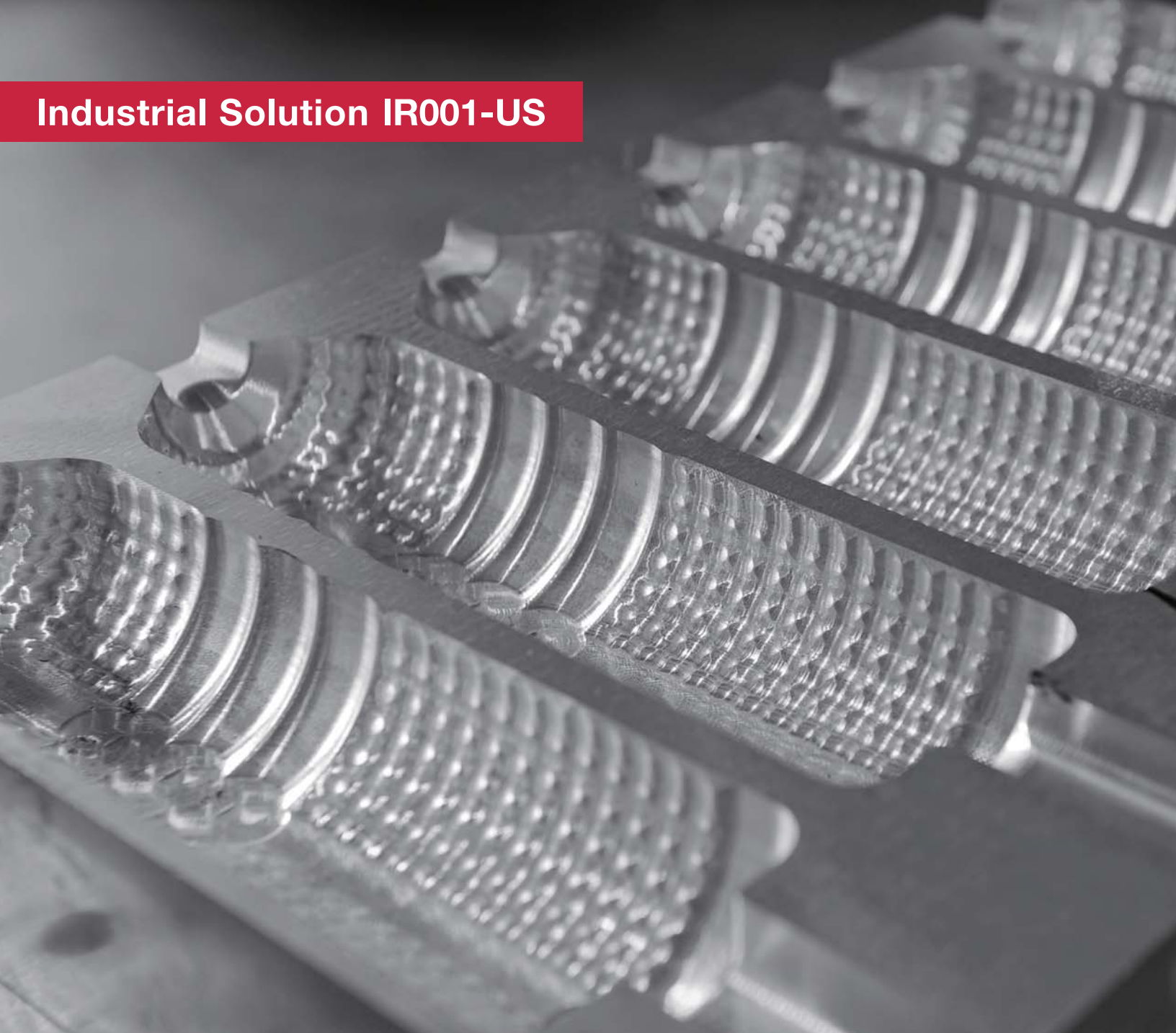


Industrial Solution IR001-US



Die & Mold



Tungaloy Corporation

Door Opening Solutions for Ultimate **Die and Mold** Machining



www.tungaloy.co.jp

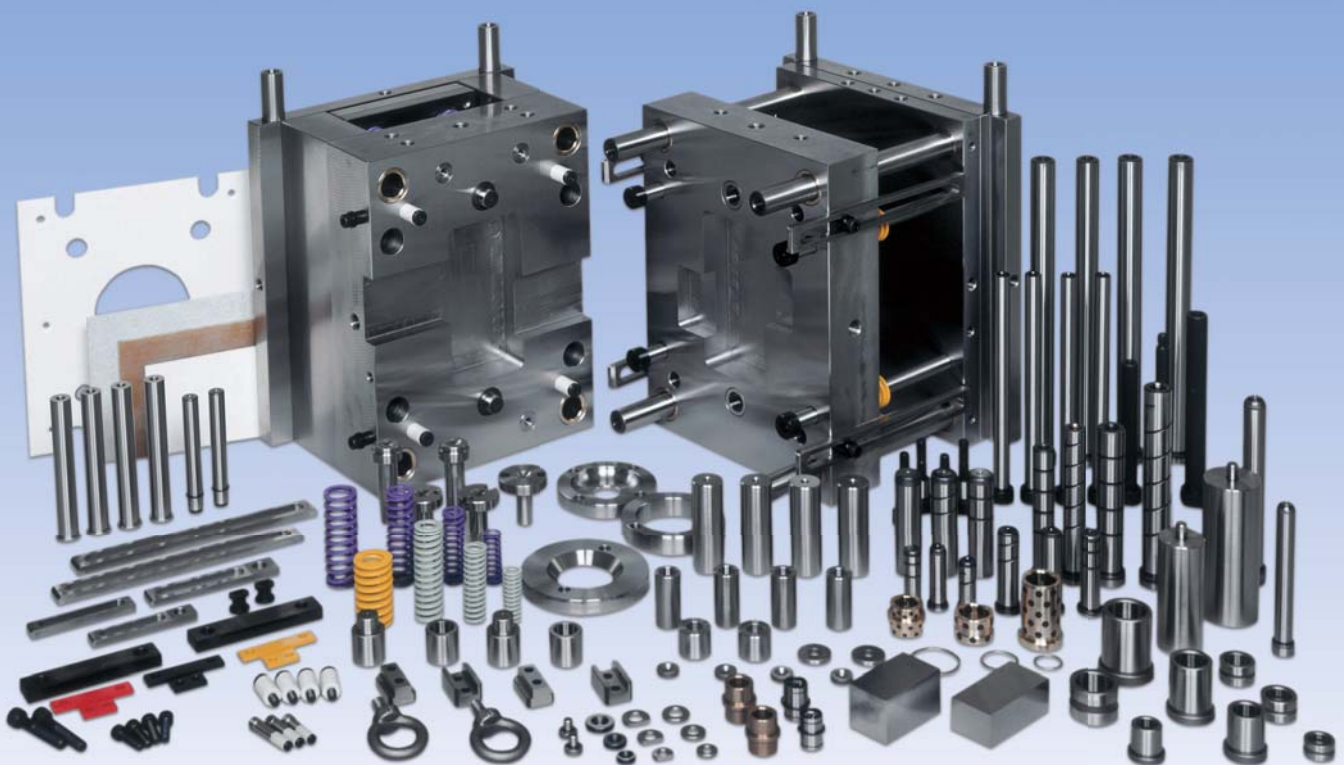


Ask for More of Tungaloy's
Door Opening Solutions

Ultimate tools for Die & Mold from Tungaloy

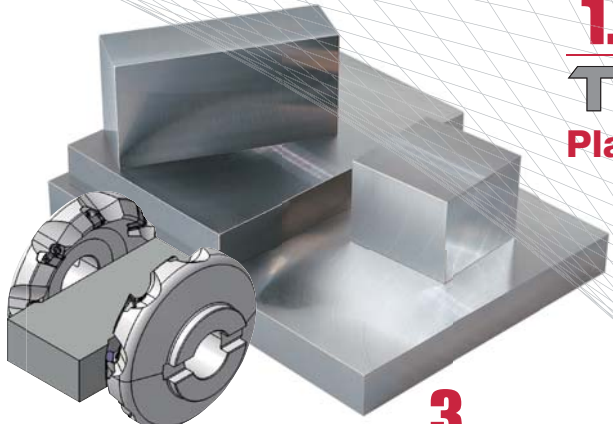
Daily products, such as plastic bottles and cell phones
and many automotive components, are
