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



Tungaloy Accelerated Lines - Leading in Innovation





# 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.



**e**-Catalog

Find tools and download CAD drawings and 3D models www.tungaloy.com/ecatalog



TungNavi

Tungaloy Tool Advisor www.tungaloy.com/tungnavi



Turning Insert Selector

Tungaloy's first recommendations

for Turning operations www.tungaloy.com/insertguide



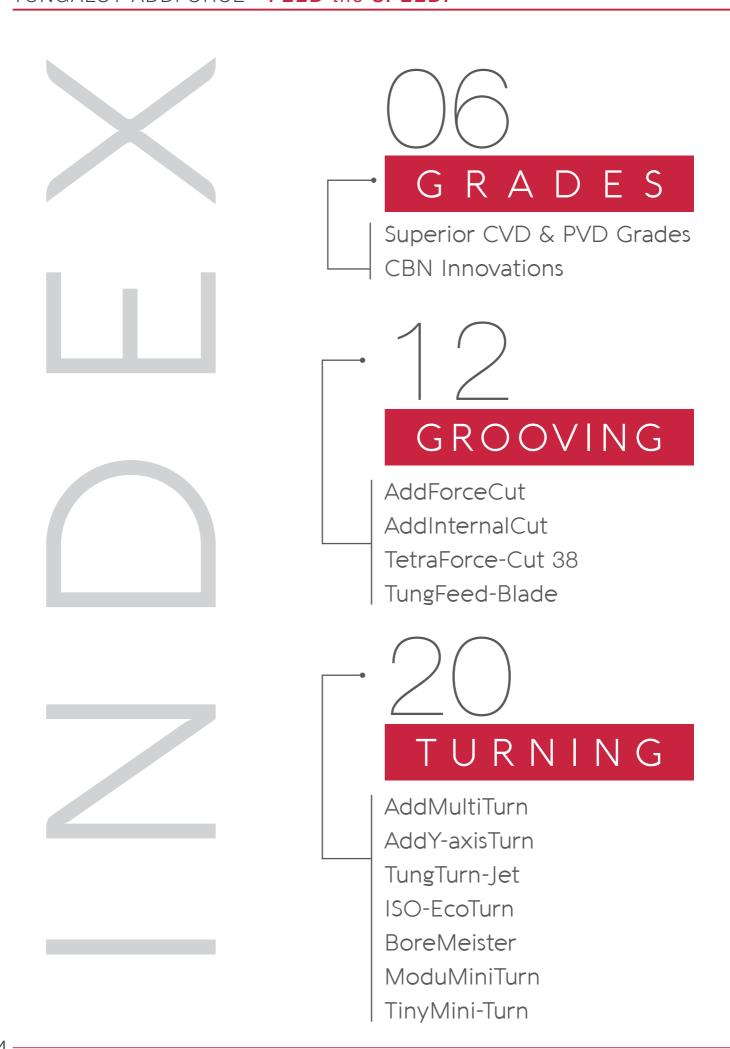
High-Feed Milling Guide

Tungaloy selection guide for high-feed milling tools www.tungaloy.com/highfeed



**MATRIX** 

Tool management system www.tungaloy.com/matrix



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# MILLING

AddDoFeed DoFeedTri Tung-Tri 04 TungMeister

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# DRILLING

DrillMeister AddMeisterDrill Solid4FlutesDrill

48

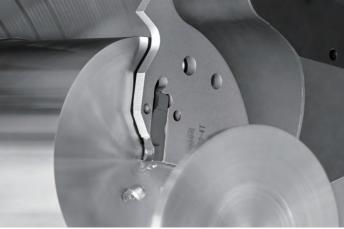
# MATRIX

The first step to your cost reduction









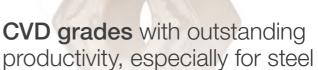










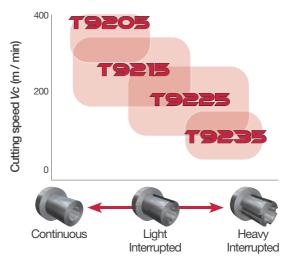


turning Nearly unbreakable CVD series for improved

APPLICATION AREA P

machining efficiency







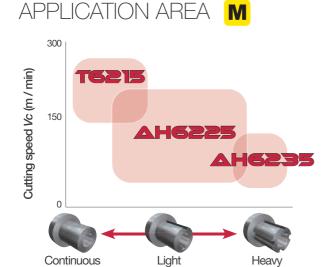
Highly reliable CVD & PVD grades for stainless steel turning

