

MILLLINE Face milling cutter

NEW!

DOOCTO
DOQUAD

The best solution for steel and cast iron milling!



Features

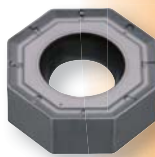
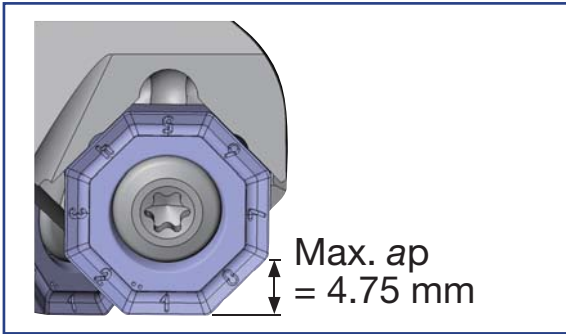
1. Two insert shapes

Octagonal or square inserts, please choose one type per cutter body.

DOOCTO

Economical milling cutter

Octagonal insert
(double sided, 16 corner)

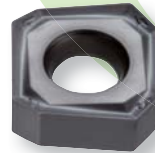
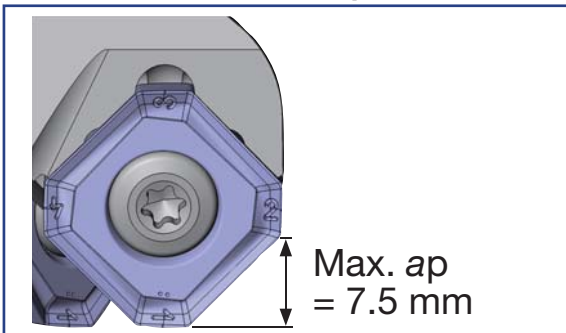


Screw on type

DOQUAD

Productive milling cutter

Square insert
(double sided, 8 corner)



2. Two clamping systems

Screw on



- With air hole
- Large gullet for excellent chip evacuation

Wedge








- Extra close pitch for high productivity

3. Extremely versatile series

- The ideal solution for steel and cast iron milling
- Coarse, close and extra close pitch cutter bodies available
- Available for ML, MJ type chipbreaker and wiper inserts

How to select a cutter

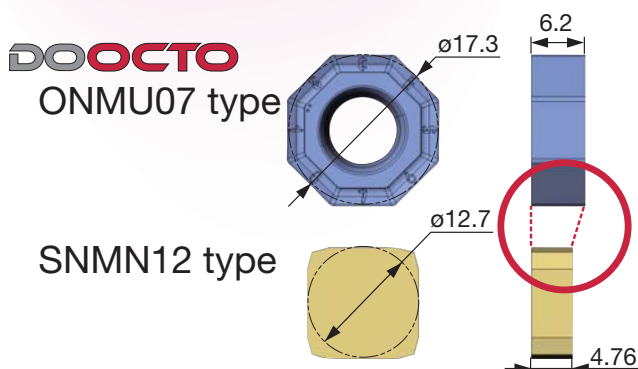
| Work material | Clamp system | Pitch | Shape | |
|--|---|-------------|---|---|
|  Cast irons |  Steels | Screw | Coarse |  |
| | Screw | Close |  | |
| | Wedge | Extra close |  | |



Wedge type



4. Remarkable reliability!

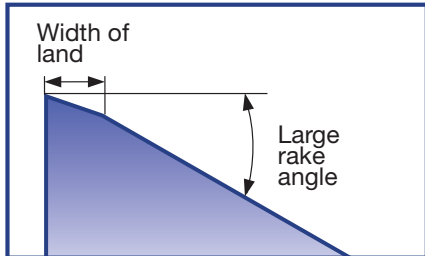


Large and thick insert improves strength!!