manufactured via “Die and Mold” machining.

Tungaloy’s exceptional cutting tools contribute significantly
to the Die & Mold machining process.



Die & Mold Components

1.
TUNGMILL
Plates for components



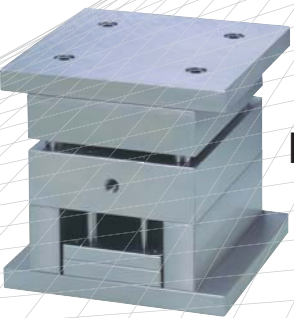
2.
DOFEEDMINI
Cavity plates



3.
TUNGMEISTER
Cores



4.
TUNGDRILLTWISTED
Injection plates / Mold bases



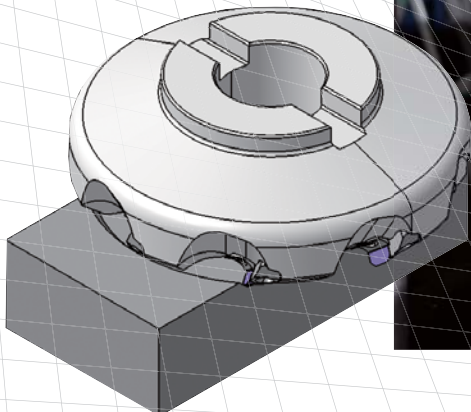
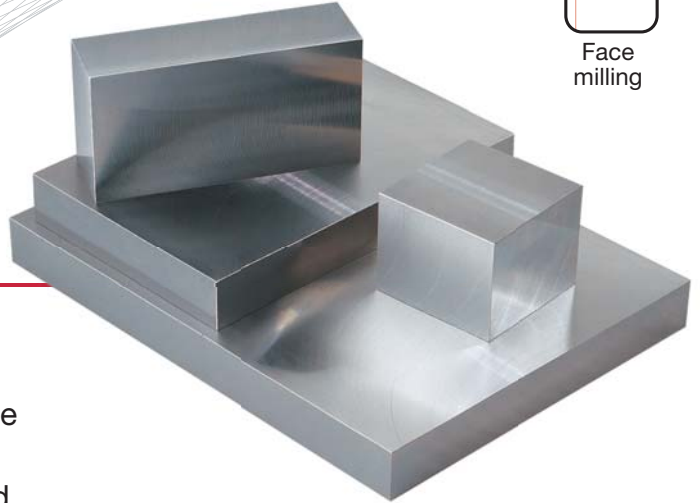
Mold assemblies

1. Face milling of plates

