MACHINING of Tomorrow

INDUSTRY 4.0 FEED the SPEED!
TUNGALOY HIGHLIGHTS - FEED the SPEED!

- **CAD**
  - Find Tools and download CAD drawings and 3D models
  - www.tungaloy.com/ecatalog

- **ThreadMilling Advisor**
  - Tungaloy’s new CNC program generator facilitates thread milling programming
  - www.tungaloy.com/threadmilling

- **Tungaloy Atlas**
  - New Smartphone Application to explore the wide range of Tungaloy solutions
  - www.tungaloy.com/atlas

- **Insert Selection Guide**
  - Find Tungaloy’s first recommendations for Turning operations
  - www.tungaloy.com/insertguide

- **Matrix**
  - Tool management system
  - www.tungaloy.com/matrix
Tungaloy’s Insights – Smart Manufacturing

On the wave of digitalization, a full understanding of the changes and opportunities digitalization brings is critical for industries to function and stay competitive. Tungaloy offers a portfolio of its latest digital services and products to support our customers in making better tooling decisions and to help heighten their competitiveness in a world eager to embrace Industry 4.0 technology.
TUNGALOY HIGHLIGHTS - FEED the SPEED!

Contents

6

GRADES

Outstanding Grades

More Robust than Ever
CBN - BXA20 with WavyJoint

12

TURNING & GROOVING

5 Reasons Why!
High depth and High feed Turning
Vibration-free for deep hole boring
Versatile tools for grooving and side turning operations
MILLING

Faster, Better, Stronger End Mills
Facing New Challenges
A Remarkable Solution for Face Milling
High Feed Milestones
Perfect Pitch
Economical thread-milling solutions

DRILLING

Masters of Hole Making
Unparalleled solutions for drilling and deep hole drilling
Outstanding Grades

TungaloY Highlights - FEED the SPEED!

Dramatically improved chipping and fracture resistance

Multi-layered PVD coating prevents crack expansion which causes chipping and fracture

APPLICATION AREA

<table>
<thead>
<tr>
<th>Cutting speed Vc (sfm)</th>
<th>T3225</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>P 500 - 1000 sfm</td>
</tr>
<tr>
<td></td>
<td>M 260 - 800 sfm</td>
</tr>
<tr>
<td>High</td>
<td>P 300 - 800 sfm</td>
</tr>
<tr>
<td></td>
<td>M 200 - 650 sfm</td>
</tr>
</tbody>
</table>

Steel Stainless Steel
MILLING

**TUNGALOY HIGHLIGHTS**
- FEED the SPEED!

**APPLICATION AREA**

**T3225**
- Most suited for steel and stainless steel at high-speed machining
- Extremely fracture resistant CVD-coated grade most suited for high speed milling of steel and stainless steel in stable condition.

**APPLICATION AREA**

**T1215**
- Best for cast iron at high-speed machining
- CVD-coated grade with superb resistance to wear and chipping in a broad range of cast iron milling for medium to high cutting speeds.

**DoTriple-Mill**
- Face Milling

**DoForce-Tri**
- Shoulder Milling

**Cast Iron**
- Most suited for steel and stainless steel at high-speed machining

**Steel**
- Extremely fracture resistant CVD-coated grade most suited for high speed milling of steel and stainless steel in stable condition.

**Stable**
- Unstable

**Cutting speed Vc (sfm)**
- High
- Low

**T3225**
- P 500 - 1000 sfm
- M 260 - 800 sfm

**AH3135**
- P 300 - 800 sfm
- M 200 - 650 sfm

**T1215**
- K 0 - 1000 sfm

**AH120**
- Stable
- Unstable

[www.tungaloyamerica.com](http://www.tungaloyamerica.com)
**New generation of CVD grade** for steel turning with outstanding productivity

T9215 CVD grade with unparalleled wear and fracture resistance for turning ISO P15 materials

---

**Incredible reliability in heat-resistant alloy turning**

High Al content nano-multilayer AlTiN coating, Tungaloy’s latest coating innovation, ensures long, stable tool life, while improving notch wear resistance, thanks to the coating’s increased hardness and adhesion strength.