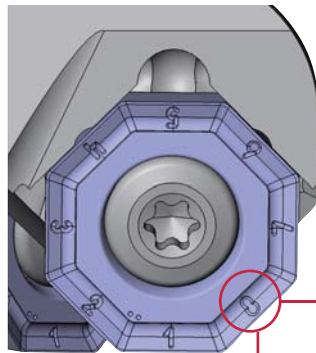
Variation of inserts

Chipbreaker

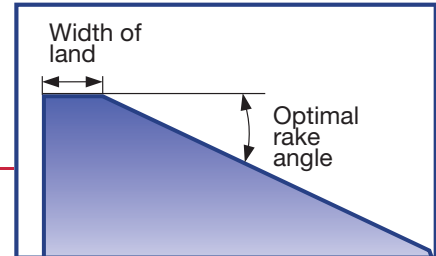
ML type



- Low cutting force
- High sharpness

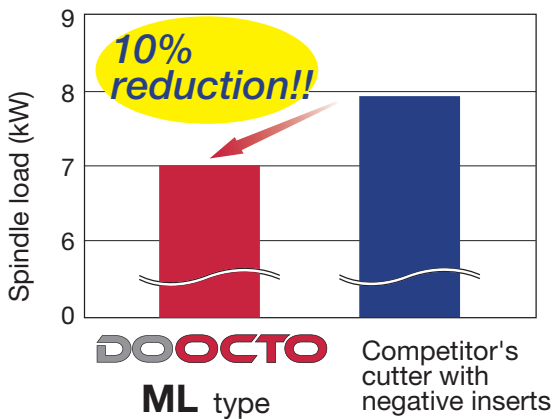


MJ type



- General purpose insert
- Excellent balance of sharpness and strength

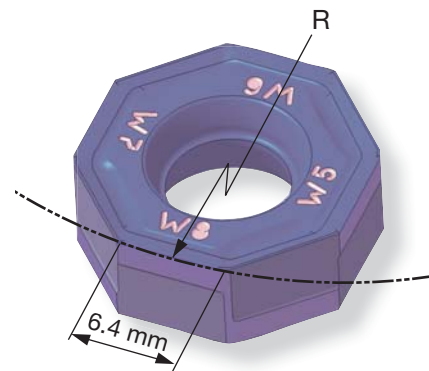
Comparison of spindle load



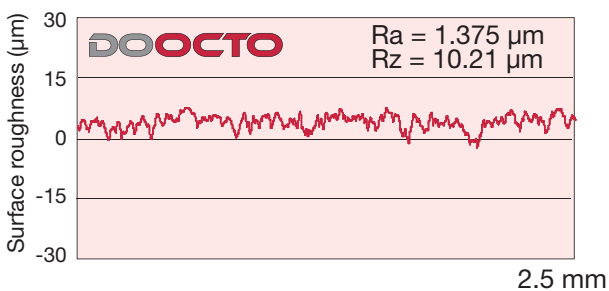
Cutter : TAN07R080M25.4-10W ($\phi 80$, $z = 10$)
 Insert : ONMU0705ANPN-ML
 Grade : AH120
 Work material : FC250 / GG25 (180HB)
 Cutting speed : $V_c = 200$ m/min
 Feed per tooth : $f_z = 0.3$ mm/t
 Depth of cut : $a_p = 3.0$ mm
 Width of cut : $a_e = 50$ mm
 Coolant : Dry

Wiper insert

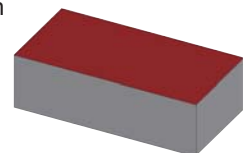
- Wide wiper with slightly curved edge



Surface roughness with wiper



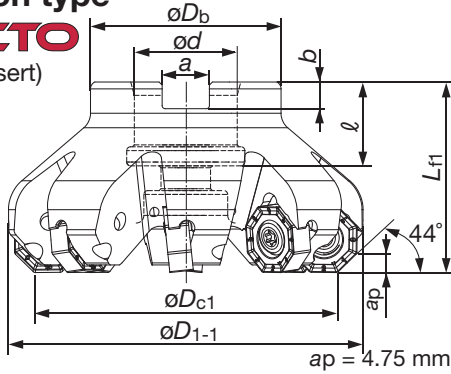
Cutter : TAN07R080M25.4-08 ($\phi 80$, $z = 8$)
 Insert : ONHU0705ANTN-ML
 : ONHU0705ANFN-W
 Grade : AH120
 Work material : FC250 / GG25 (180HB)
 Cutting speed : $V_c = 250$ m/min
 Feed per tooth : $f_z = 0.2$ mm/t
 Depth of cut : $a_p = 3.0$ mm
 Width of cut : $a_e = 60$ mm
 Coolant : Dry



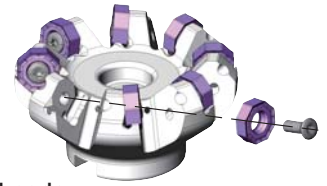
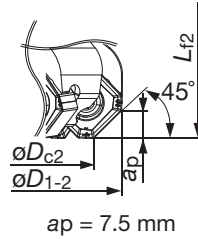
Cutter

