TUNGALOY HIGHLIGHTS

Latest Innovations for Accelerated Machining









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The latest innovations in milling applications to enable you to feed the speed and utilize accelerated machining for high economic efficiency and productivity.

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Enhanced productivity with Tungaloy's quick change tooling systems and innovative high-speed spindles.





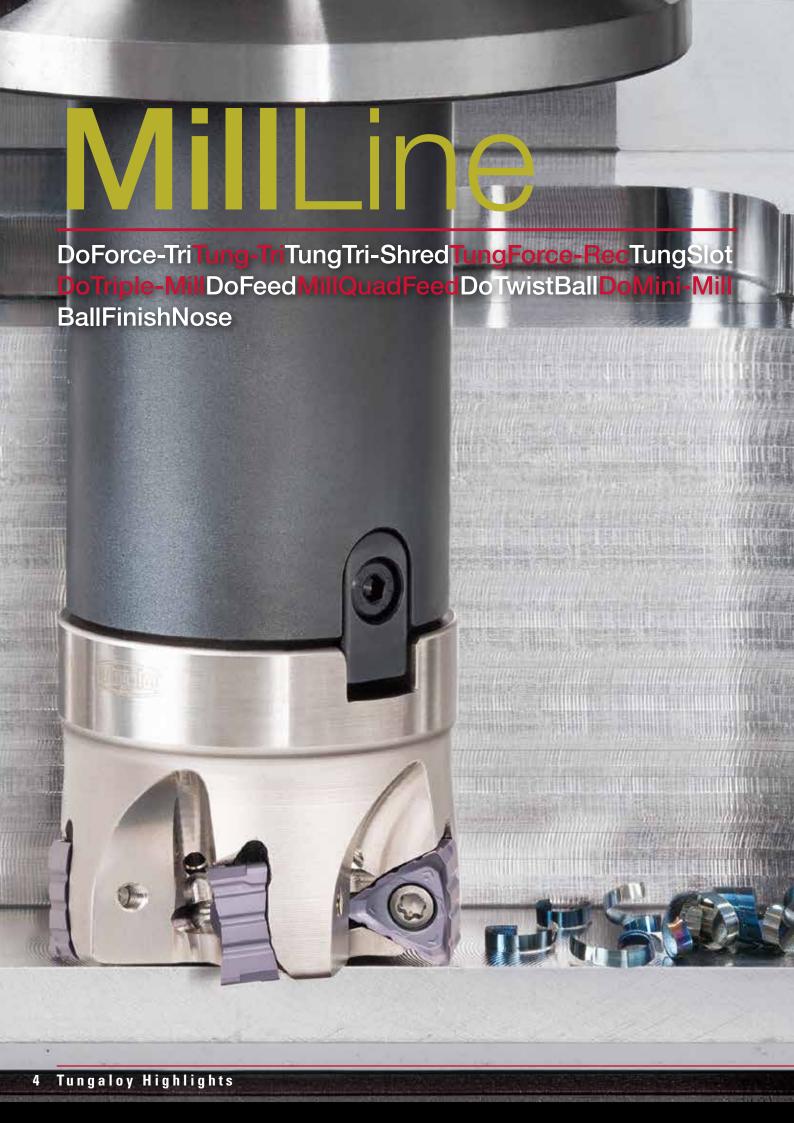
















Double-sided triangular inserts for highly productive machining with large depths of cut up to 11 mm.

Concave cutting edge and optimized rake angle form barrel-shaped chips, delivering smooth chip evacuation.

Cutter bodies: Bore type TPTN (øDc 50 - 125 mm), Shank type EPTN (øDc 32 - 40 mm)



TNMU-MJ

Economical molded M-class insert with wiper-edge



TNGU-MJ

Wiper edge for high-quality surface finish.



TNMU-R-MJ

Insert with round corner for high toughness.



TNGU-NMJ

Grooves on the cutting edge produce small chips, reducing cutting force and chip volume.







3 cutting edges per insert for highly economical machining.

Optimized relief geometry on the positive insert ensures low cutting force and minimal chatter.

Insert sizes in 6, 10, and 15 mm cover small to large depths of cut.





TOMT-MJ

3 sizes available with versatile MJ chipbreaker.



TOMT-NMJ

NMJ chipbreaker splits chips, reducing chip volume and cutting vibration.





Shoulder milling cutter for roughing to produce shredded chips



Optimized cutter design and cutting edge geometry.

Wavy cutting edge produces small chips reducing chatter.

