

TUNGALOY'S

PRODUCT HIGHLIGHTS



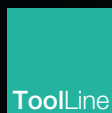
MillLine



TurnLine



DrillLine



ToolLine

w w w . t u n g a l o y . c o m

Tungaloy's Product Highlights

at the
forefront of
INNOVATION

Introducing our **newest
& innovative solutions**
for the metal removal
industry



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Tungaloy's Product Highlights

MillLine

High Feed Milling

Face Milling

Shoulder Milling

Profile Milling

Slot Milling

Multi-Functional Milling



This highly economical line, with 16 or 8 cutting edge inserts, now broadens its application range

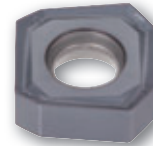


1 cutter body with 4 insert geometry options
Cutter range: $\varnothing 63$ mm - $\varnothing 315$ mm

NEW INSERTS



16 cutting edges
MJ & ML chipbreaker



8 cutting edges
MJ & ML chipbreaker



8 cutting edges
ML chipbreaker



8 cutting edges
HJ chipbreaker

NEW OWMT inserts

The newly developed OWMT insert is a positive insert with 8 cutting edges which fits on the existing DoOcto cutter body.

OWMT-ML is suitable for stainless steel and high temperature materials.

OWMT-HJ is suitable for high feed face milling on cast steel and cast iron.



Exceptional productivity for aluminium and non-ferrous material machining

Tung-AluMill

Outstanding productivity in demanding applications, such as high helical ramping, straight ramping, and step milling!

Tung-AluMill TPV / EPV16

Tool diameter range:

Shank type: $\varnothing 25$ mm - $\varnothing 40$ mm

Bore type: $\varnothing 40$ mm - $\varnothing 125$ mm

Corner radii: 0.4 mm - 5.0 mm

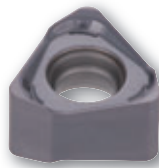


The new slot milling cutters utilize unique inserts with 6 cutting edges

The inserts have 3 right and 3 left hand edges providing a significant economic advantage.

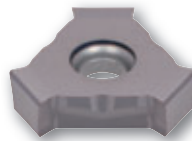
TSW / ASW type

Edge width range: 10 mm - 16 mm
Tool diameter range:
TSW type (radial drive): \varnothing 100 mm - \varnothing 160 mm
ASW type (axial drive): \varnothing 80 mm - \varnothing 160 mm



ASV type

Width range: 4 mm - 8 mm
Tool diameter range:
ASV type (axial drive): \varnothing 80 mm - \varnothing 200 mm



NEW

ASV tools & inserts

Tungaloy's slotting line with this **unique 6 cutting edges insert configuration** is now expanding its range to 4 mm and 5 mm groove width.



Super high feed cutters with 4 cornered inserts for high material removal

DoFeed TXN / EXN / HXN03

DoFeed03 consists of a variety of shank and bore type tools, ranging from $\varnothing 16$ mm to $\varnothing 50$ mm.

Shank type tools are also available in long lengths for long reach machining operations. The LNMU0303 insert features 4 cutting edges and is designed with a positive rake face, providing lower cutting forces.



MJ & ML chipbreaker

DoFeed TXN / EXN06

DoFeed06 shank and bore type cutters cover the range from $\varnothing 32$ mm to $\varnothing 200$ mm using Tungaloy's LNMU06X5 insert.



MJ & ML chipbreaker



NEW

DoFeed with wiper insert

The new high feed series wiper insert achieves superior surface quality without compromising the feed capabilities of the high feed line and eliminates semi-finishing operation for face milling.



Wiper 2 edge
LNGU06X5ZER-W

Economical shoulder milling cutter with anti-chatter design

Tung-Tri

The Tung-Tri is an economical shoulder milling cutter with a 3 cornered insert. The irregular pitch and **anti-chatter design** performs well in a wide range of cutting conditions.

Tung-Tri's positive sharp rake and wiper edges reduce cutting forces, and the high ramping ability of the cutter makes it **suitable for various applications and materials**.

Inserts size: 06, 10, 15 size

Tool diameter range:

Shank type: $\varnothing 12$ mm - $\varnothing 50$ mm

Bore type: $\varnothing 32$ mm - $\varnothing 160$ mm

**NEW**

Tung-Tri for rough milling

Tung-Tri's anti-chatter design reduces vibrations when using long edge roughing tools that have a large number of inserts engaged in the material.



High productivity solution for rough milling of turbine blades and die & mould

FixRMill

This new cutter features a unique insert clamping system with FIX index location. The locator in the pocket fits the star shape on the bottom of the insert, preventing the insert from rotating while machining and ensures 6 indexes for maximum economic advantages.

The MJ chipbreaker is suitable for general machining, while the ML chipbreaker is ideal for applications where low cutting forces are required.

Inserts size: 10 (R5), 12 (R6), 16 (R8) size

Tool diameter range:

Bore type: $\varnothing 40$ mm - $\varnothing 66$ mm

Shank type: $\varnothing 20$ mm - $\varnothing 40$ mm

Modular type: $\varnothing 20$ mm - $\varnothing 32$ mm

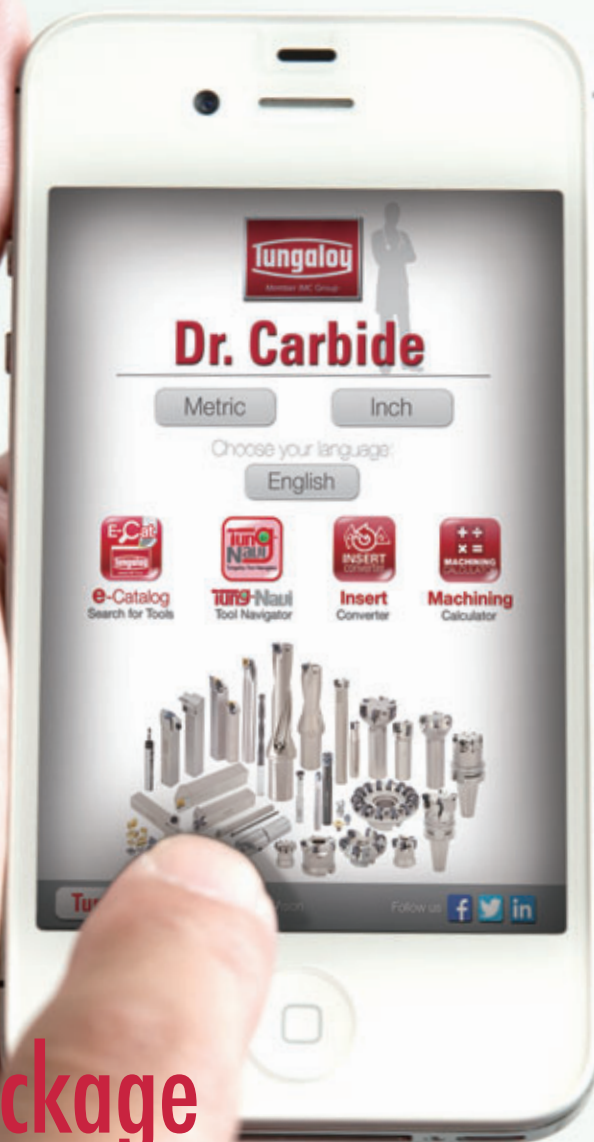


Dr. Carbide

by Tungaloy



the cure for your machining needs
Right in your hand



New App Package

Tungaloy offers a wide range of cutting tools to provide total solutions for your machining needs. Selecting the right tool and machine setting are the key to maximizing your productivity, and **Dr. Carbide** will assist you in finding the "cure" for your needs in a very simple, quick search.

Download it now!



A close-up photograph of a lathe machine. A cylindrical metal part is being turned on the lathe bed. The part has a smooth, polished surface with some concentric grooves. The lathe tool is visible, cutting into the metal. The background is a light-colored metal surface with several screws and bolts. The text "TurnLine" is overlaid on the right side of the image.

Tungaloy's Product Highlights

TurnLine

General Turning

Heavy Turning

Grooving & Parting

Threading

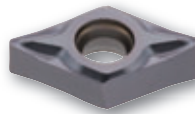
Small Part Machining

Economical double sided inserts with unique positive cutting edge design

Inserts are used in both internal and external tools.

External Line

Utilizes the **innovative multi-cornered inserts**, which provide remarkable economic advantages in small parts machining. The **unique pocket design with dovetail structure** ensures insert stability, resulting in superior machining performance.

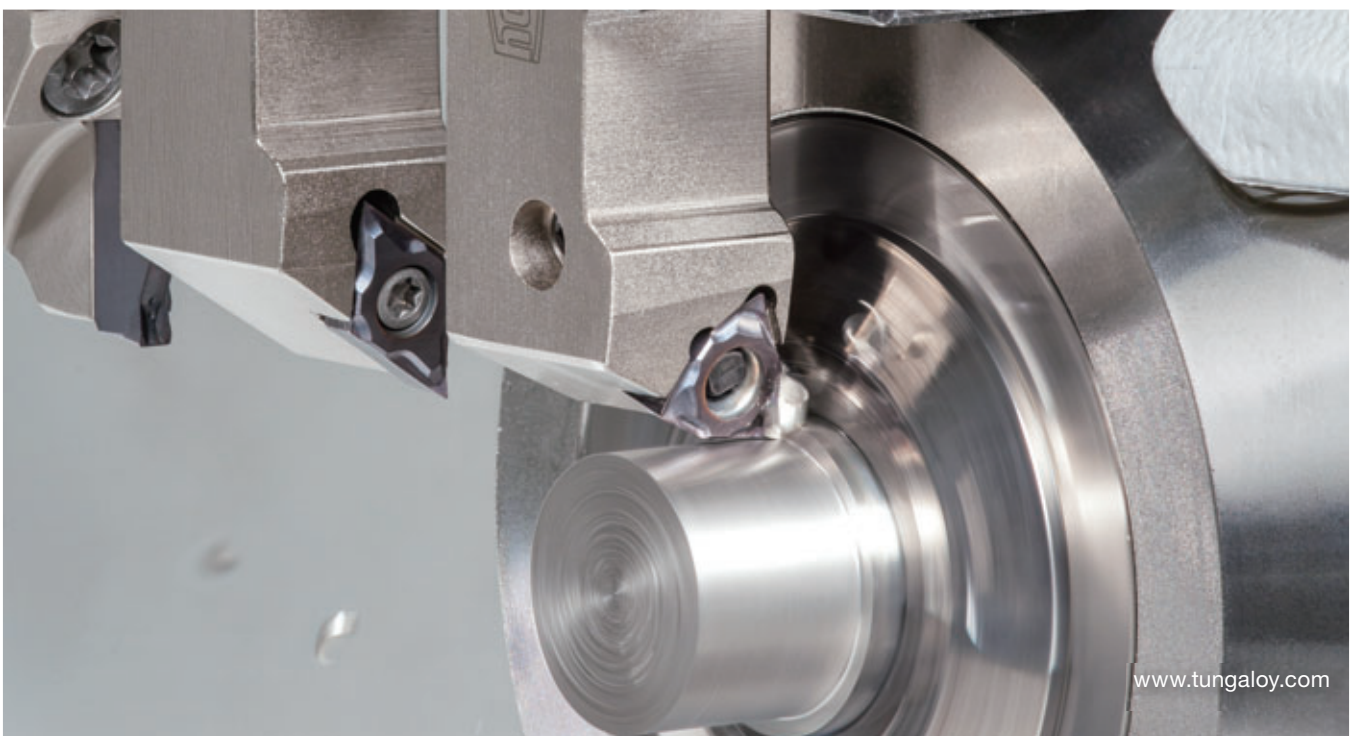
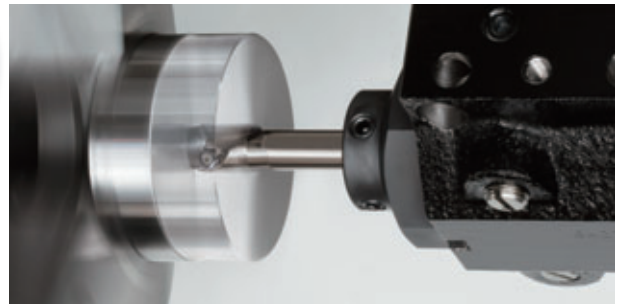
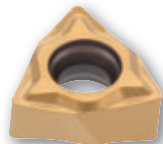