Screw on type

DOOCTO
(Octagonal insert)



DOQUAD
(Square insert)



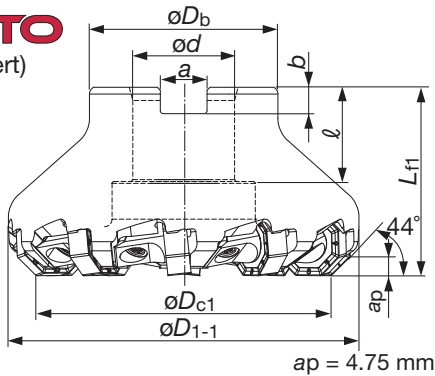
Replacement parts

| Description | | Cat. No. | |
|-------------------------------------|-------------------|--------------------|--------------------|
| Applicable cutter | TAN07R... | TAN07R160M... | |
| Clamping screw | CSPE-5L150 | | |
| Wrench | Torx Bit | BLD IP20/S7 | BLD IP20/M7 |
| | Grip | H-TB | H-TB |
| Mono block type substitution wrench | | IP-20T | |

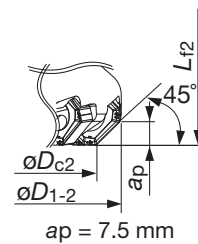
| Type | Cat. No. | Stock | No. of Inserts | Dimensions (mm) | | | | | | | | | | | Weight (kg) | Air hole | Center bolt |
|--------|-------------------|-------|----------------|----------------------|----------------------|-----------------------|-----------------------|-------------------|-----------------|--------|----------|----------|-----|------|-------------|----------|-------------|
| | | | | $\varnothing D_{c1}$ | $\varnothing D_{c2}$ | $\varnothing D_{1-1}$ | $\varnothing D_{1-2}$ | $\varnothing D_b$ | $\varnothing d$ | ℓ | L_{f1} | L_{f2} | b | a | | | |
| Coarse | TAN07R080M25.4-06 | ● | 6 | 80 | 77.3 | 93 | 93.3 | 50 | 25.4 | 26 | 50 | 51.4 | 6 | 9.5 | 1.0 | with | CM12x30H |
| | TAN07R100M31.7-07 | ● | 7 | 100 | 97.3 | 113 | 113.3 | 60 | 31.75 | 32 | 50 | 51.4 | 8 | 12.7 | 1.5 | with | TMBA-M16H |
| | TAN07R125M38.1-08 | ● | 8 | 125 | 122.3 | 138 | 138.3 | 80 | 38.1 | 38 | 63 | 64.4 | 10 | 15.9 | 2.5 | with | TMBA-M20H |
| | TAN07R160M50.8-10 | ● | 10 | 160 | 157.3 | 173 | 173.3 | 100 | 50.8 | 38 | 63 | 64.4 | 11 | 19 | 4.0 | without | - |
| Close | TAN07R080M25.4-08 | ● | 8 | 80 | 77.3 | 93 | 93.3 | 50 | 25.4 | 26 | 50 | 51.4 | 6 | 9.5 | 1.0 | with | CM12x30H |
| | TAN07R100M31.7-10 | ● | 10 | 100 | 97.3 | 113 | 113.3 | 60 | 31.75 | 32 | 50 | 51.4 | 8 | 12.7 | 1.5 | with | TMBA-M16H |
| | TAN07R125M38.1-12 | ● | 12 | 125 | 122.3 | 138 | 138.3 | 80 | 38.1 | 38 | 63 | 64.4 | 10 | 15.9 | 2.5 | with | TMBA-M20H |
| | TAN07R160M50.8-15 | ● | 15 | 160 | 157.3 | 173 | 173.3 | 100 | 50.8 | 38 | 63 | 64.4 | 11 | 19 | 4.0 | without | - |

Wedge type

DOOCTO
(Octagonal insert)



DOQUAD
(Square insert)



Replacement parts

| Description | | Cat. No. | |
|-------------------|------------------------|--------------------|--|
| Applicable cutter | TAN07R...W | | |
| Clamping screw | DS6P | | |
| Wedge | CL ARM-10-TUNG1 | | |
| Wrench | Torx Bit | BLD IP15/S7 | |
| | Grip | H-TBS | |

