

Tungaloy

Member IMC Group

Keeping the Customer First

Tungaloy Report No. 407-E

TURNLINE TAC boring bars

DOMINIBORE



Sharpness of positive inserts with twice the number of cutting edges



Remarkable sharpness reduces cutting forces while the double sided insert increases the number of cutting edges !

Features

Uniquely designed double sided insert

Minimum bore diameter: $\varnothing 12$ mm

→ Economic advantages with twice the number of cutting edges

Advanced edge shape reduces the cutting forces.

→ Similar design to positive type inserts to prevent chattering

One insert type for shank diameter range from $\varnothing 10$ mm ~ $\varnothing 20$ mm

→ Left & Right handed inserts with G-class accuracy create precision machining

Ideal grade series for various applications

→ **AH725** for general steel cutting, **GT530** with high wear resistance for fine surface finishes and the **NS530** for economic performance



Originally designed exclusive insert

TS chipbreaker for DoMiniBore series

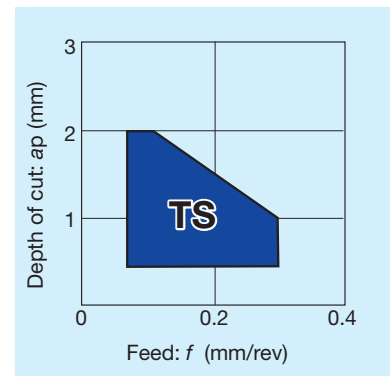
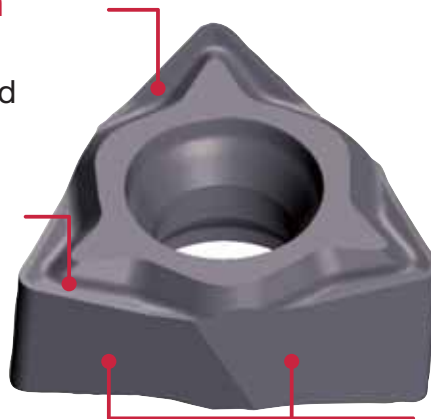
Demonstrates exceptional chip control with wide range of cutting conditions.

Large inclination on edge

Reduces cutting forces and chattering

Wide chip-pocket

Prevents chip packing

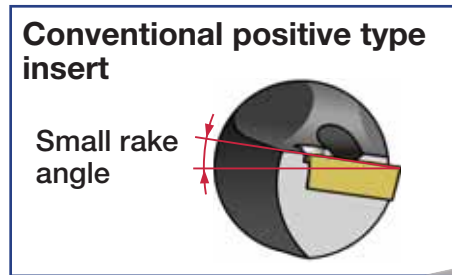
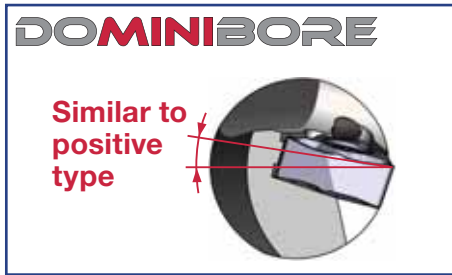


Uniquely designed shape

Precise fit to the toolholder to enhance the clamping rigidity

● High performance boring bars with optimum design

Excellent chip evacuation and high rigidity
(Same structure as StreamJetBar series)