As a leading provider of milling tools, Tungaloy has a great deal of experience with regards to machining plates and providing innovative new products to enhance customers' productivity levels.

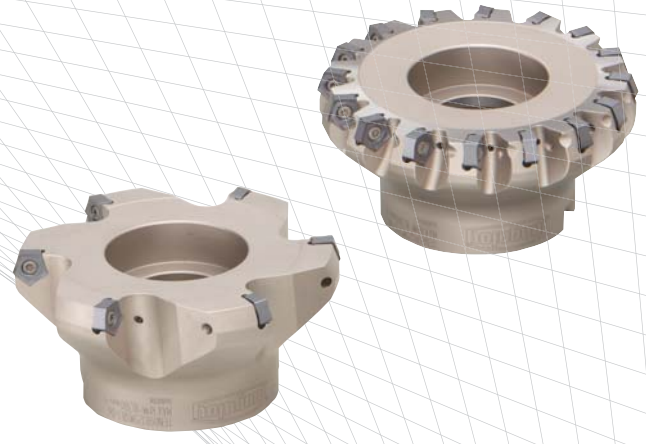
TUNG MILL

TungMills are suitable for machining all kinds of plate materials such as carbon steel, alloy steel, stainless steel and aluminum alloys. Right-hand and left-hand cutters are available so the cutters can be used on any type of machining centres.