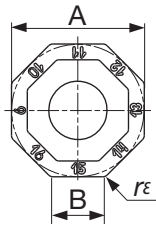
| Type | Cat. No. | Stock | No. of Inserts | Dimensions (mm) | | | | | | | | | | | Weight (kg) | Air hole |
|-------------|--------------------|-------|----------------|----------------------|----------------------|------------------------|------------------------|-------------------|-----------------|--------|----------|----------|-----|------|-------------|----------|
| | | | | $\varnothing D_{c1}$ | $\varnothing D_{c2}$ | $\varnothing D_{c1-1}$ | $\varnothing D_{c1-2}$ | $\varnothing D_b$ | $\varnothing d$ | ℓ | L_{f1} | L_{f2} | b | a | | |
| Extra close | TAN07R080M25.4-10W | ● | 10 | 80 | 77.3 | 93 | 93.3 | 50 | 25.4 | 26 | 50 | 51.4 | 6 | 9.5 | 1.0 | without |
| | TAN07R100M31.7-14W | ● | 14 | 100 | 97.3 | 113 | 113.3 | 60 | 31.75 | 32 | 50 | 51.4 | 8 | 12.7 | 1.3 | without |
| | TAN07R125M38.1-18W | ● | 18 | 125 | 122.3 | 138 | 138.3 | 80 | 38.1 | 38 | 63 | 64.4 | 10 | 15.9 | 2.8 | without |
| | TAN07R160M50.8-22W | ● | 22 | 160 | 157.3 | 173 | 173.3 | 100 | 50.8 | 38 | 63 | 64.4 | 11 | 19 | 4.0 | without |

● : Stocked items

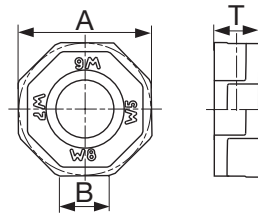
Inserts Specification

Octagonal insert

DOOCTO



MJ, ML (16 corner type)



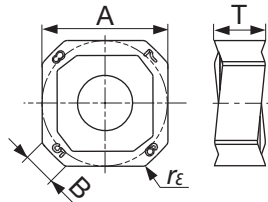
W (Wiper, 8 corner type)

| Cat. No. | Accuracy | Honing | Stocked grades | | | Dimensions (mm) | | | |
|-----------------|----------|--------|----------------|-------|-------|-----------------|-----|-----|----------------|
| | | | AH120 | AH140 | AH725 | A | B | T | r_{ϵ} |
| ONMU0705ANPN-MJ | M | with | | ● | ● | 17.3 | 7.2 | 6.2 | 0.8 |
| ONHU0705ANPN-MJ | H | with | | ● | ● | 17.3 | 7.2 | 6.2 | 0.8 |
| ONMU0705ANPN-ML | M | with | ● | | | 17.3 | 7.2 | 6.2 | 0.8 |
| ONHU0705ANTN-ML | H | with | ● | ● | ● | 17.3 | 7.2 | 6.2 | 0.8 |
| ONHU0705ANPR-W | H | with | ● | | | 17.5 | 6.4 | 5.8 | - |

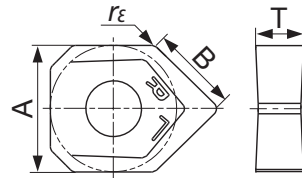
* Please see the attention for wiper inserts: P. 7.

Square insert

DOQUAD



MJ, ML (8 corner type)



W (Wiper, 2 corner type)

| Cat. No. | Accuracy | Honing | Stocked grades | | | Dimensions (mm) | | | |
|-----------------|----------|---------|----------------|-------|-------|-----------------|-----|------|----------------|
| | | | AH120 | AH140 | AH725 | A | B | T | r_{ϵ} |
| SNMU1706ANPR-MJ | M | with | | ● | ● | 17.3 | 4.4 | 6.98 | 0.8 |
| SNHU1706ANPR-MJ | H | with | | ● | ● | 17.3 | 4.4 | 6.98 | 0.8 |
| SNMU1706ANTR-ML | M | with | ● | | | 17.3 | 4.4 | 6.98 | 0.8 |
| SNHU1706ANTR-ML | H | with | ● | | | 17.3 | 4.4 | 6.98 | 0.8 |
| SNHU1706ANFN-W | H | without | ● | | | 17.3 | 11 | 6.5 | 0.4 |