Bore Line

A range of internal boring bar tools with a special design to ensure optimum chip evacuation.

Tools are supplied with internal coolant directed to the cutting edge.

The smallest tool's minimum entry bore diameter is 12 mm.



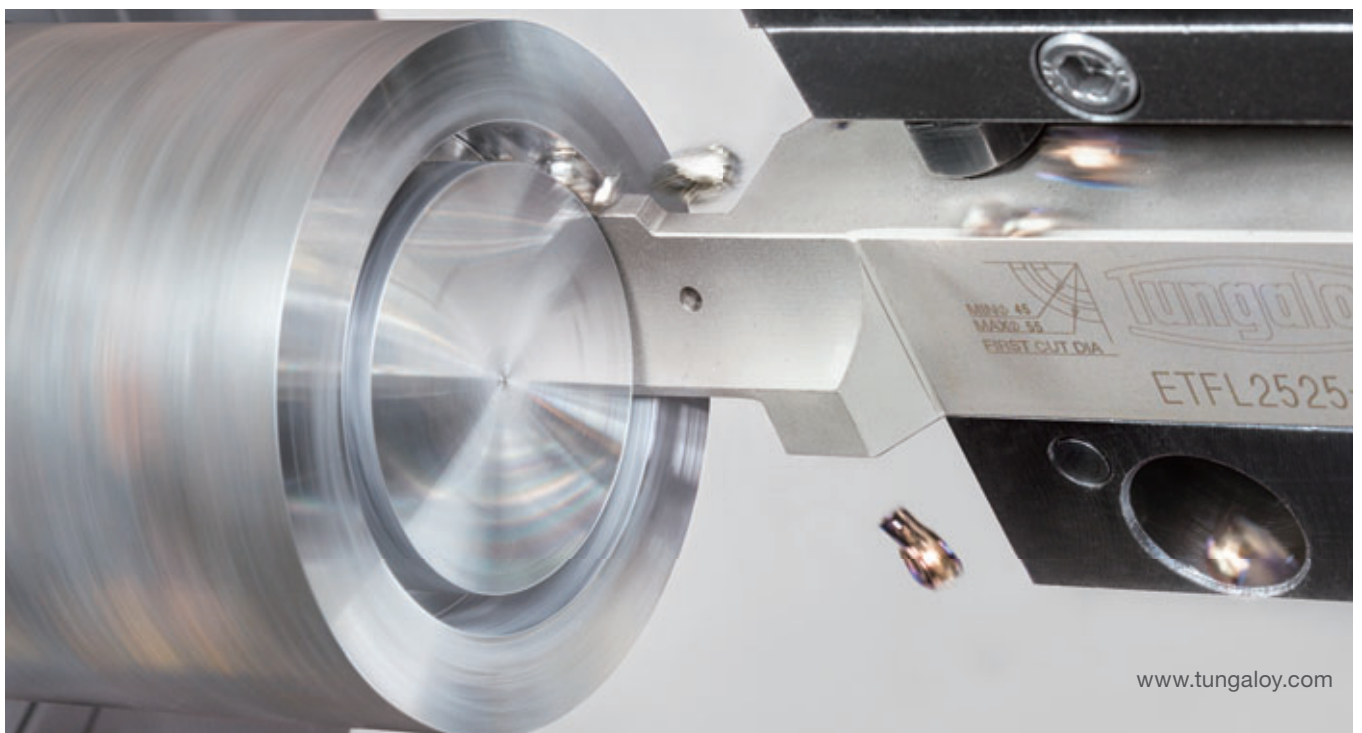
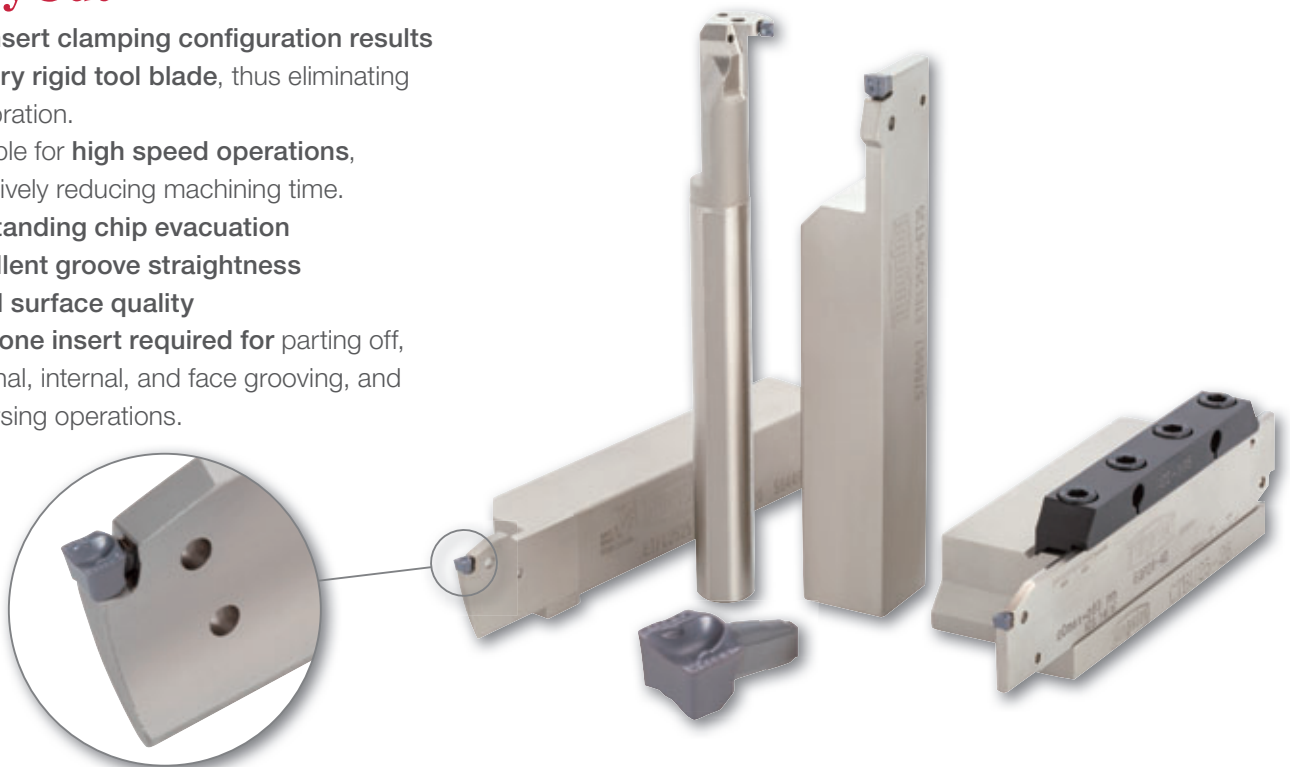
Highly rigid tools with a unique self-clamping insert