---

**APPLICATION AREA**

- **P**

  - **Cutting Speed** (Vc) (sfm)
    - **High**: 1300
    - **Low**: 0

  - **Continuous**
  - **Light Interrupted**
  - **Interrupted**

  - **Tool Grades**
    - T9105
    - T9115
    - T9125
    - T9135

---

**APPLICATION AREA**

- **S**

  - **Cutting Speed** (Vc) (sfm)
    - **High**: 260
    - **Low**: 0

  - **Continuous**
  - **Light Interrupted**
  - **Interrupted**

  - **Tool Grades**
    - AH8005
    - AH8015
Unparalleled performance in hard-turning applications

MORE ROBUST than Ever
**Wavy Joint BXA20**

-vs.-

**Standard**

**CBN tip size:**
Up 200% for improved heat control in the cutting zone

**Brazing area:**
Up 160% for enhanced brazing strength

Temperature during machining is concentrated on the CBN tip, reducing temperature issues in the brazing zone.

---

**New brazing technology**
for increased machining efficiency - “Wavy Joint”

**Wavy Joint BXA20**
Great performance for continuous to heavy interrupted cutting at low and medium speeds.

**APPLICATION AREA**

<table>
<thead>
<tr>
<th>Cutting speed Vc (sfm)</th>
<th>1000</th>
<th>500</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuous</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light Interrupted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interrupted</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**TUNGALOY HIGHLIGHTS - FEED the SPEED!**

**TURNEN FEED**

*Pentagonal double-sided insert* for high-feed and high-depth of cut in turning applications

**5 REASONS**

**Why!**

- **Depth of Cut**
  - HD type holder applicable for **High Depth of cut** up to 0.275" (7 mm) for high productivity turning

- **Feed rate**
  - HF type holder applicable for **High Feed** up to 0.078" (2.0 mm) for high productivity turning

- **10 corners**
  - Double-sided inserts with 10 cutting edges. Larger corner angle than ISO inserts provides high fracture resistance

- **Chip control**
  - Superb chip control due to the **new MNW chipbreaker**

- **T9215 Grade**
  - Long tool life and stable machining in a wide range of application areas compared to products equivalent to P15 grade
Pentagonal double-sided insert for high-feed and high-depth of cut in turning applications.
TUNGALOY HIGHLIGHTS - FEED the SPEED!

Vibration-free FOR DEEP-HOLE BORING
BoreMeister offers the ultimate solution for overcoming tool overhang challenges of up to 10xBD, while enhancing stability in deep hole boring, which is not possible with traditional steel or carbide shanks.

- Shank diameters available in ø16 mm, ø20 mm, ø25 mm, ø32 mm, ø40 mm, ø50 mm, and ø60 mm.

- Overhangs available in 7xBD or 10xBD depending on the tool diameter. Internal coolant supply for efficient chip evacuation.
VERSATILE TOOLS
for Grooving and Side-turning operations

Enhanced TungCut series provides high productivity, stability, and cost effectiveness.
CHP, high-pressure internal coolant supply ensures smooth chip evacuation, while improving machining efficiency in higher parameter applications.

New modular blade system provides machining security and efficiency as well as tool cost reduction.

**NEW Grade**

**AH7025**

First recommended grade for general purpose. New PVD coating with high Al content provides excellent adhesion strength. Improved wear and chipping resistance.

Enhanced chipbreaker selections in combination with AH7025 grade offers productivity and stability in a wide range of materials and applications.
Faster, Better
STRONGER END MILLS

V-shaped insert bottom guarantees excellent stability in high speed machining operations

Sharp cutting edge with positive rake face ensures smooth cutting.

Large screw improves clamping rigidity.

Cutter bodies: Shank type EPAV DCX 0.313” - 1.00” (8 - 32 mm),
Modular type HPAV (DCX 10 - 16 mm),
Bore type TPAV (DCX 40 mm)
AH3135: Suitable for steel and stainless steel machining with high toughness

AH120: Ideal for machining of cast iron and heat resistant alloy

AH130: Optimized for titanium alloys and heat resistant alloy. First choice for wet machining

MJ type chipbreaker

AJ type chipbreaker

Uncoated carbide grade, KS05F with fine grain cemented carbide has high wear resistance for non-ferrous machining.
Facing New Challenges

A remarkable solution for face milling

Brings a top performance in every operation: from high feed milling, scale removing, finish milling and more.

Dovetail structure provides high clamping rigidity with only one screw.

Cutter bodies: Bore type TASN DCX 2.00” - 6.00” (50 - 160 mm) available in coarse-, close-, and extra close-pitch designs.