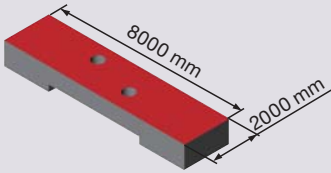
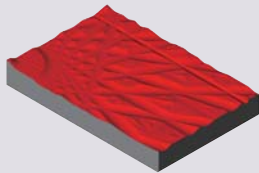
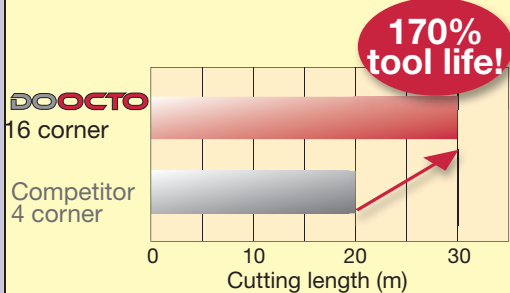
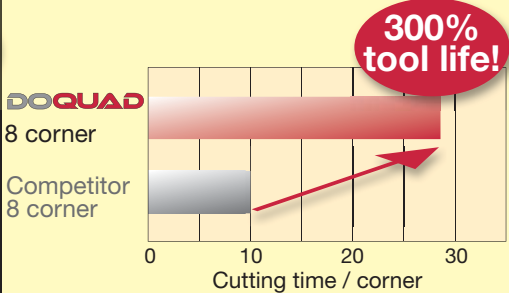
* Please see the attention for wiper inserts: P. 7.

● : Stocked items

Standard cutting conditions

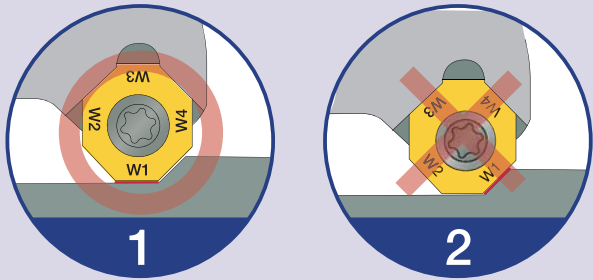
| Work material | Hardness HB | Priority | Recommended | | Cutting Speed Vc (m/min) | Feed per tooth: fz (mm/t) |
|---|-------------|-----------------------|--------------|-------------|--------------------------|---------------------------|
| | | | Grades | Chipbreaker | | |
| Low carbon steels S15C, SS400 etc. (C15E etc.) | ~ 200 | First choice | AH725 | MJ | 100 - 180 - 250 | 0.2 - 0.3 - 0.5 |
| | | For impact resistance | AH140 | MJ | 80 - 130 - 180 | |
| High carbon steels S45C, S55C etc. (C45E, C55E etc.) | 200 ~ 300 | First choice | AH725 | MJ | 100 - 150 - 230 | 0.2 - 0.3 - 0.4 |
| | | For impact resistance | AH140 | MJ | 80 - 130 - 180 | |
| Alloy steels / SCM440, SCr415 etc. (42CrMo4, 17Cr3 etc.) | 150 ~ 300 | First choice | AH725 | MJ | 100 - 150 - 230 | 0.2 - 0.3 - 0.4 |
| | | For impact resistance | AH140 | MJ | 80 - 120 - 150 | |
| Tool steels (SK, SKH etc.) | ~ 300 | First choice | AH725 | MJ | 100 - 120 - 180 | 0.2 - 0.3 - 0.4 |
| Grey cast irons (FC250, FC300 / GG25, GG30 etc.) | 150 ~ 250 | First choice | AH120 | ML | 140 - 180 - 250 | 0.17 - 0.3 - 0.5 |
| Ductile cast irons (FCD400 / GGG40 etc.) | | For impact resistance | AH725 | MJ | | |

Practical Examples

| Part of workpiece | | Machine bed | Parts of machine structure |
|--------------------|------------------------------|---|--|
| Cutter | | TAN07R160M50.8-15 (ø160 mm, z = 15) | TAN07R125M38.1-08 (ø125 mm, z = 8) |
| Insert | | ONHU0705ANTN-ML | SNMU1706ANTR-ML |
| Grade | | AH120 | AH120 |
| Workpiece material | | FC300 (GG30) | FCD700 (GGG70) |
| | |  |  |
| Cutting conditions | Cutting speed: V_c (m/min) | 180 | 120 |
| | Feed per tooth: f_z (mm/t) | 0.18 → 0.2 | 0.24 → 0.5 |
| | Feed speed: V_f (mm/min) | 780 → 1080 | 700 → 1200 |
| | Depth of cut: a_p (mm) | 3 | 3 (x 5 passes) → 5 (x 3 passes) |
| | Cutting width: a_e (mm) | 100 | ~ 80 |
| | Method of machining | Face milling | Face milling |
| | Coolant | Dry | Dry |
| Machine | | Vertical machining center BT50 | Vertical machining center BT50 |
| Results | |  <p>170% tool life!</p> <p>140% productivity! 40% reduction in manufacturing costs!!</p> |  <p>300% tool life!</p> <p>70% reduction of cycle time!</p> |