The most efficient system for deep face grooving

EasyCut

This insert clamping configuration results in a very rigid tool blade, thus eliminating tool vibration.

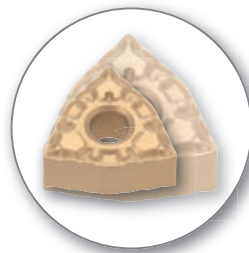
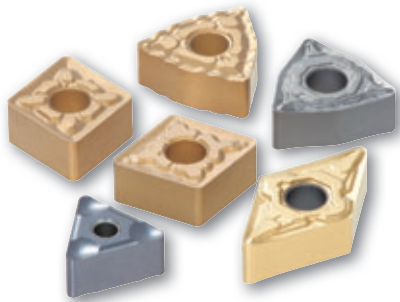
- Suitable for high speed operations, effectively reducing machining time.
- Outstanding chip evacuation
- Excellent groove straightness
- Good surface quality
- Only one insert required for parting off, external, internal, and face grooving, and traversing operations.



Economical small size turning inserts! A clever way to reduce machining cost!

EcoTurn

Chipbreaker on EcoTurn inserts provide **the same performance** as regular sized inserts.

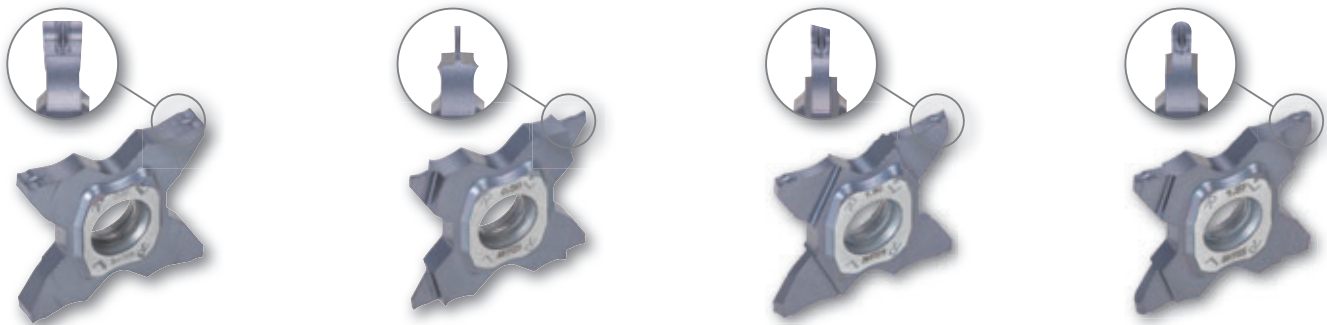


Newly developed insert with 4 edges for precise grooving and parting operations

TetraCut

This system combines a unique insert shape and a well designed pocket to achieve high stability and index repeatability, ensuring high accuracy. TetraCut insert features **4 positive sharp cutting edges and a chipbreaker that provides easy chip flow.**