2 types of inserts fit on the same cutter body, providing options for roughing and finishing.

Cutter bodies: Bore type **TPTC** (ØDc 50 - 100 mm), Shank type **EPTC** (ØDc 50 mm), Roughing type **LPTC** (ØDc 63 - 80 mm)



TCGT-MJ

Excellent surface finish and accuracy due to its highprecision straight cutting edge.



TCMT-NMJ

Anti-vibration machining with extended flute cutter or long overhang application due to wavy cutting edge.







V-shaped insert bottom increases contact area and improves stability.

Sharp cutting edge with positive rake face ensures **smooth cutting.**

Large screw improves clamping rigidity.

Cutter bodies: Shank type EPAV (ØDc 8 - 16 mm), Modular type HPAV (ØDc 10 - 16 mm)



AVGT-MJ

Suitable for steel, stainless steel, cast iron, and superalloys.



AVGT-AJ

Suitable for non-ferrous metal due to its polished rake face.







TungMiniSlit (Ø63 - Ø125 mm)

Thin-width slitting cutter with self-clamping insert.

TungThinSlit (Ø80 - Ø200 mm)

Axial drive type slot milling cutter with 6-cornered side-mounted insert.

TungUniversalSlot (Ø80 - Ø160 mm)

Axial and radial drive type slot milling cutter with 6-cornered radial-mounted insert.

TecTangentialSlot (Ø100 - Ø250 mm)

Axial and radial type slot milling cutter with tangentially mounted inserts.



SSS/M-N

Groove width = 1.6 to 4.5 mm



TVKX-MJ

Groove width = 4 to 9 mm



WNGU-MJ

Groove width = 9 to 16 mm



LMEU-MJ

Groove width = 16 to 25 mm







3 types of double-sided inserts fit in the same pocket: square, octagonal, and round inserts.

Dovetail structure provides high clamping rigidity with only one screw.

Cutter bodies: Bore type TASN (ØDc 50 - 160 mm) available in coarse- and close-pitch designs.



SNGU13-MJ 8-cornered insert Max. ap - 6 mm



ONGU05-MJ 16-cornered economical insert Max. ap - 3.4 mm



RNGU13-MJ

8-cornered radius insert for high feed and general machining Max. ap - 6 mm





The ultimate high-feed cutter with maximum versatility





Carefully designed positive geometry enables smooth chip evacuation and minimal chattering with low cutting force.

Unique concept of a wiper insert for high-feed machining plus finishing.

Cutter bodies: Bore type **TXN03R** (ØDc 40 - 50 mm) & **TXN06** (ØDc 50 - 200 mm),

Shank type **EXN03** (ØDc 16 - 35 mm) & **EXN06** (ØDc 32 - 40 mm),

Modular type **HXN03** (ØDc 16 - 32 mm)

Available in coarse- and close-pitch designs.



LNMU03/06-MJ & ML

MJ: Ideal for tough applications

ML: Applicable for gummy materials



LNGU06X5ZER-W

Wiper with 2 cutting edges for better bottom surface finish







Square-shaped insert with 4 cutting edges and positive flank clearance.

Outstanding productivity due to large depth of cut 2.5 mm and high feed/tooth up to 2 mm/tooth.

Cutter bodies: Bore type TXSW15 (ØDc 50 - 160 mm)



SWMT-MJ

MJ chipbreaker comprises a wide T-land to withstand impact loads.







Ideal tools for 3D machining due to helical cutting edges and anti-rotation feature.

The large clamping screw and twisted contact surface increase reliability at high feed rates.

2 types of inserts, **radius type** and **high-feed type**, fit on the same cutter body.

Cutter bodies: Bore type TXLN (øDc 40 - 50 mm), Shank type EXLN (øDc 20 - 32 mm), Modular type **HXLN** (ØDc 20 - 32 mm) Available in coarse- and close-pitch designs.



LNMX04-R4 MJ & ML

Radius type available in R4 corner radii for profile milling of various materials.



LNMX04-HJ

High-feed type applicable for depths of cut 1.3 mm for high-feed milling.





Double-sided positive insert for semifinishing to finishing



Highly economical insert with 6 cutting edges.

Twisted flank surface provides **positive flank clearance**, improving cutting performance due to large rake angle.

Modular-style endmills with metric and TungMeister threads allow flexibility to be used with various types of shanks and holders in TungHold and TungMeister series.

Cutter bodies: Modular type HFWX04 (ØDc 16 - 25 mm)



WXHU-MJ

Available in 2 corner radii:

R0.5 mm suitable for general hard materials with low depth and width of cut.