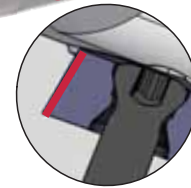
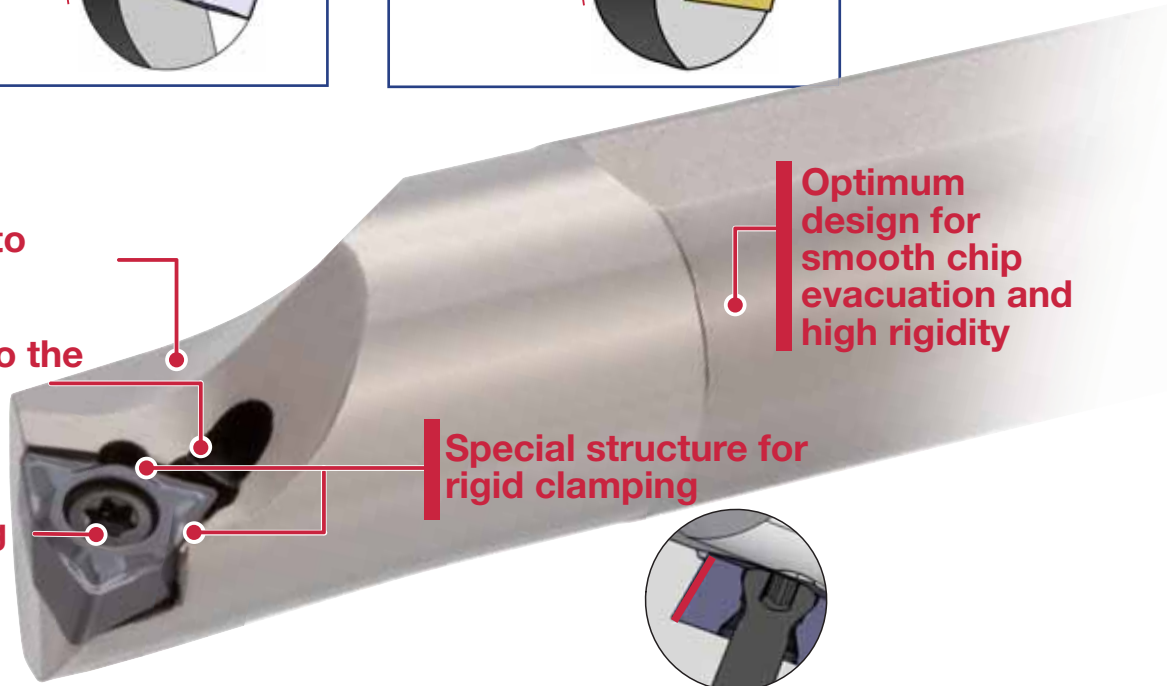
Optimal space to evacuate chips

Oil hole direct to the cutting edge

Screw clamping with high rigidity

Special structure for rigid clamping

Optimum design for smooth chip evacuation and high rigidity



Dove-tail structure (wedge shape) creates high clamping force

Cutting performance

Anti-vibration strength

Same strength level as positive type inserts

■ Steel shank
Cutting speed : $V_c = 150$ m/min
Work material : S45C / C45
Coolant : Wet (internal supply)

Overhang length: 36 mm ($L/D = 3$), Shank diameter: $\phi 12$ mm

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Depth of cut: ap (mm)	2.0	OK	OK	OK	OK
	1.5	OK	OK	OK	OK
	1.0	OK	OK	OK	OK
	0.5	OK	OK	OK	OK
	ap/f	0.05	0.10	0.15	0.20

Feed: f (mm/rev)

Overhang length

Depth of cut: ap (mm)	2.0	OK	OK	OK	OK
	1.5	OK	OK	OK	OK
	1.0	OK	OK	OK	OK
	0.5	OK	OK	OK	OK
	ap/f	0.05	0.10	0.15	0.20

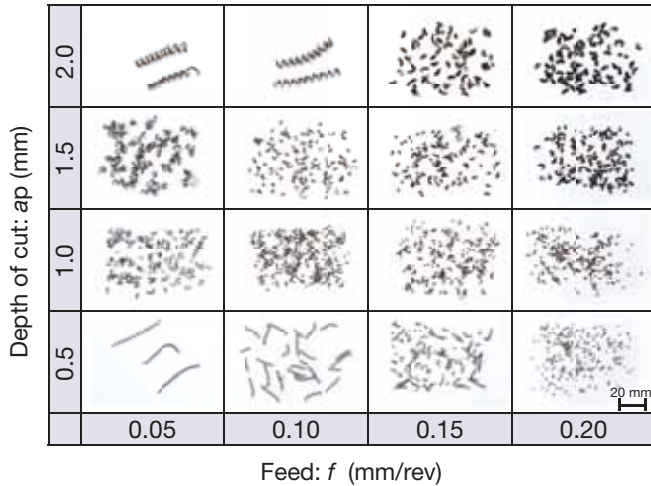
Feed: f (mm/rev)