Grooving width range: 0.5 mm - 3.18 mm



Tools with high pressure coolant

TungJet

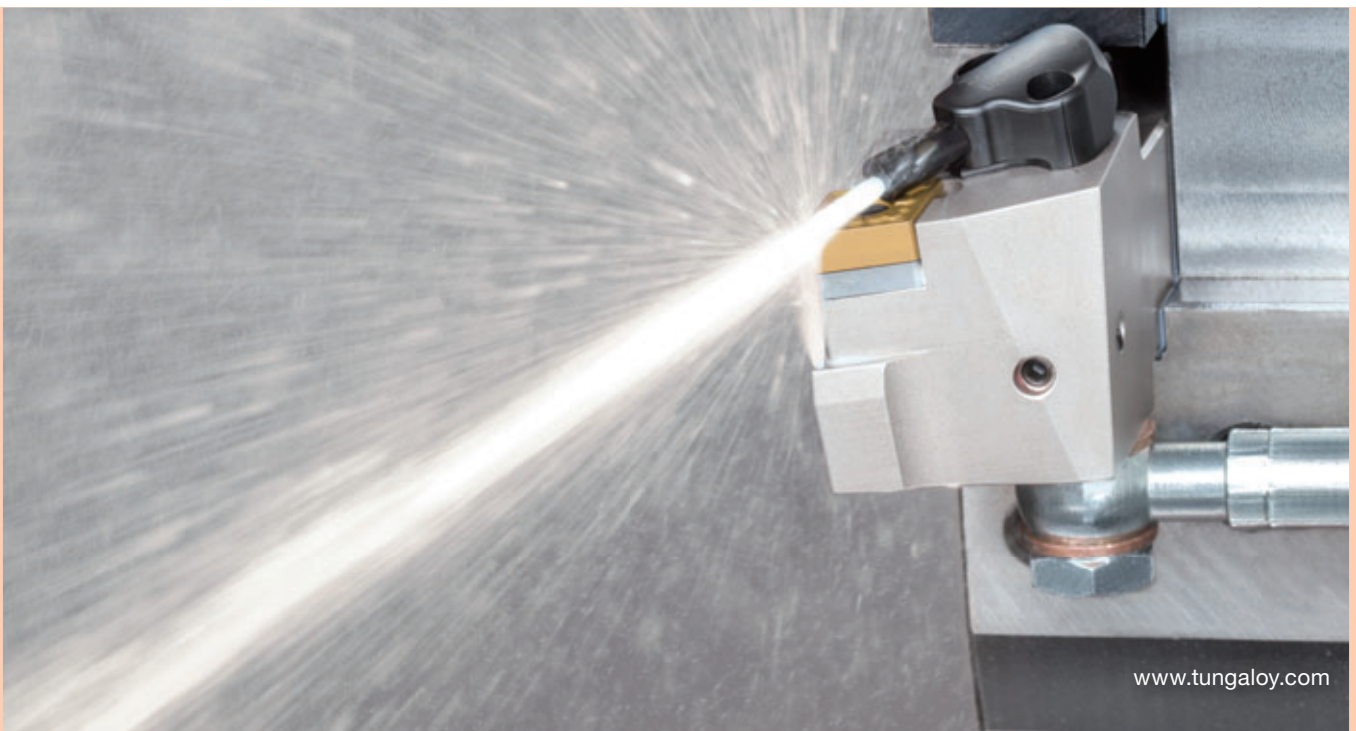
High pressure coolant is supplied from top and bottom, directly to the cutting edge. This technology is now applied to a variety of Tungaloy's turning tools.

Tungaloy's J-Series type tools, used for small machines, are also available with top and bottom high pressure coolant supply. This efficiently improves chip control in small parts machining.

**NEW**

Turning tools with optimal coolant system

TungJet tools produce short chips, which give an advantage in machining high temperature alloys and effectively prolongs insert tool life.



Highly accurate internal machining with precise cutting edges

TinyMTurn

Solid boring bars applicable for minimum $\varnothing 0.6$ mm bore.

The extremely sharp cutting edge offers **high precision machining** for a wide range of internal applications.

Sharp edges and smooth coating generate **fine surface finishes and prevent cutting edges from chipping.**

All boring bars have a through coolant hole to **supply coolant directly to the cutting edge.** This offers remarkable chip evacuation.

146 solid bar items are available in a wide range of geometries that can be applied to a variety of internal operations.



Long tool life and stable machining ensure accuracy and high surface finish

Mini T-CBN

The smallest diameter tool for boring hardened steels with a minimum bore of $\varnothing 4.5$ mm and larger. Quick and easy insert indexing with accurate repeatability on cutting edge, and long tool life even when machining at low cutting speeds.



TungCut CBN

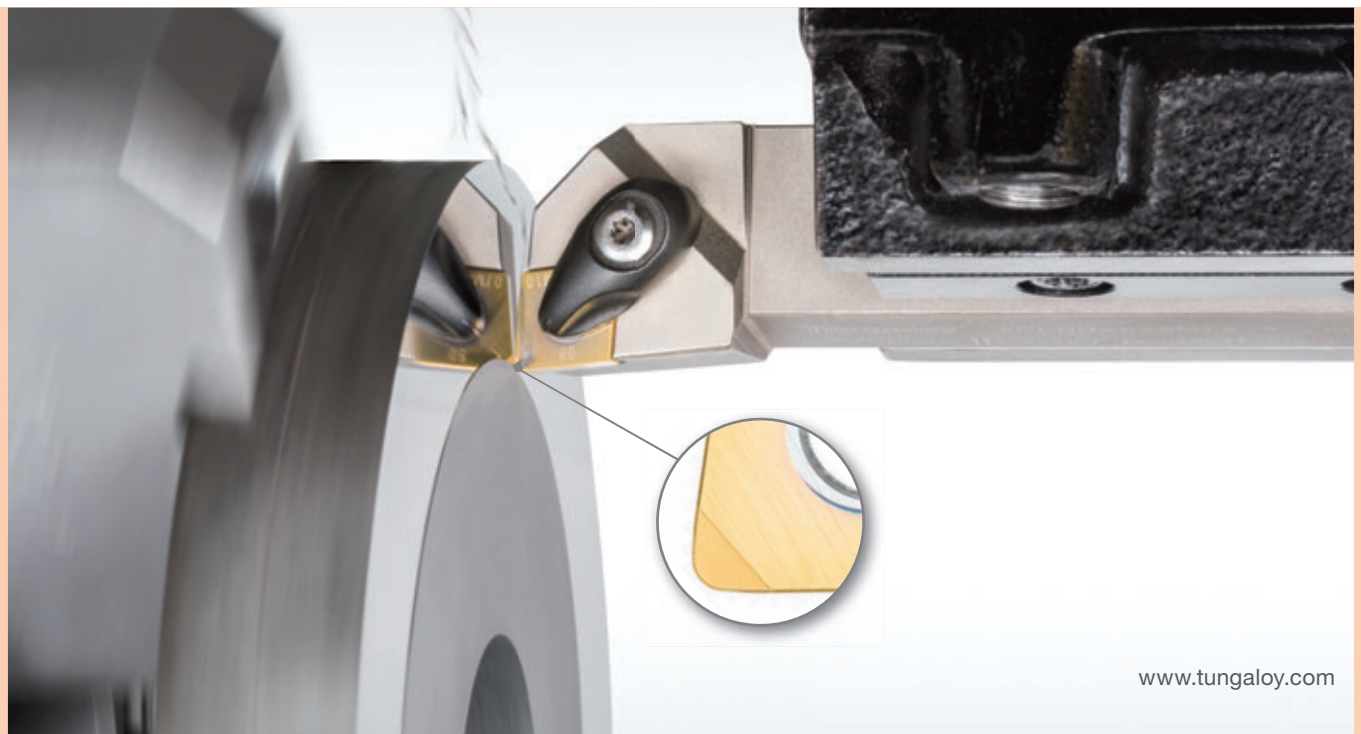
Optimum cutting edge shape for grooving hardened steels. High precision insert width ensures accuracy for finishing operation.