R1.0 suitable for hardened steel due to improved corner strength.







2 types of inserts, ball nose type and radius type, cover all machining needs in aerospace and die & mold industries.

Fixed screw contact surface directs clamping force to the desired direction, securing insert clamping.

Coolant channels on the insert help deliver coolant directly to the cutting edge.

Cutter bodies: Shank type EBFM (ØDc 8 - 32 mm), Modular type HBFM (ØDc 10 - 32 mm)



ZFB-MJ

Suitable for finishing and 3D milling of die & mold. Applicable for a wide range of operations.



ZFR-MJ

Suitable for finishing of die & mold. The cutting edge has a corner radius.









Double-sided insert with positive cutting edges.

Same insert applicable for both **Bore Line** and **External Line**.

Bore Line: Minimum diameter of ø12 mm. **External Line:** Suitable for small parts machining with lower cutting force similar to conventional positive inserts.

Ground insert for highly accurate machining.



WXGU

80° corner angle with 6 cutting edges



DXGU

55° corner angle with 4 cutting edges

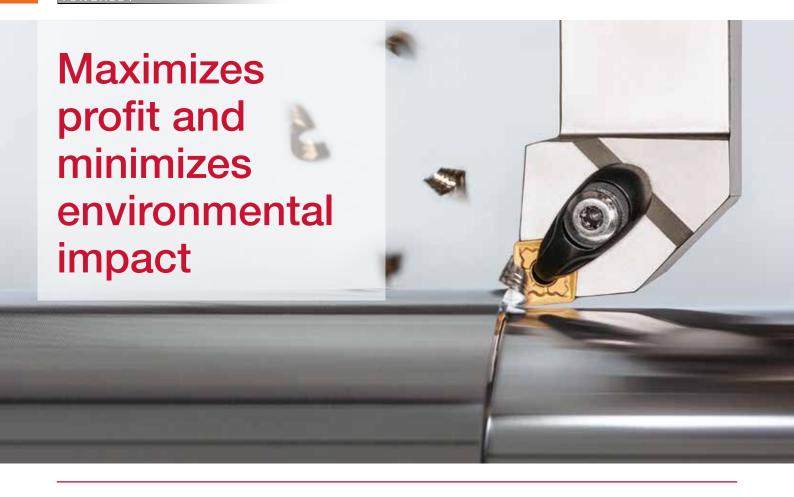


VXGU

35° corner angle with 4 cutting edges







Highly economical insert.

Small-sized inserts save natural resources as well as manufacturing cost.

Same performance as regular-sized inserts.

The performance level in machining with depth of cut up to 3 mm is identical.



ISO-EcoTurn Inserts

Available in popular standard shapes and chipbreakers which are identical to those of regular-sized inserts.







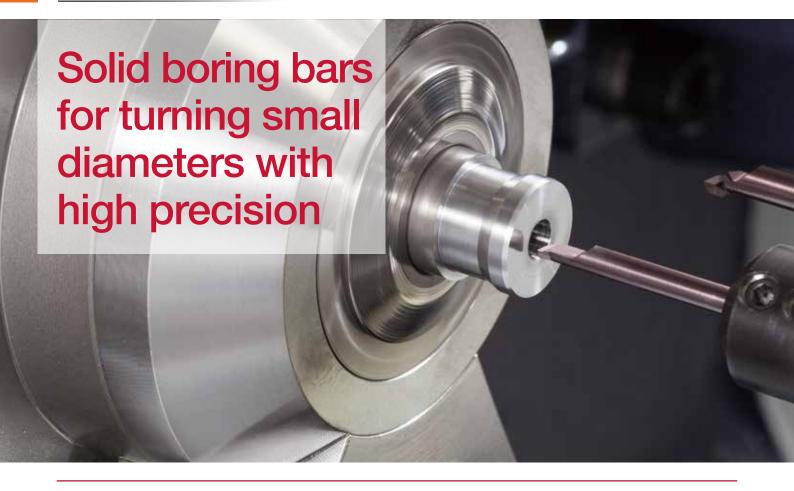
Improved productivity with high-pressure coolant supply.

Coolant supplied from two directions reduces flank wear and crater wear, allowing high-speed machining.

High-pressure coolant on the cutting edge breaks chips, even in machining difficult-to-cut materials, which is hard to achieve with general external coolant supply.







Smooth cutting edge for **high-precision machining** provides fine surface finish and prevents edge chipping.