Chip control

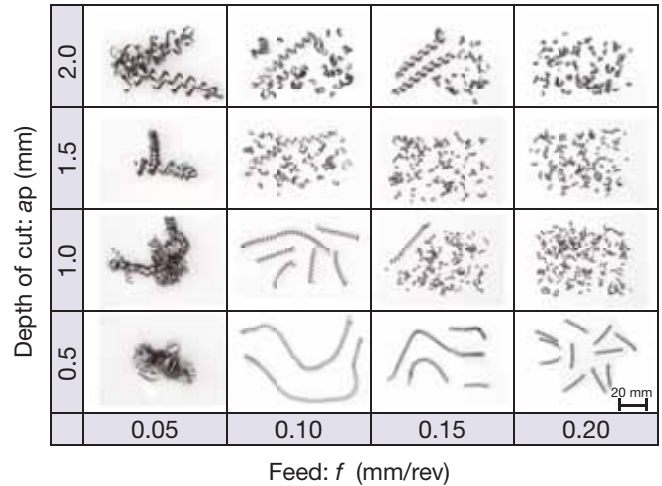
DoMiniBore allows remarkably stable chip control from medium to finish cutting.

Work material : S45C /C45
 Insert : WXGU040304L-TS
 Toolholder : A12M-SWLXR04-D140
 Cutting speed : $V_c = 150$ m/min
 Boring depth : $H = 36$ mm ($L/D = 3$)

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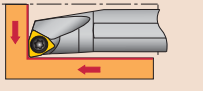
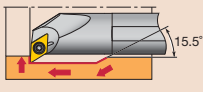


Competitor A (ISO positive insert)



Comparison of products

Line-ups

Style	Shank type	Shank diameter (mm)	Minimum bore diameter ϕD_m (mm)				
			0	10	15	20	25
 SWLXR/L Boring and facing Insert type: WXGU	Steel	$\phi 10 \sim \phi 20$		$\phi 12$			$\phi 22$
	Carbide	$\phi 10 \sim \phi 20$		$\phi 12$			$\phi 22$
 SDXXR/L Internal profiling Insert type: DXGU	Steel	$\phi 10 \sim \phi 20$		$\phi 13$			$\phi 24$
	Carbide	$\phi 10 \sim \phi 20$		$\phi 13$			$\phi 24$

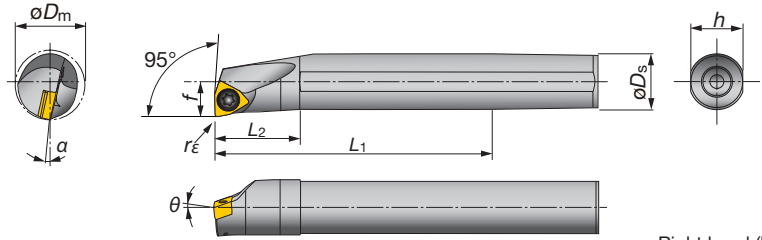
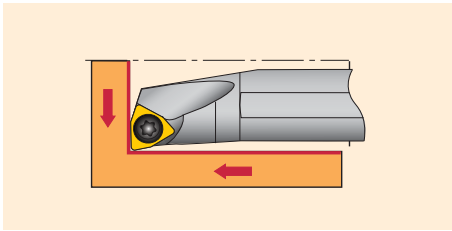
Tool	Minimum bore diameter ϕD_m (mm)							
	5	10	15	20	25	30	35	40
DOMINIBORE Negative type insert			$\phi 12$		$\phi 24$			
STREAMJETBAR Negative type insert ⁽¹⁾				$\phi 20$				$\phi 40$
STREAMJETBAR Positive type insert ⁽²⁾	$\phi 4.5$							$\phi 34$