Complete grade line up for stainless steel turning



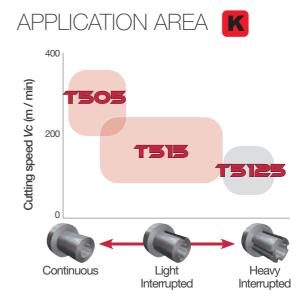
Most optimal CVD grades for high speed machining of cast iron

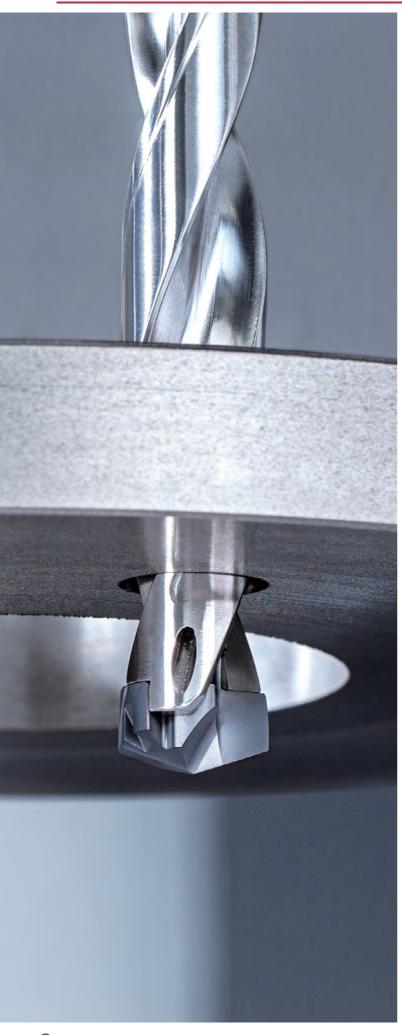
The thickest coating layer of all Tungaloy's CVD grades ever



Interrupted

Interrupted





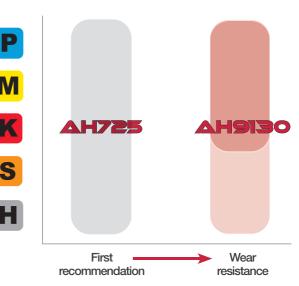


# AH9130

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



QGM / QGS inserts for AddForceCut



# 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.



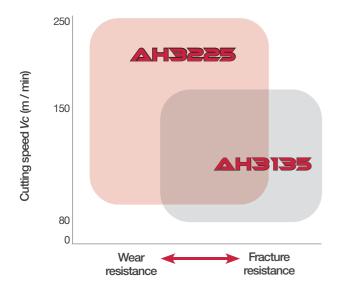


# Dedicated grade for grooving applications

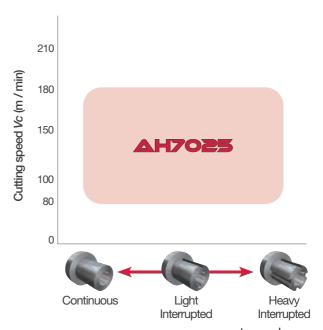
featuring a good balance of wear and chipping resistance.

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

# APPLICATION AREA



# APPLICATION AREA







### Coated CBN grade for hardened steel

Incredible reliability in hardened steel turning. First choice for continuous to light interrupted cuts.