Solid carbide tools with internal coolant supplied directly to the cutting edge.

Ground chipbreaker optimizes chip formation.

Excellent repeatability of solid bars.

Stability and reliability in tool change.

Reduction in inventory cost: Both Ø4 and Ø7 mm shanks are applicable for one sleeve.

A wide variety of carbide tools for small-part machining: boring, profiling, chamfering, threading, and grooving.

2 types of sleeves are available for internal coolant supply in general applications.







Long tool life and stable machining ensure accuracy and good surface finish for any hard turning operation

The coating thickness is doubled that of conventional grades for a maximum durability and performance

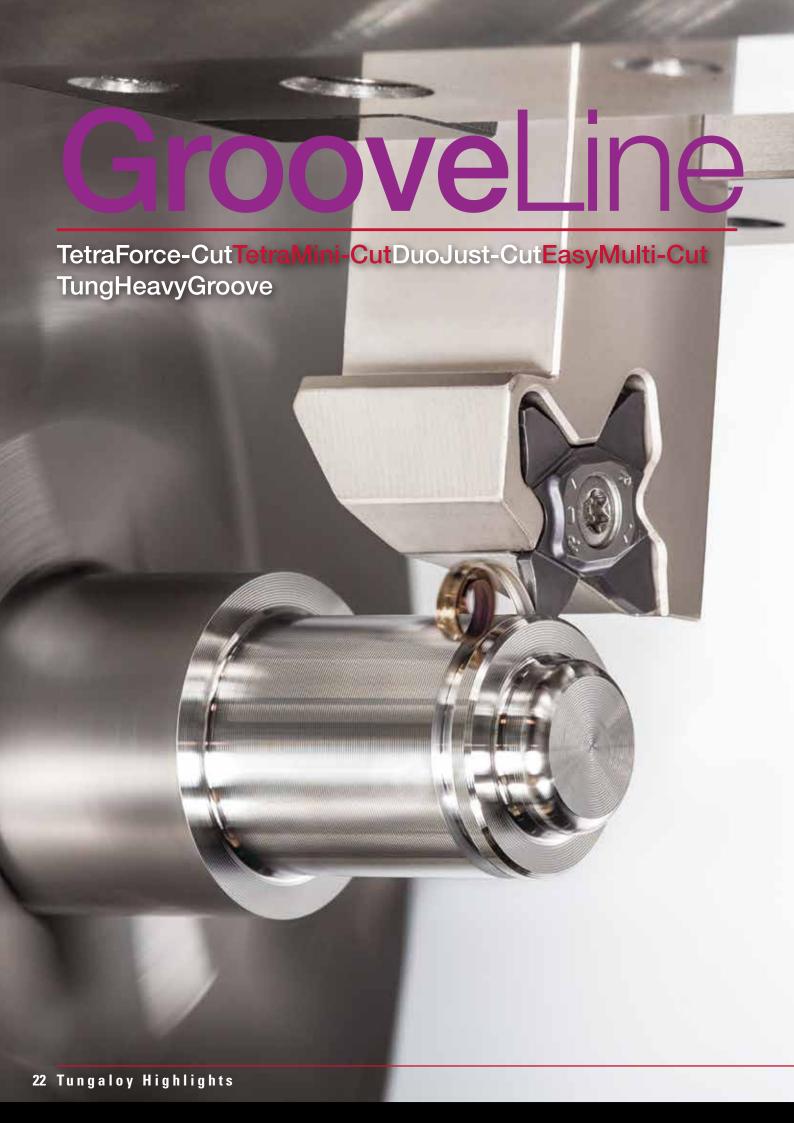
Combined with GNGA type inserts, a unique 70° corner angle design, an excellent surface finish and longer tool life are achieved with a low cutting force



GNGA type

Double-sided cutting edge and 70° corner angle for high performance in finishing operations.









Ground insert with 4 cutting edges for economical machining.

One type of the insert can be used with both right- and left-hand toolholders.

Unique clamping system provides high insert stability in cutting and assures accurate repeatability.

Groove width: 0.5 - 3.18 mm Max. Groove depth: 1.0 - 6.4 mm

Max. Parting-off diameter: Ø2.0 - Ø12.8 mm







Ground insert with 4 cutting edges for highly accurate grooving operations.

Sharp cutting edge for high accuracy and surface quality.

Designed for machining next to shoulder with no interference.

Unique clamping system provides high insert stability in cutting and assures accurate repeatability.