DO PENT

With double sided inserts and 10 cutting corners, the DoPent face milling cutter reduces tooling costs drastically while demonstrating highly productive and economical machining.



Special Surface Technology

PREMIUMTEC

TUNGALOY

Smooth insert surface prevents chip adhesion and improves chip flow.

T3130 **P** Steel

PREMIUMTEC

CVD coated grade for steel milling. The combination of a new coating layer and unique substrate ensures excellent wear and impact resistance.



AH120 **P** Steel

PREMIUMTEC

PVD coated grade for general steel milling applications.



NS740 **P** Steel

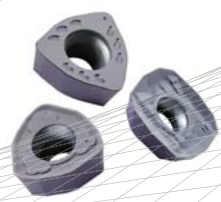
Unique cermet grade for steel milling that provides excellent surface finishes.



AH130 **M** Stainless

PREMIUMTEC

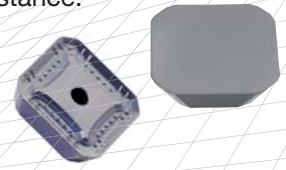
PVD coated grade for general stainless steel milling applications. Provides well-balanced wear and chipping resistance.



AH140 **M** Stainless

PREMIUMTEC

PVD coated grade for tough stainless steel milling applications with remarkable chipping resistance.

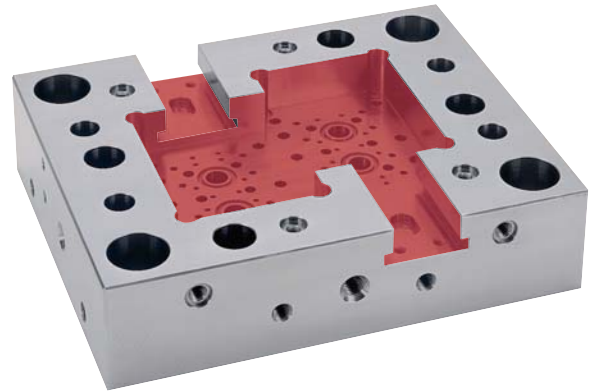


2. Cavity plate machining

Roughing operations

**High
Productivity**

Tungaloy's cutting tools provide high productivity levels in roughing operations while improving tool life.



DOFEEDMINI

DoFeedMini is one of latest high feed milling cutters suitable for small component machining with a diameter from $\phi 0.625$ " ~ $\phi 1.250$ ". This cutter has double sided inserts and 4 cutting edges to improve economy and tool costs.



DOFEED

DoFeed is one of latest high feed milling cutters available for medium range machining between $\phi 1.250$ " ~ $\phi 3.000$ " diameter. With 4 cutting edges and double sided inserts, the DoFeed is very economical.



ROUNDSPLIT

Serrated cutting edges significantly reduce chattering even when machining with a long overhang.



MILLFEED

MillFeed is the pioneer of high feed milling cutters, reducing the machining time in rough profiling operations.