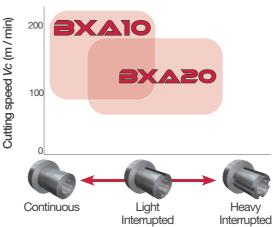
# 3XA20

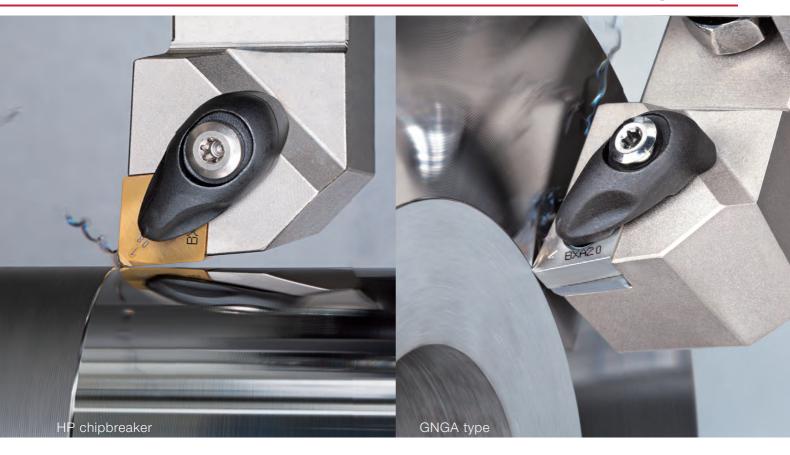
### Coated CBN grade for hardened steel

Incredible reliability in hardened steel turning. Covers a wide range of application areas from continuous to heavy interrupted cutting.

# APPLICATION AREA







# Unique Solutions



# GNGA / FNGA YNGA type

### For smooth chip evacuation

Cutting edge angle is designed to ensure easy cutting with low cutting forces.



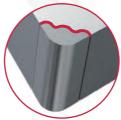
Large clearance reduces cutting force and edge wear, allowing smooth chip flow and scratch prevention on machined surface.



# THIOLYVAW

# 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-ofcut compared to the conventional type.



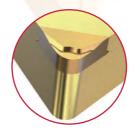
CBN Tip Size: 200% larger for reducing the temperature at the cutting zone Brazing Area: 160% increase for enhanced brazing strength



## HP chipbreaker

For chatter prevention and the finest machined surfaces

Suitable for turning operation of hardened steel materials.



The **HP** chipbreaker provides excellent surface quality and good chip control.

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







# SUPERB STABILITY AND PRODUCTIVIT DEEP GROOVING AND PARTING-OFF **OPERATIONS**

ADD Highly rigid self-clamping system improves productivity for deep grooving and parting-off operations





# UNIQUE 4-EDGED INSERT FOR SMALL INTERNAL GROOVING OPERATIONS

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





TCIG10... and TCIG12...

CW = 1.5, 2, 2.5, and 3 mm

Max. insert cutting depth:

CDX = 3 mm

Min grooving dia:

DMIN = Ø10.5 mm



# ADDICUT

The innovative clamping system eliminates insert movement caused by cutting forces.

Through-coolant holder delivers coolant from the outlet located near the insert, promoting effective chip evacuation from the cutting area.

Neutral designed insert can be mounted on either right- or left-handed holder.







New TCL38 insert capable of up to 10 mm groove depth, making it an effective tool for cutting off thick-walled tubes, as well as precision grooving operations.

Unique insert seat design ensures secure insert clamping, providing excellent indexing accuracy and repeatability.

Neutral design insert can be mounted on either right- or left-handed holder.

Insert clamping screw can be operated from either side of the holder, significantly reducing tool change time.

Through-coolant toolholders are also available for improved chip evacuation, promoting long tool life and superior part quality.

TCL38 inserts

CW = 1.5 - 4 mm

Max. insert cutting depth:

CDX = 10 mm

Max. parting diameters:

CUTDIA = Ø20 mm







# TUNGFELADE

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

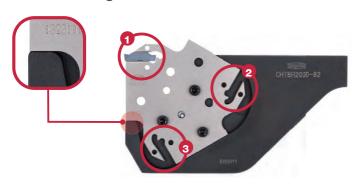




Specially designed tool block has two contact faces to provide enhanced tool rigidity.



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, DGL, QGM, and QGS

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







# ADDMTURN



# THE ULTIMATE TOOL FOR MULTIPLICITY

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



Unique concave-convex 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.