(1) ISO negative type insert: with PTUNR/L type toolholder

(2) ISO negative type insert: with STUPR/L type toolholder

Toolholders

SWLXR/L Boring & internal facing



Right hand (R) shown

Steel shank

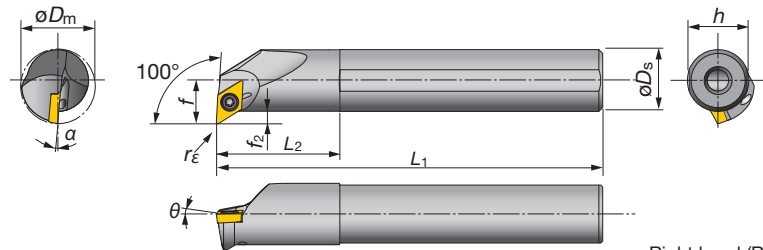
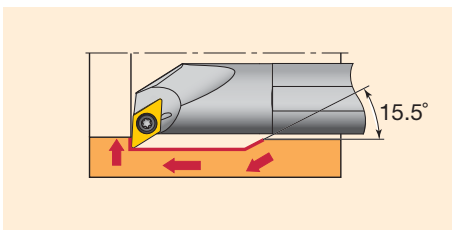
Cat. No	Stock		Min bore dia. ϕD_m	Dimensions (mm)								Std. corner radius r_ϵ	Insert	Parts		Torque (N·m)
	R	L		ϕD_s	f	L_1	L_2	h	f_2	θ	α			Clamping screw	Wrench	
A10K-SWLXR/L04-D120	●	★	12	10	6	125	20	9	-	-10°	-16°	0.4	WXGU0403** L/R	SR34-514	T-7F	0.9
A12M-SWLXR/L04-D140	●	★	14	12	7	150	24	11	-	-10°	-14°	0.4				
A16Q-SWLXR/L04-D180	●	★	18	16	9	180	32	15	-	-10°	-11°	0.4				
A20R-SWLXR/L04-D220	●	★	22	20	11	200	36	18	-	-10°	-10°	0.4				

Carbide shank

Cat. No	Stock		Min bore dia. ϕD_m	Dimensions (mm)								Std. corner radius r_ϵ	Insert	Parts		Torque (N·m)
	R	L		ϕD_s	f	L_1	L_2	h	f_2	θ	α			Clamping screw	Wrench	
E10M-SWLXR/L04-D120	●	★	12	10	6	150	25	9	-	-10°	-16°	0.4	WXGU0403** L/R	SR34-514	T-7F	0.9
E12Q-SWLXR/L04-D140	●	★	14	12	7	180	27	11	-	-10°	-14°	0.4				
E16R-SWLXR/L04-D180	●	★	18	16	9	200	32	15	-	-10°	-11°	0.4				
E20S-SWLXR/L04-D220	★	★	22	20	11	250	36	18	-	-10°	-10°	0.4				

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SWLXL04-D**), and the left hand insert (L) is used for the right hand toolholders (SWLXR04-D**).

SDXXR/L Boring & internal profiling



Right hand (R) shown

Steel shank

Cat. No	Stock		Min bore dia. ϕD_m	Dimensions (mm)								Std. corner radius r_ϵ	Insert	Parts		Torque (N·m)
	R	L		ϕD_s	f	L_1	L_2	h	f_2	θ	α			Clamping screw	Wrench	
A10K-SDXXR/L07-D130	●	★	13	10	7.6	125	20	9	2.6	-14°	-16°	0.4	DXGU0703** L/R	SR34-514	T-7F	0.9
A12M-SDXXR/L07-D160	●	★	16	12	8.6	150	24	11	2.6	-14°	-14°	0.4				
A16Q-SDXXR/L07-D200	●	★	20	16	10.6	180	32	15	2.6	-13°	-13°	0.4				
A20R-SDXXR/L07-D240	●	★	24	20	12.6	200	36	18	2.6	-13°	-12°	0.4				