Groove width: 0.33 - 3.0 mm Max. Groove depth: 0.8 - 2.5 mm

Threading: Thread angle = 60°, Pitch = 0.8 to 3.0 mm, TPI = 32 to 8

Square shank: 10 - 25 mm, Round shank: Ø14 - Ø25.4 mm









3 types of inserts are available for various parting-off diameters and can be mounted in the same pocket of the toolholder.

Unique clamping system holds the insert at three points around the insert hole, delivering high rigidity as well as stability in machining.

The insert's sharp cutting edge reduces cutting force and provides high-quality machined surface.

2 types of toolholders:

Sub-spindle type (Square shank): 10 - 12 mm Regular type (Square shank): 10, 12, 16, and 20 mm



JXPG06

Max. parting-off dia. ø6 mm



JXPG12

Max. parting-off dia. ø12 mm



JXPG16

Max. parting-off dia. ø16 mm







Unique self-clamping system.

One type of the insert can be used for parting-off, external / internal / face grooving, and turning applications.

The tool's top shape does not block the chip evacuation out from the groove.

CHP type tools with internal coolant supply provides high wear resistance, excellent surface finish, and smooth chip evacuation.







Easy insert clamp operated at the front.

Open tool design provides a clear path for chip evacuation.

2 types of toolholders: **Lever-lock type** and **screw-on type Shank size:** 12 - 40 mm

PSGM

Groove width: 10 - 25 mm



PSGB

Groove width: 10 - 25 mm







(example of a special insert)









Large-diameter head-changeable drill with 2 effective cutting edges provides high productivity.

The drill body has an optimized flute design for smooth chip evacuation and enhanced stiffness improving reliability.

Unique unidirectional insert clamping and head concentricity improve indexing accuracy.

Drill bodies:

TIS flange type: Available in L/D 3 and 5

Each drill body is applicable for cutting heads in the diameter range of 1 mm.

Drill head: SMP... øDc: Ø26 - Ø41 mm



SMP...

Diameters from 26.0 to 41.0 mm are available in popular size increments for major applications.

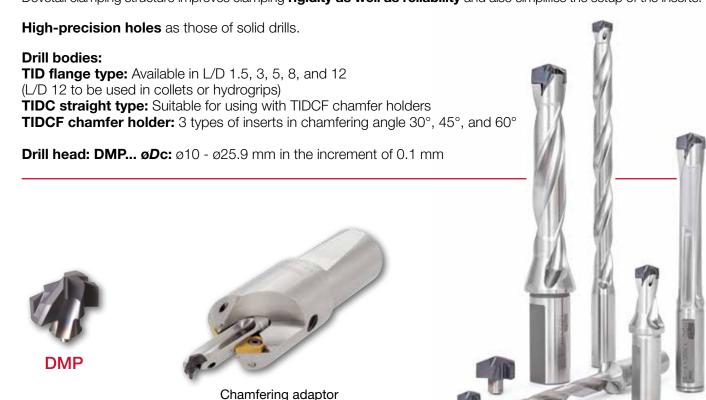






Excellent chip formation due to the **optimized insert geometry** leads to smooth chip evacuation.

Dovetail clamping structure improves clamping **rigidity as well as reliability** and also simplifies the setup of the inserts.







Double-sided insert with 6 cutting edges.

One type of the insert is applicable for both central and peripheral pockets to simplify inventory.

Twisted coolant holes allow the cross section of flutes to be large and increase coolant volume.

Drill bodies:

TDS: Available in L/D 2, 3, and 4

ØDc: Ø20 - Ø54 mm



WWMU-DJ

Size: 05,06, 07, 08, 09, 11, and 13 DJ: Well-designed and suited for general steel, cast iron, and hard materials.

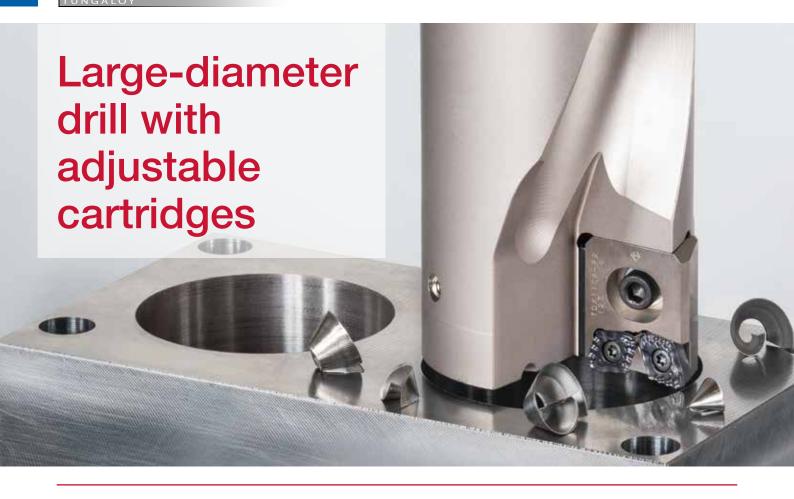


WWMU-DS

Size: 05,06, 07, 08, 09, 11, and 13 DS: The first choice for mild steel, such as stainless steel and low carbon steel.