NEW

Wiper insert BXM series

The wiper edge configuration makes it possible to apply higher feed rates and efficiently reduce cycle time while maintaining the required superior surface finish.



Tungaloy's Product Highlights

DrillLine

Indexable Drills

Solid Carbide Drills

Deep Hole Drilling



New clamping system enables easy, secure, accurate head indexes

DrillMeister

DrillMeister is an **innovative replaceable head drill series** that delivers the productivity of a solid drill with the economical advantages of conventional indexable drills. This **reduces setup times**, increases metal removal rates, and gives the user ease of operation when indexing.

The **exclusive chamfering adapter** for the DrillMeister provides stable **chamfering and drilling in the same operation**, reducing processing time.

The DrillMeister series provides **the most productive and profitable solution for holemaking processes**.

Straight type

Tool diameter range: $\varnothing 10.0$ mm - $\varnothing 19.9$ mm

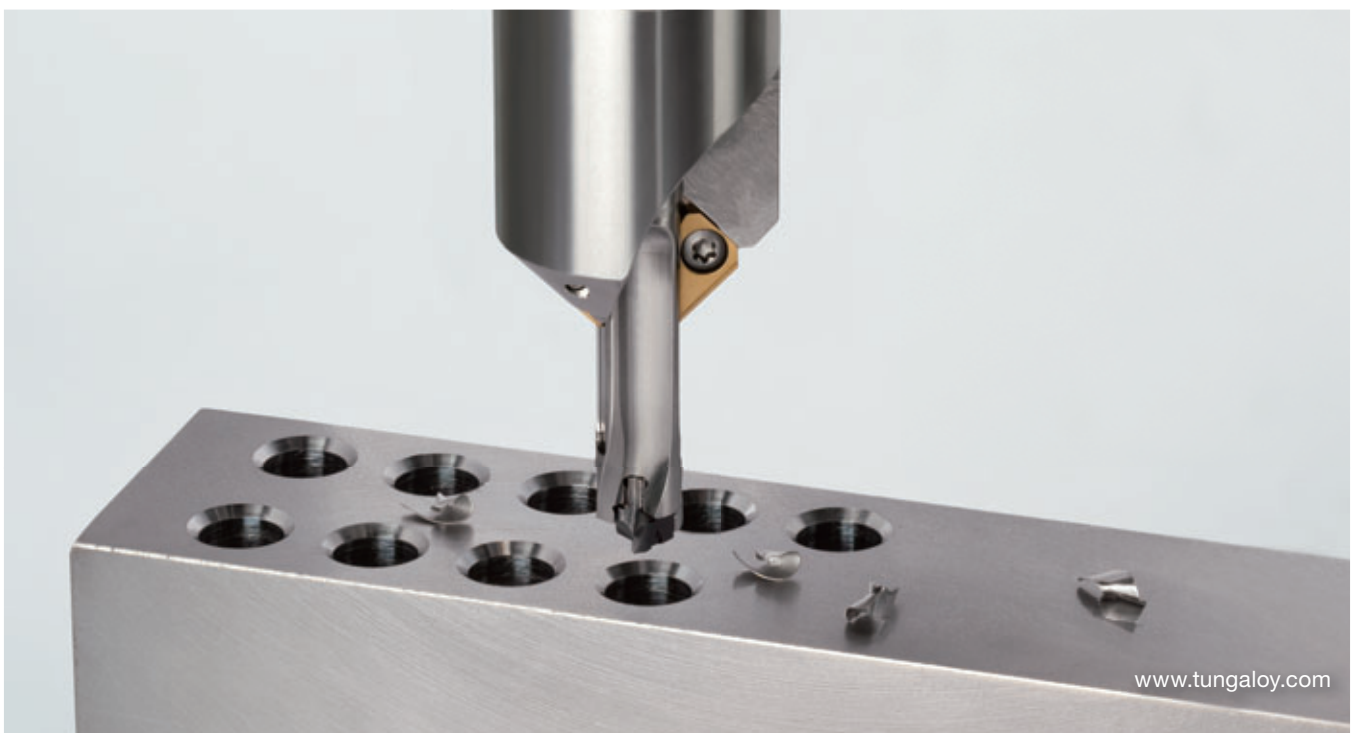
Hole depth: L/D = 3, 5

Flange type

Tool diameter range: $\varnothing 10.0$ mm - $\varnothing 19.9$ mm

Hole depth: L/D = 1.5, 3, 5, 8

Chamfering angles: 30°, 45°, 60°



The most economical, secure drilling solution in the industry world

TungSix-Drill

TungSix-Drill is **the world's first indexable drill with double sided inserts**. The obtuse angle relief on the corner of the central edge improves fracture resistance.