Carbide shank

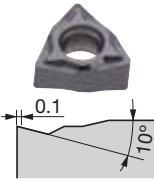
Cat. No	Stock		Min bore dia. ϕD_m	Dimensions (mm)								Std. corner radius r_ϵ	Insert	Parts		Torque (N·m)
	R	L		ϕD_s	f	L_1	L_2	h	f_2	θ	α			Clamping screw	Wrench	
E10M-SDXXR/L07-D130	●	★	13	10	7.6	150	25	9	2.6	-14°	-16°	0.4	DXGU0703** L/R	SR34-514	T-7F	0.9
E12Q-SDXXR/L07-D160	●	★	16	12	8.6	180	27	11	2.6	-14°	-14°	0.4				
E16R-SDXXR/L07-D200	●	★	20	16	10.6	200	32	15	2.6	-13°	-13°	0.4				
E20S-SDXXR/L07-D240	★	★	24	20	12.6	250	36	18	2.6	-13°	-12°	0.4				

When using a right or left hand insert, the right hand insert (R) is used for the left hand toolholders (SDXXL07-D**), and the left hand insert (L) is used for the right hand toolholders (SDXXR07-D**).

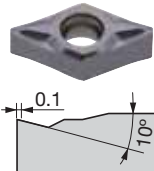
● : Stocked items
★ : Available in 2012

Inserts

80° Rhombic

Application	Chipbreaker	Cat. No.	Grades			Dimensions (mm)			
	Appearance (Cross section)		Coated	Coated cermet	Cermet	I.C. dia. ød	Thickness s	Hole dia. ød1	Corner radius r _ε
			AH725	GT530	NS530				
Finishing to medium cutting	TS	WXGU040302R-TS	★	★	★	6.35	3.18	2.7	0.2
		WXGU040302L-TS	★	★	★				
		WXGU040304R-TS	★	★	★				
		*WXGU040304L-TS	●	●	●				
		WXGU040308R-TS	★	★	★				
		WXGU040308L-TS	●	●	●				
								0.4	
									0.8

55° Triangular

Application	Chipbreaker	Cat. No.	Grades			Dimensions (mm)			
	Appearance (Cross section)		Coated	Coated cermet	Cermet	I.C. dia. ød	Thickness s	Hole dia. ød1	Corner radius r _ε
			AH725	GT530	NS530				
Finishing to medium cutting	TS	DXGU070302R-TS	★	★	★	6.35	3.18	2.7	0.2
		DXGU070302L-TS	★	★	★				
		DXGU070304R-TS	★	★	★				
		*DXGU070304L-TS	●	●	●				
		DXGU070308R-TS	★	★	★				
		DXGU070308L-TS	●	●	●				
								0.4	
									0.8

Note: Chipbreaker cross-sections are of * marked inserts.

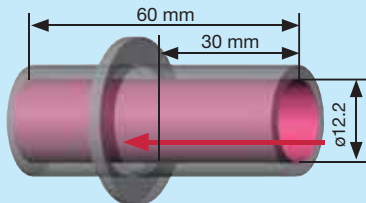
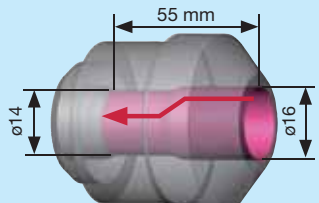
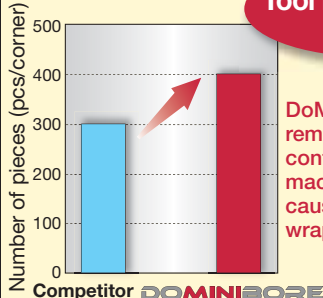
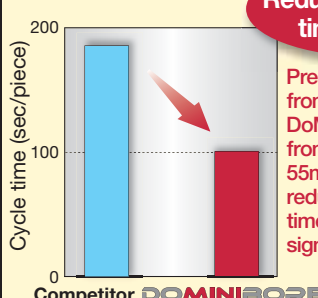
● : Stocked items