Shoulder milling / Slotting

**High
Productivity**

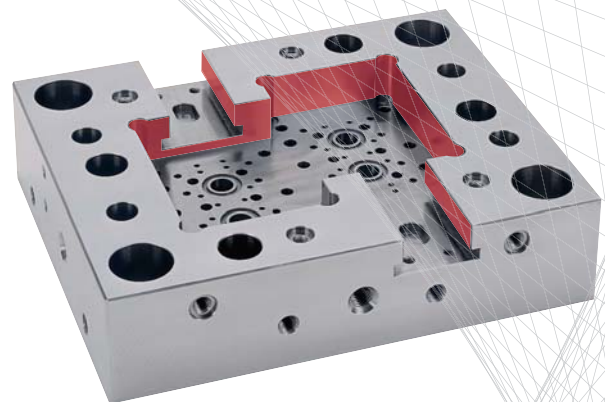


Slotting



Shoulder milling

There is a wide variety of shoulder milling and slotting applications in the die and mold industry. Tungaloy has a vast selection of cutters available to meet the needs of the end user.



TECMILL

Tangential insert with tough cutting edges. Large rake angle and inclination reduce cutting forces



TUNGREC

Highly productive semi-finish milling cutter with high accuracy 90 degree shoulders. Applicable for rough to finish machining with .0008" straightness. The range offers a wide variation of solutions with 3 sizes of insert, 2 types of cutter body length and 2 types of pitch available. Tool diameter range is \varnothing .500" ~ \varnothing 6.000".



HYBRIDTACMILL

High precision indexable endmills with low cutting forces now offer a viable replacement for solid carbide endmills. Applicable for highly accurate shoulder milling with .0008" straightness. Regrinding is not necessary.

EPH type
Highly accurate endmill



EVH type
Multi functional endmill



EXH type
High feed milling endmill



3. Die engraving

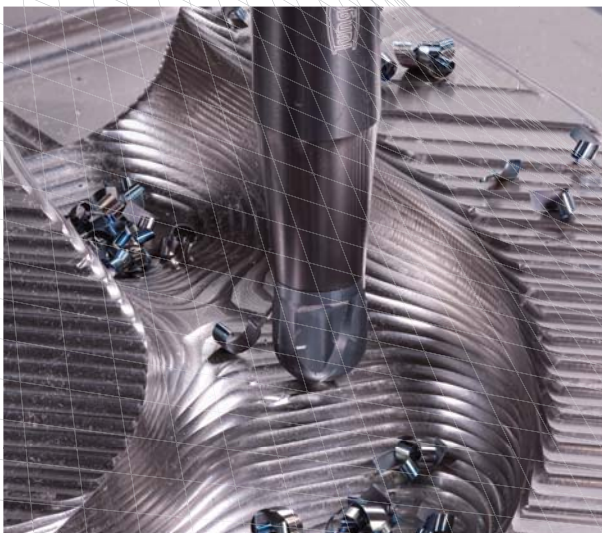
**Significantly reduced
tool exchange time**

Usually, solid carbide endmills are used for die engraving. Tungaloy now proposes its innovative new indexable endmills, the “TungMeister”



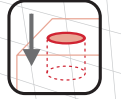
TUNGMEISTER

This effective tooling solution offers the option of hundreds of tools with 3 kinds of shank material that include steel, carbide and heavy metal. Tool changeovers can be measurably reduced and regrinding is unnecessary. The accuracy of less than .0016" guarantees consistent performance.



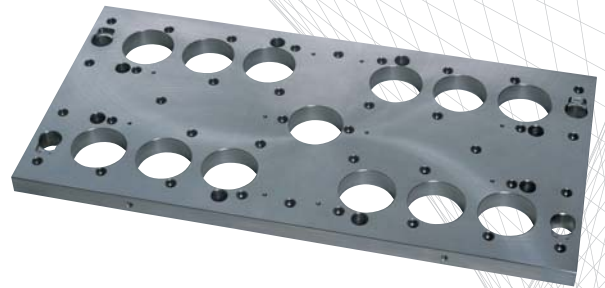
4. Holemaking in injection plates

Reduced machining cost



Holemaking

Die and mold components often require a lot of holes. To this end, Tungaloy proposes a number of new highly productive holemaking tools that can deliver reduced machining times.