The new AH9030 and AH6030 grades offer **exceptional wear resistance** that leads to stable and long tool life. Utilizing Tungaloy's exclusive "PremiumTec" special surface technology, the AH9030 drastically reduces chip adhesion to generate smooth chip flow.

Ideally designed flute geometry delivers **perfect chip evacuation when machining all types of materials**.

Diameter range: $\varnothing 20$ mm - $\varnothing 54$ mm

Hole depth: L/D = 2, 3, 4



A large diameter drilling bodies, which can clamp both TDX and TDS series inserts

TungDrillBig

The TungDrillBig drilling body features cartridges and adjustable setting plates, which allows customers to change the drill diameter within a range based on their requirement.

Tool diameter range:

ø55 mm to ø80 mm (5 base bodies)

Cartridges: central + peripheral

TDX series type: 4 cornered positive insert

TDS series type: 6 cornered economical and highly productive insert

**NEW**

TDX & TDS series inserts

The TungDrillBig can **now clamp either the TDX or the TDS series insert cartridges**, thus offering flexibility to choose between the 2 series depending on the application needs and machine.



ToolLine

Tooling Systems



Quick change polygon tool clamping system!

TungCap

New tooling system can accelerate productivity by providing optimal tool holding solutions for a diverse range of machines.

Quick change clamping system
The TungCap clamping mechanism is extremely rigid and resists bending forces well. The taper and face contact ensures high repeatability of the edge position. The polygonal clamping design creates a self-centering effect to improve accuracy.



OUR PRODUCTS

in the real World

Saving setup time and money - a Drilling Story

On a routine visit to an end user, the Tungaloy sales representative noticed an opportunity to save the customer a significant amount of cycle time as well as tooling and inventory costs.

The customer was drilling through holes in chilled grey cast iron using coated solid carbide drills. Once the proposal was brought to the customer's attention, a test was arranged.

Tungaloy brought in its DrillMeister. The DrillMeister, with its replaceable tip drill point, was able to drill each hole 80% faster than the current solid carbide drill. Although the tool life was virtually the same, the cycle time savings allowed the customer to produce significantly more parts per hour.

Since the DrillMeister required no re-sharpening, it was not necessary to fill up inventory levels to allow for drills to be "out for re-sharpening." This reduction saved money on inventory costs.

"The DrillMeister, with its replaceable tip drill point, was able to drill each hole 80% faster than the current solid carbide drill."

Drill points were simply replaced right on the machine in seconds, saving a significant amount of downtime.

Overall, Tungaloy was able to reduce this company's costs by 23% and make this customer's life much easier.



Highly effective, reliable solutions - a High Feed Milling Story

A leading manufacturer of valves for the Oil and Gas Industry mainly produces parts made of stainless steel and superalloys.

This customer had a problem producing a particular part. Changing the insert during the process required the operator to stop the machine, index inserts, and restart the cycle from the beginning. This extended the cycle time sometimes up to twice as long.

Since this was a new job for the customer, many experiments were conducted. The best any of the other tooling suppliers could produce was 1/3 of a part before the inserts needed replacement. The customer had to have a product that would last the entire cycle without requiring a tool change.

"Tungaloy's DoFeed performed well, and after implementing the new AH3035 grade, the customer was able to complete the entire cycle without changing the inserts."

Having faith in Tungaloy's abilities, the customer called Tungaloy sales representative to solve the problem. It was apparent that chipping or fracture of the insert was the most undesirable failure mode. The insert needed to have predictable wear. Tungaloy's DoFeed performed well, and after implementing the new AH3035 grade, the customer was able to complete the entire cycle without the changing inserts.

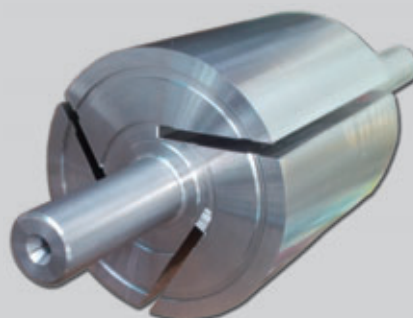


Tungaloy's AH3035 grade has a very tough substrate, making the insert fracture resistant, coupled with Tungaloy's PremiumTec coating to extend the tool life.

Investment on R&D - a Slotting Story



A well-recognized company has been manufacturing pumps and compressors for more than thirty years. They also supply parts to numerous machine manufacturers, such as food vacuum packing machines, paper machines, textile machines, electro medical devices, and many others. During the past few years, the customer has adopted Tungaloy's new, innovative tools for both milling and turning applications.



Tungaloy was asked to investigate a special slotting application of a rotor, which features three thin slots that had to be finished. The competitor's cutter performed a short tool life, and the customer also requested to reduce the cycle time.

Tungaloy offered the new developed TungSlot ASV tool and inserts containing 6 cutting edges for grooving widths of 4 mm. Highly precise, ground inserts provide accurate groove width and excellent surface finish. With TungSlot the customer has more than doubled its productivity.

"With TungSlot, the customer has more than doubled its productivity"

Tungaloy Corporation (Head office)

11-1 Yoshima-Kogyodanchi
Iwaki-city, Fukushima, 970-1144 Japan
Phone: +81-246-36-8501
Fax: +81-246-36-8542
www.tungaloy.co.jp

Tungaloy America, Inc.

3726 N Ventura Drive
Arlington Heights, IL 60004, U.S.A.
Phone: +1-888-554-8394
Fax: +1-888-554-8392
www.tungaloyamerica.com

Tungaloy Canada

432 Elgin St. Unit 3
Brantford, Ontario N3S 7P7, Canada
Phone: +1-519-758-5779
Fax: +1-519-758-5791
www.tungaloy.co.jp/ca

Tungaloy de Mexico S.A.