★ : Available in 2012

Standard cutting conditions

Work materials	Priority	Grades	Cutting Speed V _c (m/min)	Depth of cut a _p (mm)	Feed f (mm/rev)
Low carbon steels SS400, SM490, S25C etc. (St42-1, St52-3, C25 etc.) Carbon steels S45C, S55C etc. (C45, C55 etc.) Low alloy steels SCM415 etc. Alloy steels SCM440, SCr420 etc. (42CrMo4, 20Cr4 etc.)	First choice	AH725	50 ~ 180	0.3 ~ 2.0	0.08 ~ 0.3
	For improved surface finish	NS530	80 ~ 250	0.3 ~ 2.0	0.08 ~ 0.3
	For wear resistance	GT530	80 ~ 300	0.3 ~ 2.0	0.08 ~ 0.3
Stainless steels (Austenitic) SUS304, SUS316 etc. (X5CrNi18-9, X5CrNiMo17-12-2 etc.) Stainless steels (Martensitic and ferritic) SUS430, SUS416 etc. (X6Cr17, X20Cr13 etc.) Stainless steels (Precipitation hardening) SUS630 etc. (X5CrNiCuNb16-4 etc.)	First choice	AH725	50 ~ 150	0.3 ~ 2.0	0.08 ~ 0.3
Grey cast irons FC250 etc. (GG25 etc.)	First choice	AH725	50 ~ 180	0.3 ~ 2.0	0.08 ~ 0.3
	For improved surface finish	NS530	80 ~ 250	0.3 ~ 2.0	0.08 ~ 0.3
	For wear resistance	GT530	80 ~ 300	0.3 ~ 2.0	0.08 ~ 0.3
Ductile cast irons FCD700 etc. (GGG70 etc.)	First choice	AH725	50 ~ 120	0.3 ~ 2.0	0.08 ~ 0.3
	For improved surface finish	NS530	80 ~ 150	0.3 ~ 2.0	0.08 ~ 0.3
	For wear resistance	GT530	80 ~ 180	0.3 ~ 2.0	0.08 ~ 0.3

Practical examples

Workpiece type		Machine parts	Machine parts
Toolholder		A10K-SWLXR04-D120	E12Q-SWLXR04-D140
Insert		WXGU040304L-TS	WXGU040304L-TS
Grade		AH725	AH725
Work material		S45C / C45	SCr420H / 20Cr4(H)
			
Cutting conditions	Cutting speed : Vc (m/min)	60	120
	Feed : f (mm/rev)	0.25	0.15
	Depth of cut : ap (mm)	0.85	0.5 ~ 2.0
	Machining	Internal turning (continuous cutting)	Internal profiling (continuous cutting)
Coolant		Wet	Wet
Results		 <p>Tool life improved 30% !</p> <p>DoMiniBore shows remarkable chip control and prevents machine stoppages caused by chip wrapping</p>	 <p>Reduced machining time by 45% !</p> <p>Previously: machining from both ends. DoMiniBore: machining from ONE end with 55mm depth. This reduces machining time and tool costs significantly.</p>





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.tungaloyamerica.com

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.tungaloyamerica.com

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 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

Tuřanka 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-G Kostukova str.
308012 Belgorod, Russia
Phone: +7 4722 58 57 57 Fax: +7 4722 58 57 83
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

Hilton Hall Business Centre, Essington
Staffordshire, WV11 2BQ, 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

Des San. Sit. Ticaret Merk 1. Cad No: 3 / 7
34776 Umraniye Istanbul, Turkey
Phone: +90 216 540 04 67 Fax: +90 216 540 04 97
www.tungaloy.co.jp/tr info@tungaloy.com.tr

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.

11th Floor, Sorachai Bldg. 23/7, Soi Sukhumvit 63
Klongtonnue, Wattana, Bangkok 10110, Thailand
Phone: +66-2-714-3130 Fax: +66-2-714-3134
www.tungaloy.co.th

Tungaloy Singapore (Pte.), Ltd.

31 Kaki Bukit Road 3, #05-19 TechLink
Singapore 417818
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/krr

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

Unit 308/33 Lexington Drive
Bella Vista NSW 2153, Australia
Phone: +612-9672-6844 Fax: +612-9672-6866
www.tungaloy.co.jp/au

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