Highly rigid body and optimized insert position.

Cartridge system allows tool diameters to be adjusted.

TDX and **TDS type cartridges** can be mounted on the same body, allowing easy tool selection depending on the application.

Drill bodies: TDB: L/D 2.5

ø**Dc:** ø55 - ø80 mm



TDS type

Double-sided insert with 6 cutting edges



TDX type

Single-sided insert with 4 cutting edges



Plates to adjust the diameter







Economical 3-cutting-edged indexable insert with chip splitter.

Chip splitters produce small chips for smooth evacuation, reducing cutting force and allowing increased feed rate compared to brazed gundrills.

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

MCTR... for machining centers: Stocked in L/D 10, 15, and 25 for drilling depths 170 to 700 mm depending on the diameter.

TRLG... for gundrill machines: Offered up to the length of 1500 mm which is 90 times as long as the diameter of drilling depth.

Also available in a variety of drill holding drivers for different types of gundrill machines.

Guide pad **GP06...:** Equipped with 2 usable edges.



ØDc: Ø16 - Ø28 mm



TOHT... Available in 5 sizes to cover øDc 16 to 28 mm









Rigid clamping mechanism resists bending force.

High repeatability due to taper and face contact.



Short tool-change time.





Transform the existing machine into a high-speed machine



Outstanding productivity on existing machines due to high-speed rotation.

Appropriate cutting conditions and reduced heat with coolant jet flow achieve long tool life and stable machining for small-diameter tools.

Tools rotate only with coolant pressure, and the machine spindle is idle while SpinJet is in operation.

Wireless RPM monitoring system.

Maximum 60,000 RPM (when coolant pressure is 4 MPa).

Applicable on a wide variety of machines.

High-speed machining with remarkable efficiency on all machines.

Suitable for a wide range of applications.



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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

Iwaki Plant

Products: Cutting Tools

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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

Tungalov 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 Ltda.

Avd. Independencia N4158 Residencial Flora 13280-000 Vinhedo São Paulo, Brazil Phone: +55-19-38262757 Fax: +55-19-38262757 www.tungaloy.com/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 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.I.

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/Miguel 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

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 East LLC

Stachek str., h.4, office 2, Ekaterinburg, 620017, RUSSIA Phone: +7-343-389-13-22 Fax: +7-343-278-94-35 www.tungaloy.co.jp/rue

Tungalov 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 4000 231 Fax: +44 121 270 9694 www.tungaloy.co.jp/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

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

Tungaloy Benelux b.v.

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

Tungaloy Croatia

Josipa Kozarca 4 10432 Bregana, 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.

Interlink 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 Vietnam

4th Fl. Saigon Centre Building 65 Le Loi Blvd. Dist 1, Ho Chi Minh City, Vietnam Phone: +84-8-3827-0201 Fax: +84-8-3827-0203 www.tungaloy.co.jp/tspl

Tungaloy India Pvt. Ltd.

Indiabulls Finance Centre, Unit # 902-A, 9th Floor, Tower 1, Senapati Bapat Marg, Elphinstone Road (West), Mumbai -400013, 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.com.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



Sunrox International, INC

No. 89, Chang An W. Road Taipei TW, Taiwan Phone: +886-2-2555-1111 Fax: +886-2-2556-3333 www.sunroxm.com.tw

Star Tooling CC

P.O. Box 11316 Selcourt 1567 Springs, South Africa Phone: +27 011 818-2259 Fax: +27 011 818-2250 www.startooling.co.za

Alfita Co..ltd

1-1318, Melezha str. Minsk 220013, Belarus Phone: +375296400911 Fax: +375172685054 www.mtool.bv

S.C.Plastteh SRL

Str. Ioan Budai Deleanu Nr. 64 Cluj-Napoca 400474, Romania Phone: +40 364-148940 Fax: +40 364-149956 www.tungaloy.ro





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