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

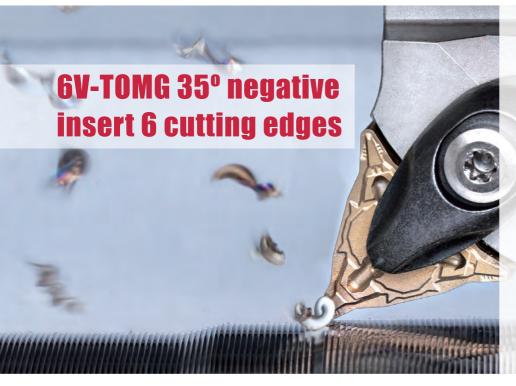
Also effective for removing burrs.

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.



**3C-TCMT 86° positive** insert 3 cutting edges





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.

With unique concave-convex shape on the bottom of the insert, the insert is securely locked in place, ensuring tool reliability when performing turning in any direction.

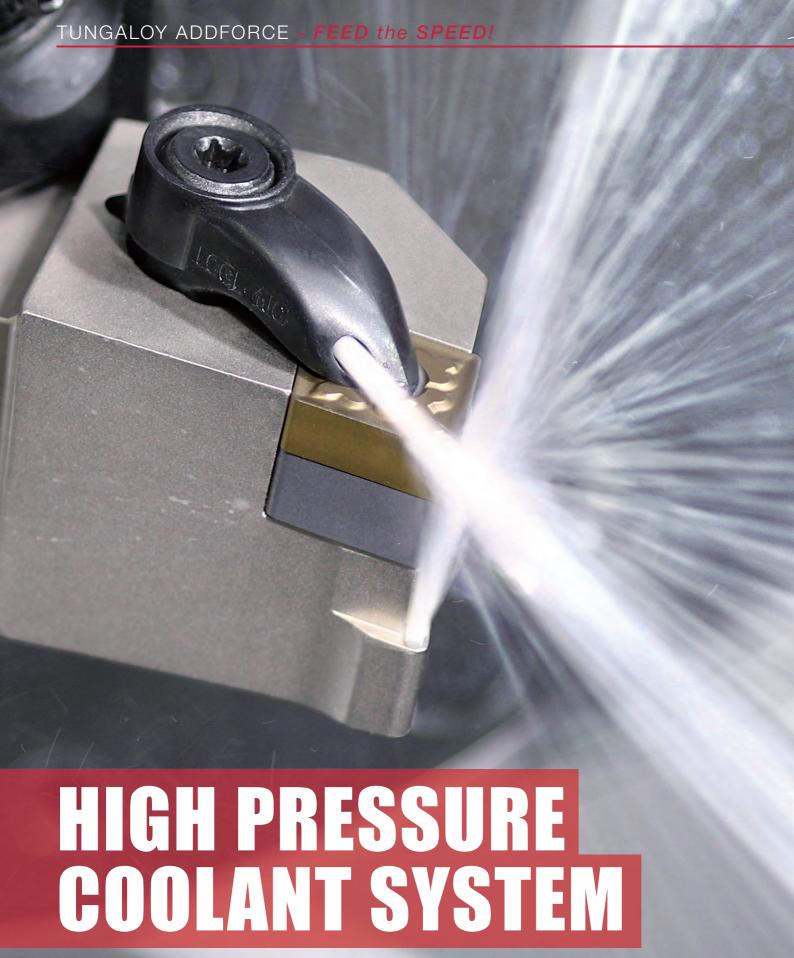
By simply rotating the tool along the axis, the cutting edge angle can be set to an optimum angle that enables the most effective entry into the cut.

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 35° positive insert 3 cutting edges

AddY-axisTurn combines multiple processes into a single operation, providing reduced tool inventory and costs.





ADD productivity, including turning of exotic materials

# TUNGTIET

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

General Turning - TungCap - 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.







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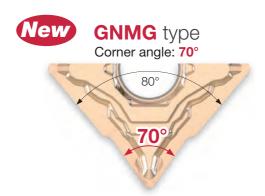
# Available in the most common geometries, chipbreakers and innovative Tungaloy grades

Equal machining performance for d.o.c. of up to 3 mm when compared with regular sized ISO inserts.

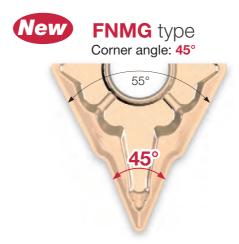
**ISO-EcoTurn** inserts have an identical thickness as regular sized ISO inserts of the same size, providing equivalent fracture resistance.