Attention for wiper inserts

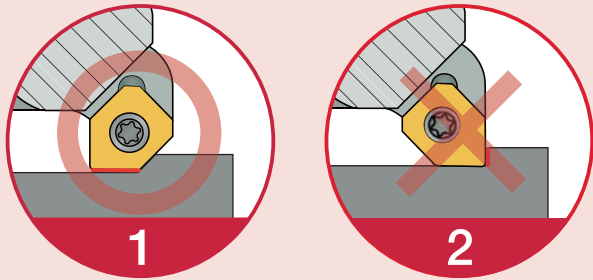
DOOCTO



1 **2**

Just one wiper insert is needed in a cutter
Feed rate: $f < 5.5$ mm/rev

DOQUAD



1 **2**

Just one wiper insert is needed in a cutter
Feed rate: $f < 9.5$ mm/rev



Tungaloy Corporation (Head office)

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

Tungaloy America, Inc.

1226A Michael Drive, Wood Dale, IL.60191, U.S.A.
Phone: +1-630-227-3700 Fax: +1-630-227-0690
<http://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
<http://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
<http://www.tungaloyamerica.com/>

Tungaloy do Brasil Comercio de Feramentas de Corte Ltda.

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

Tungaloy Germany GmbH

Elisabeth-Selbert-Strasse 3
D-40764 Langenfeld, Germany
Phone: +49-2173-90420-0 Fax: +49-2173-90420-19
<http://www.tungaloy-eu.com/>

Tungaloy France S.A.S.

6 Avenue des Andes
F-91952 Courtaboeuf Cedex, France
Phone: +33-1-6486-4300 Fax: +33-1-6907-7817
<http://www.tungaloy-eu.com/>

Tungaloy Italia S.p.A.

Via E. Andolfato 10
I-20126 Milano, Italy
Phone: +39-02-252012-1 Fax: +39-02-252012-65
<http://www.tungaloy-eu.com/>

Tungaloy Czech s.r.o.

Tuřanka 115
CZ-627 00 Brno, Czech Republic
Phone: +420-532 123 391 Fax: +420-532 123 392
<http://www.tungaloy.co.jp/cz/>

Tungaloy Ibérica S.L.

C/La Pau, nº46
E-08243 Manresa (BCN), SPAIN
Phone: +34 93 1131360 Fax: +34 93 1131361
<http://www.tungaloy.co.jp/es/>

Distributed by:

Tungaloy Scandinavia AB

S:t Lars Väg 42A
SE-22270 Lund, Sweden
Phone: +46-462119200 Fax: +46-462119207
<http://www.tungaloy.co.jp/se/>

LLC Tungaloy Rus

Grazhdanskiy Prospectus, 29a
Belgorod, 308019, Russia
Phone: +7 4722 33 97 23 Fax: +7 4722 33 97 23
<http://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
<http://www.tungaloy.co.jp/pl/>

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
<http://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
<http://www.tungaloy.co.th/>

Tungaloy Singapore (Pte.), Ltd.

50 Kallang Avenue #06-03 Noel Corporate Building
Singapore 339505
Phone: +65-6391-1833 Fax: +65-6299-4557
<http://www.tungaloy.co.jp/tspl/>

Tungaloy India Pvt. Ltd.

201, 2nd Floor, Krishna Apra Business Square,
Netaji Subhash Place, Pitampura, Delhi - 110 034, India
Phone: +91-11-4707-1111 Fax: +91-11-4707-1100
<http://www.tungaloy.co.jp/in/>

Tungaloy Korea Co., Ltd

#1312, Byucksan Digital Valley 5-cha
60-73 Gasan-dong, Geumcheon-gu
153-788 Seoul, Korea
Phone: +82-2-6393-8930 Fax: +82-2-6393-8952
<http://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
<http://www.tungaloy.co.jp/my/>



ISO 9001 certified
QC00J0056
Tungaloy Corporation
18/10/1996

ISO 14001 certified
EC97J1123
Tungaloy Group
Japan site and Asian
production site
26/11/1997