C Los Arellano 113,
Parque Industrial Siglo XXI
Aguascalientes, AGS, Mexico 20290
Phone: +52-449-929-5410
Fax: +52-449-929-5411
www.tungaloy.co.jp/mx

Tungaloy do Brasil Comércio de Ferramentas de Corte Ltda.

Rua dos Sabias N.104
13280-000 Vinhedo, São Paulo, Brazil
Phone: +55-19-38262757
Fax: +55-19-38262757
www.tungaloy.co.jp/br

Tungaloy Germany GmbH

An der Alten Ziegelei 1
D-40789 Monheim, Germany
Phone: +49-2173-90420-0
Fax: +49-2173-90420-19
www.tungaloy.de

Tungaloy France S.A.S.

ZA Courtaboef - Le Rio
1 rue de la Terre de feu
F-91952 Courtaboef Cedex, France
Phone: +33-1-6486-4300
Fax: +33-1-6907-7817
www.tungaloy.fr

Tungaloy Italia S.r.l.

Via E. Andolfato 10
I-20126 Milano, Italy
Phone: +39-02-252012-1
Fax: +39-02-252012-65
www.tungaloy.it

Tungaloy Czech s.r.o.

Turanka 115
CZ-627 00 Brno, Czech Republic
Phone: +420-532 123 391
Fax: +420-532 123 392
www.tungaloy.cz

Tungaloy Ibérica S.L.

C/Miquel Servet, 43B, Nau 7
Pol. Ind. Bufalvent
ES-08243 Manresa (BCN), Spain
Phone: +34 93 113 1360
Fax: +34 93 876 2798
www.tungaloy.es

Tungaloy Scandinavia AB

S:t Lars Väg 42A
SE-22270 Lund, Sweden
Phone: +46-462119200
Fax: +46-462119207
www.tungaloy.se

Tungaloy Rus, LLC

36-D Harkovsky Lane
308009 Belgorod, Russia
Phone: +7 4722 24 00 07
Fax: +7 4722 24 00 08
www.tungaloy.co.jp/ru

Tungaloy Polska Sp. z o.o.

ul. Genewska 24
03-963 Warszawa, Poland
Phone: +48-22-617-0890
Fax: +48-22-617-0890
www.tungaloy.co.jp/pl

Tungaloy U.K. Ltd

The Technology Centre,
Wolverhampton Science Park
Glaisher Drive, Wolverhampton
West Midlands WV10 9RU, UK
Phone: +44 121 309 0163
Fax: +44 121 270 9694
www.tungaloy.co.jp/uk
salesinfo@tungaloyuk.co.uk

Tungaloy Hungary Kft

Erzsébet királyné útja 125
H-1142 Budapest, Hungary
Phone: +36 1 781-6846
Fax: +36 1 781-6866
www.tungaloy.co.jp/hu
info@tungaloytools.hu

Tungaloy Turkey

Dudullu, OSB 4. Cad No:4
34776 Ümraniye Istanbul, TURKEY
Phone: +90 216 540 04 67
Fax: +90 216 540 04 87
www.tungaloy.com.tr
info@tungaloy.com.tr

Tungaloy Benelux b.v.

Tjalk 70
NL-2411 NZ Bodegraven, Netherlands
Phone: +31 172 630 420
Fax: +31 172 630 429
www.tungaloy-benelux.com

Tungaloy Croatia

Malinska 8
10430 Samobor, Croatia
Phone: +385 1 3326 604
Fax: +385 1 3327 683
www.tungaloy.hr

Tungaloy Cutting Tool (Shanghai) Co., Ltd.

Rm No 401 No.88 Zhabei
Jiangchang No.3 Rd
Shanghai 200436, China
Phone: +86-21-3632-1880
Fax: +86-21-3621-1918
www.tungaloy.co.jp/tcts

Tungaloy Cutting Tool (Thailand) Co., Ltd.

TCIF Tower 4th Fl.
1858/5-7 Bangna-Trad Road
km.5 Bangna, Bangna, Bangkok 10260
Thailand
Phone: +66-2-751-5711
Fax: +66-2-751-5715
www.tungaloy.co.th

Tungaloy Singapore (Pte.), Ltd.

62 Ubi Road 1, #06-11 Oxley BizHub 2
Singapore 408734
Phone: +65-6391-1833
Fax: +65-6299-4557
www.tungaloy.co.jp/tspl

Tungaloy India Pvt. Ltd.

Unit#13, B wing, 8th floor
Kamala Mills Compound
Trade World, Lower Parel (West)
Mumbai - 4000 13, India
Phone: +91-22-6124-8804
Fax: +91-22-6124-8899
www.tungaloy.co.jp/in

Tungaloy Korea Co., Ltd

#1312, Byucksan Digital Valley 5-cha
Beotkkot-ro 244, Geumcheon-gu
153-788 Seoul, Korea
Phone: +82-2-2621-6161
Fax: +82-2-6393-8952
www.tungaloy.co.jp/kr

Tungaloy Malaysia Sdn Bhd

50 K-2, Kelana Mall, Jalan SS6/14
Kelana Jaya, 47301
Petaling Jaya, Selangor Darul Ehsan
Malaysia
Phone: +603-7805-3222
Fax: +603-7804-8563
www.tungaloy.co.jp/my

Tungaloy Australia Pty Ltd

PO Box 2232, Rowville,
Victoria 3178, Australia
Phone: +61-3-9755-8147
Fax: +61-3-9755-6070
www.tungaloy.co.jp/au

PT. Tungaloy Indonesia

Kompleks Grand Wisata Block AA-10
No.3-5 Cibitung
Bekasi 17510, Indonesia
Phone: +62-21-8261-5808
Fax: +62-21-8261-5809
www.tungaloy.co.jp/id



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