GNMG with nose angles of 70° and FNMG inserts with 45° are now available, making *ISO-EcoTurn* a more flexible solution in a wide range of turning applications.

Suitable for general OD turning, facing, profiling, and ID turning applications.

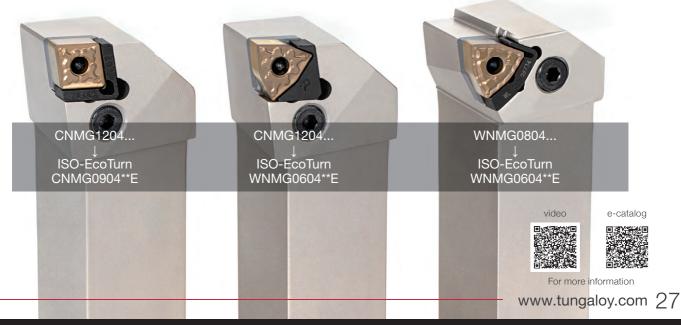


**GNMG0904** insert with 70° corners: good alternative to CNMG with 80° corners

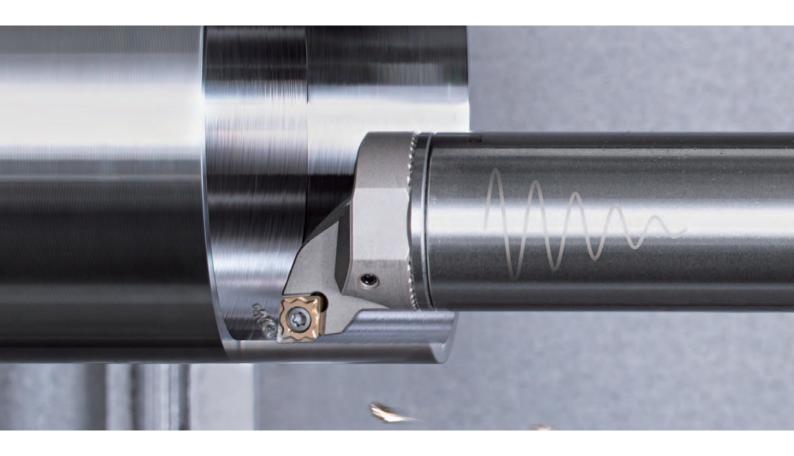


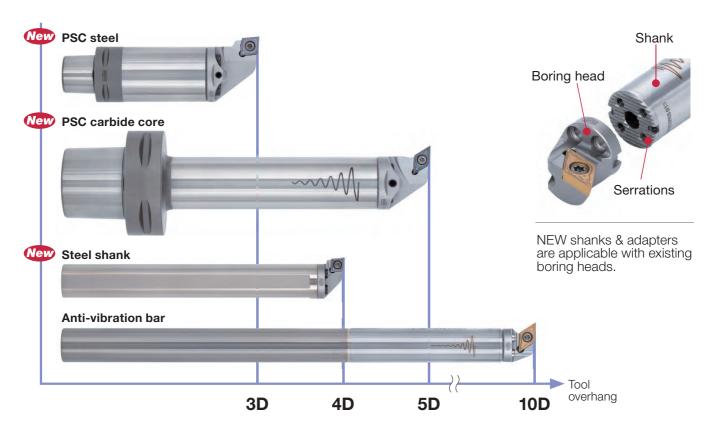
**FNMG1104** insert with 45° corners: good alternative to DNMG with 55° corners

# ISO-EcoTurn Cartridges, an innovative system for use of ISO-EcoTurn inserts in standard ISO holders



# BOREMEISTER





# VIBRATION-FREE SOLUTION FOR DEEP HOLE BORING

**ADD** stability and precision

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





# MODUMTURN

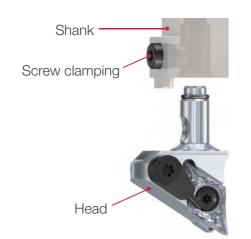
Modularity and productivity with a wide selection of turning, grooving and threading heads