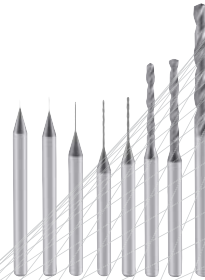
TUNGDRILLTWISTED

Highly economical indexable drills applicable for diameters from $\phi 0.500''$ ~ $\phi 2.000''$ with reduced machining time and costs.



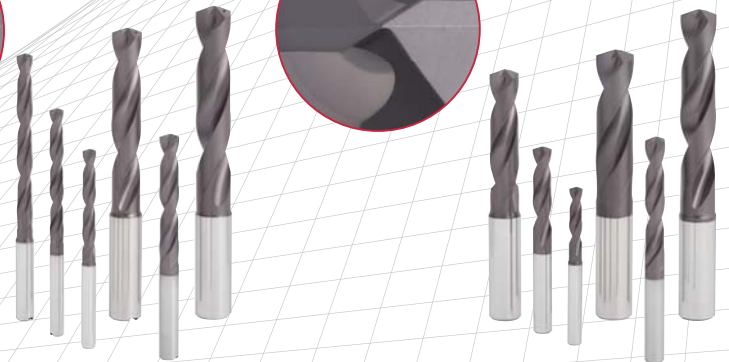
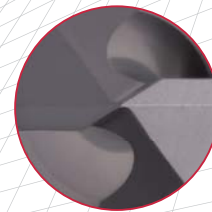
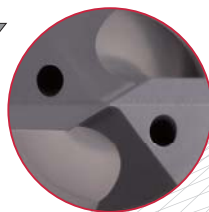
GIGAMINIDRILL

DSM type small diameter solid drills reduce cutting time and improve tool life when machining in the $\phi 0.004''$ ~ $\phi 0.118''$ diameter range.



SOLIDDRILL

Tool diameter range: $\phi 0.118$ ~ $\phi 0.630$ mm. Suitable for high quality and productive drilling of carbon steels, alloy steels and cast iron. Unique cutting edge geometries provide highly stable tool life without sudden chipping.



4. The machining of cooling holes in mold bases

**Reduced
machining cost**

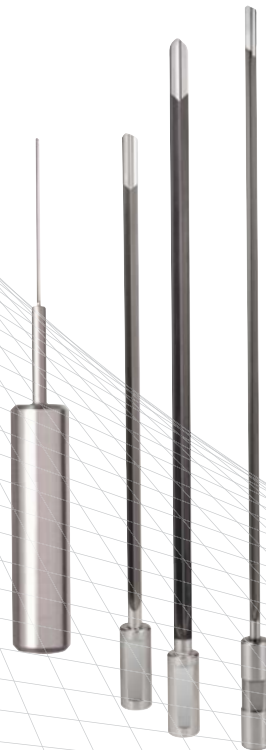


There are many deep-hole-drilling operations in die and mold, such as cooling holes. For such applications, Tungaloy now offers a vast range of gundrilling solutions.



GUNDRILL

Standard GunDrills are available from $\varnothing.071"$ ~ $\varnothing.181"$ diameter and 200 x D machining depth. The SF type GunDrills can double productivity levels. The SD type solid GunDrills are suitable for small and deep hole processing with diameters from $\varnothing.035"$. Additionally, the R-GunDrills are available for spherical hole making to prevent heat cracks.



TUNGGUN

TungGun is the innovative new indexable gundrill with a unique connection system that is exchangeable over 15 times.



Tooling system for a wide variety of unique functions

TUNGHOLD

Tooling system for unique function and wide variation



TUNGSHRINK

Thermal shrinking holder

Available in various adapters for quick changeovers.



TUNGHYDRO

Hydraulic chuck

A run-out of less than .0001".