Face milling cutter with 3 types of double-sided inserts

SNMU13-MJ
8-cornered general purpose insert
Max. ap - 0.236” (6 mm)

ONMU05-MJ
16-cornered economical insert
Max. ap - 0.134” (3.4 mm)

RNU13-MJ
8-cornered radius insert for high feed and general machining
Max. ap - 0.236” (6 mm)
HIGH FEED Milestones
the Go-to-Solution for Accelerated Machining
Robust cutter body design and rigid insert retention ensure machining stability

Single-sided insert with high inclination angle for better chip evacuation

Free cutting geometry to ensure stability in long overhang applications

Available in a wide lineup of cutter bodies and inserts for various application needs

Cutter bodies:
Shank type EXLS DCX 0.315” - 0.625” (8 – 16 mm)
Modular type HXLS DCX 8 – 16 mm

LSMT02..
2-cornered insert
Max. ap: 0.02” (0.5 mm)
The large clamping screw and twisted contact surface increase reliability at high feed rates.

2 types of inserts fit into the same pocket, radius type for profile milling and high-feed type for high-feed milling.

Cutter bodies:
Bore type TXLN DCX 1.50" - 3.00" (40 - 63 mm), Shank type EXLN DCX 1.00" - 1.50" (20 - 40 mm), Modular type HXLN (DCX 20 - 32 mm)

Super high-feed cutter for profile milling with rigid clamping

LNMX04/06 MJ & ML
Radius type available in R4, R6 corner radii for profile milling of various materials.

LNMX04/06-HJ
High-feed type applicable for depths of cut up to 0.05" (1.3 mm) and 0.078" (2.0 mm) respectively.
TUNGALOY HIGHLIGHTS - FEED the SPEED!

PERFECT Pitch
Economical thread-milling solutions with versatility for high productivity

Indexable thread milling cutters – ETLN
Various multi-point inserts fit one shank to cover a wide range of threading diameters and pitches, providing reduced tool inventory and costs.

Indexable threading mills – single-point insert design
Suitable for deep hole and large-pitch threading. Its light cutting geometry ensures high stability and high accuracy threading up to 0.236" (6 mm) pitch.

TungMeister
Head-changeable milling tools for less downtime than solid tapping tools.

SolidThread
Solid carbide thread milling tool series for diameters as small as M1x0.25 and 0-80UNF.
Masters of Hole Making

DRILLMEISTER

Changeable head drill system for solid productivity

Excellent cutting performance and tool life due to new head geometries and innovative grade AH9130

Dovetail interlocking system prevents the drill head from falling during replacement, simplifying drill setup.

Drill bodies:
TID flange type: Available in 1.5xD, 3xD, 5xD, 8xD, and 12xD (12xD to be used with collets or hydro-grips)

TIDC straight type: Suitable for use with TIDCF chamfer holders

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

Drill head: DMP... (AH725) DMC - 2M, DMH... (AH9130)
DCX: 0.236” - 1.020” (6 - 25.9 mm) in increments of 0.1 mm

DMP (AH725)
General purpose for various materials and machining situations

DMH (AH9130)
Tough cutting edges and shoulder geometry for improved tool life

DMC (AH9130)
Self centering point and double margins ensure excellent hole diameter accuracy and roundness
Deep hole drilling with remarkable productivity and stability

Good chip control and smooth chip evacuation achieved due to the special insert geometries.

Drill bodies for lathes, machining centers, and gundrill machines:

MCTR... for machining centers: Stocked in 8xD, 10xD, 15xD, and 25xD for drilling depths from 6.693" - 30.512" (170 to 775 mm), depending on the diameter.

TRLG... for gundrill machines: Offered up to the length of 94.5" (2400 mm).

Also available in a variety of drill holding drivers for different types of spindle interfaces.

Guide pads GP...: Equipped with 2 usable edges.

Insert: TOHT... (with chip splitter) Available in 5 sizes to cover DCX 0.551" - 1.102" (14 to 28 mm)

Insert: FBH... FBM... Available in 3 and 4 sizes respectively to cover DCX 1.141" - 1.575" (29 to 40 mm)
Worldwide Network

Tungaloy Corporation
Head Office
11-1 Yoshima Kogyodanchi
Iwaki 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 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 Courtaboeuf - Le Rio
1 rue de la Terre de feu
F-91952 Courtaboeuf 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
Bultgatan 38, 442 40
Kungälv, Sweden
Phone: +46-462119200
Fax: +46-462119207
www.tungaloy.se

Tungaloy Rus, LLC
Andropova avenue, h.18/7,
11 floor, office 3, 115432,
Moscow, Russia
Phone: +7-499-683-01-80
Fax: +7-499-683-01-81
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