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

**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.





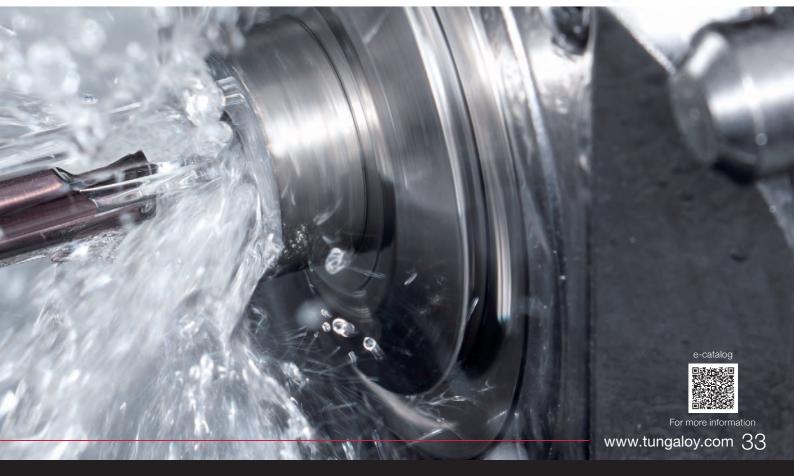
# TINYMTURN

# 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.







# MAXIMUM SPEED AND EFFICIENCY AT MINIMUM SIZE

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



# ADDD FEED

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)

 $DCX = \emptyset 8 - \emptyset 25 \text{ mm}$ 

Modular type: **HXN02R...** 

 $DCX = \emptyset 8 - \emptyset 25 \text{ mm}$ 



## LNMU02-MM

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







# HIGH PERFORMANCE AND PROFITABILITY IN HIGH-FEED MILLING OPERATIONS







## 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 mmRE = 0.4, 0.8 mm

#### **Cutter bodies:**

Shank type: **EPA04R...** (Short type)

 $DC = \emptyset 8 - \emptyset 25 \text{ mm}$ 

EPA04R\*\*L (Long type)

 $DC = \emptyset 10 - \emptyset 25 \text{ mm}$ 



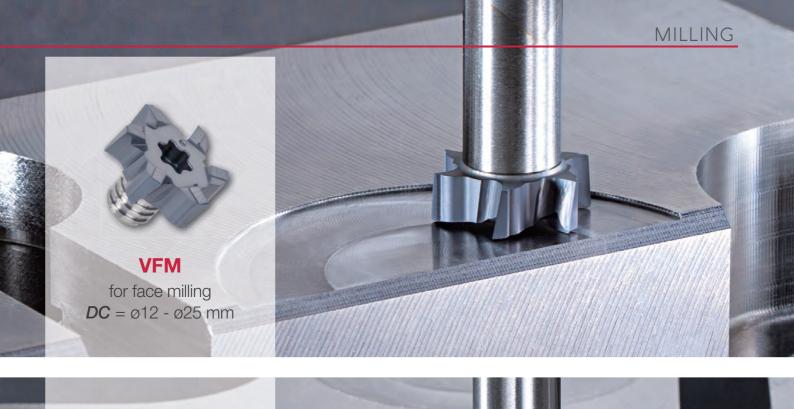


# MORE THAN 13,000 POSSIBLE COMBINATIONS

**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.





with long edges for efficient square shoulder milling DC = Ø8 - Ø32 mm









## DRILLMEISTER

# 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:**

**TID-F, Flange type:** 

Available in 1.5×D, 3×D, 5×D, and 8×D

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

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

#### TIDC:

Available in 3×D and 5×D 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



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



Drill dia.: ø6 - ø25.9 mm

180° flat edges for counterboring and flat bottoms



Drill dia.: ø10 - ø19.5 mm

General purpose head with enhanced cutting edge



**DMN** Drill dia.: ø10 - ø19.5 mm

Drill head with sharp edges for non-ferrous materials

video







For more information

Through-coolant capability allows superior chip evacuation and long and predictable tool life.



**ADD** superb performance in small drilling operations





#### **DMP**

Drill dia.: ø4 - ø5.9 mm

General purpose drilling head ideal for various drilling applications



**DMC** 

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



Self-centering chisel tip provides secure drill engagement.



# 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







SAVE TIME & MONEY



For more information

## Vorldwide Network



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**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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Sep. 2021 (TJ)