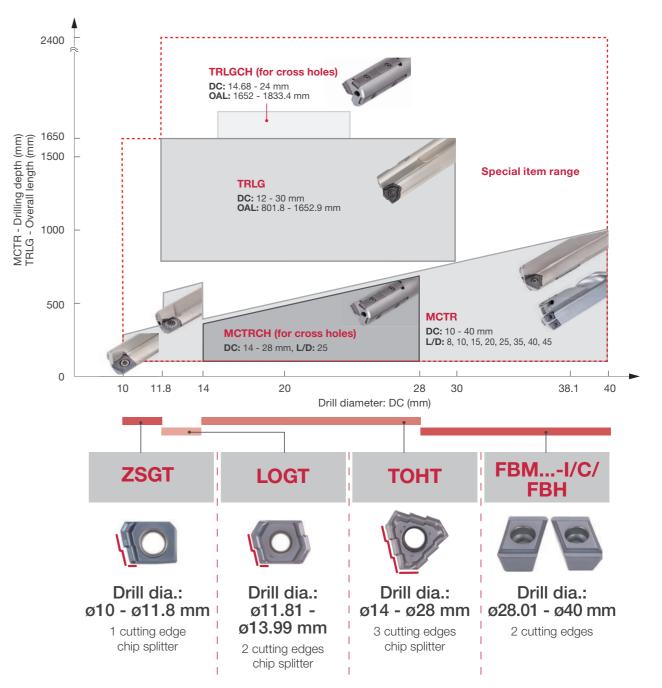
### DEEPTÖRILL

# THE SMALLEST AND DEEPEST HOLES WITH AN INDEXABLE GUNDRILL

**ADD** a wide range of indexable deep drilling solutions to your machining needs



Remarkable deep drilling solutions for gundrill machines, lathe and CNC machining centers to cover applications from 10 mm to 40 mm

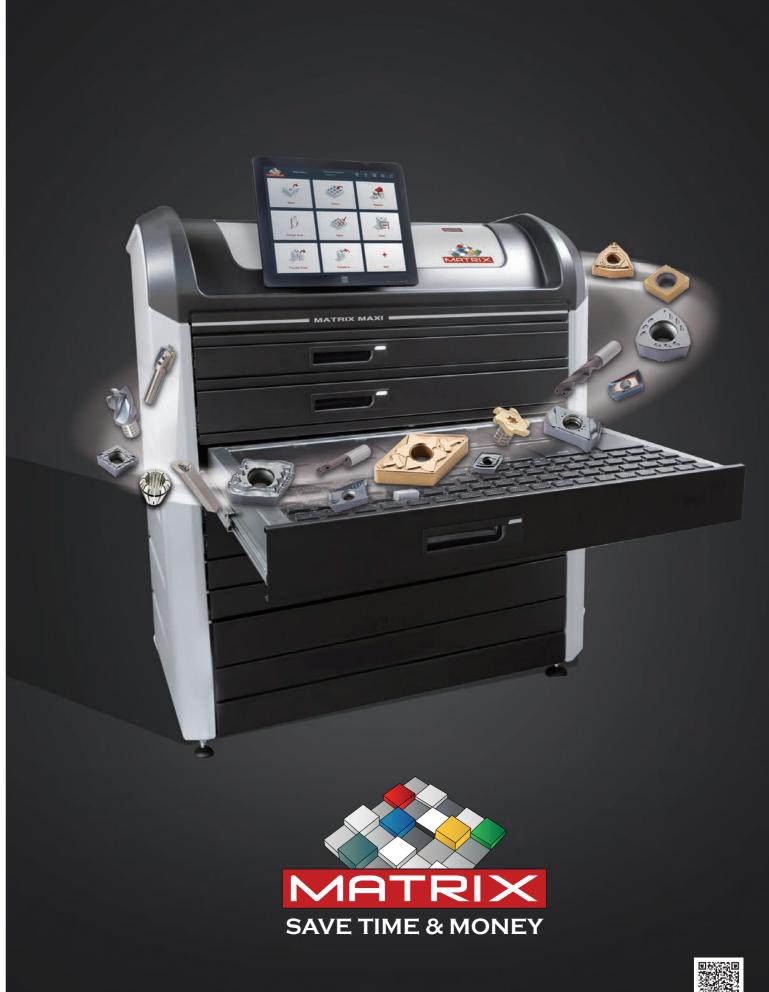


## THE FIRST STEP TO YOUR COST REDUCTION

Flexible, automated tool vending solution with a powerful tool management software to:

- Optimize stock levels
- Streamline purchasing
- Calculate cost per unit (CPU) and tool life
- Guarantee product availability







# THE THREE PILLARS OF TUNGALOY'S ENVIRONMENTAL COMMITMENT

Tungaloy's latest innovations in cutting tools contribute to carbon neutrality

## Produce Dispose



reducing insert volume and CO<sub>2</sub> emissions during the production processes



decreasing raw materials through indexable inserts and exchangeable heads Use

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cutting down
electricity consumption
with high-feed
operations and less
machine downtime



## Worldwide Network



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#### **Iwaki Plant**

Products: Cutting Tools

#### Nagoya Plant

Products: Cutting Tools

#### Kyushu Plant

Products: PCBN PCD Tools Deep Hole Drills

#### **Nirasaki Plant**

Products: Cutting Tools
Friction Materials (TungFric)
Wear Resistant Tools
Civil Engineering Tools



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