TUNGBORE

TUNGDRILLTWISTED

Tool diameter adjustable holder

The tool diameter can be adjusted when used on a machining center





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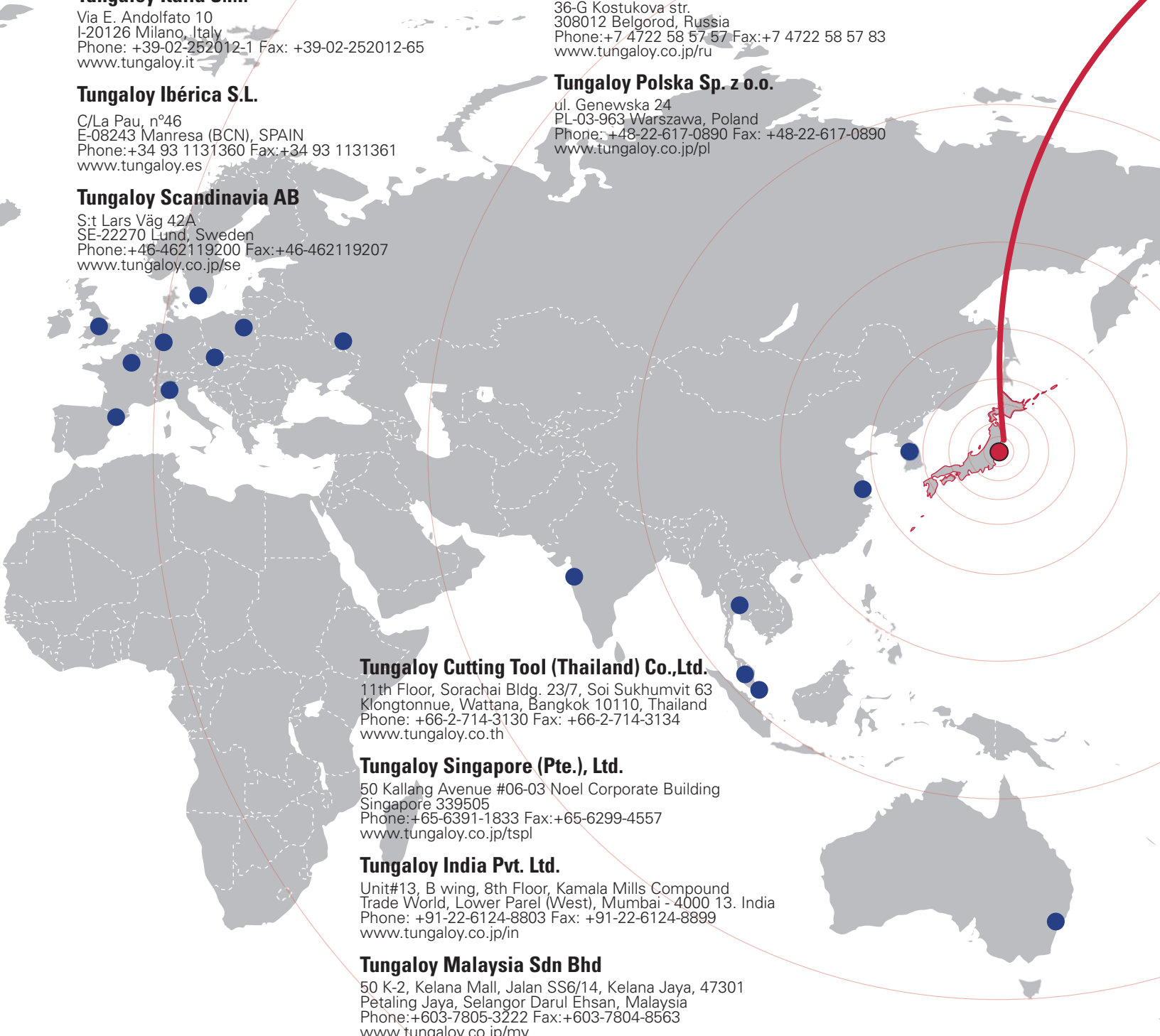
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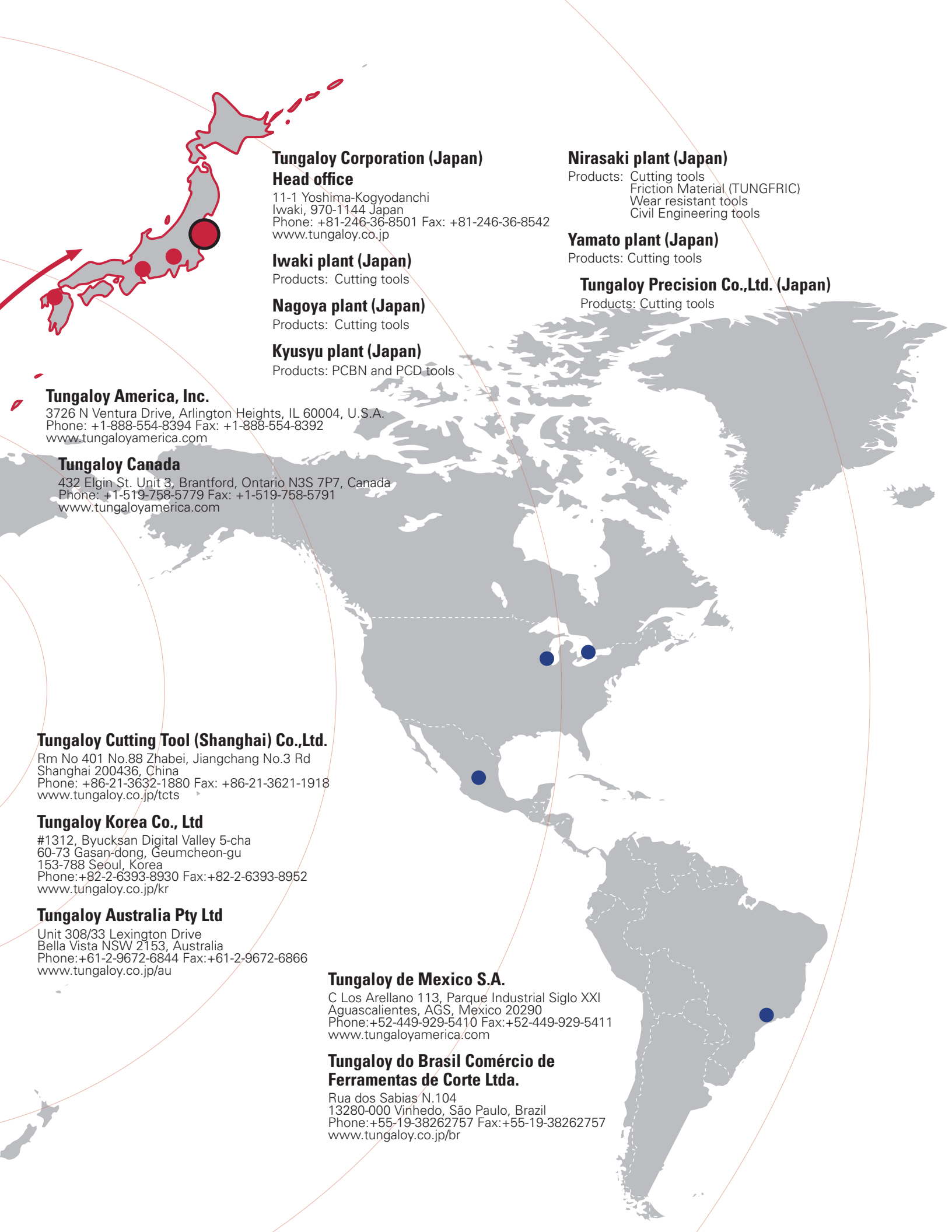
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Products: Cutting tools

Nagoya plant (Japan)

Products: Cutting tools

Kyusyu plant (Japan)

Products: PCBN and PCD tools

Nirasaki plant (Japan)

Products: Cutting tools
Friction Material (TUNGFRICTION)
Wear resistant tools
Civil Engineering tools

Yamato plant (Japan)

Products: Cutting tools

Tungaloy Precision Co.,Ltd. (Japan)

Products: Cutting tools

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ISO 14001 certified
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Japan site and Asian
production site

26/11/1997