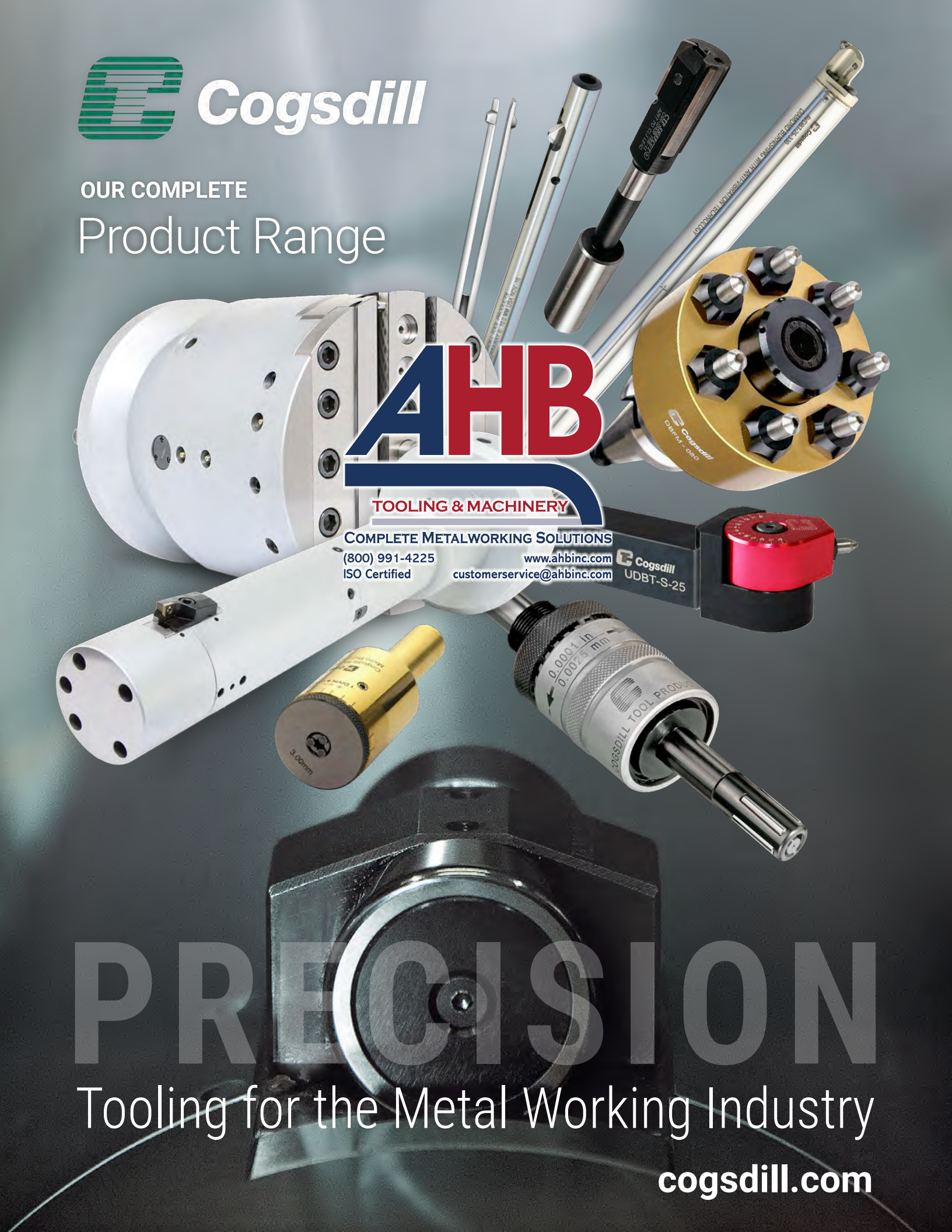

Cogsdill
OUR COMPLETE
Product Range
AHB
TOOLING & MACHINERY
COMPLETE METALWORKING SOLUTIONS
(800) 991-4225
ISO Certified
www.ahbinc.com
customerservice@ahbinc.com
Cogsdill
UDBT-S-25
PRECISION
Tooling for the Metal Working Industry
cogsdill.com

Toolmakers for over 100 years

Welcome to Cogsdill

In 1914 Stuart A. Cogsdill set up shop in Detroit as a cutting tool regrinding and repair service. He soon began designing and manufacturing special tools for early automotive pioneers such as Henry Ford and the Dodge brothers, who relied on Cogsdill to develop innovative tooling solutions for tough manufacturing problems.

Currently owned and operated by the second and third generation of Stuart Cogsdill's descendants, Cogsdill offers its 21st century customers the same commitment that inspired its founder.

"We will develop and build innovative tooling solutions for your tough manufacturing problems."

Cogsdill Today

"Our mission is to be the global leader in the precision tooling industry. Helping customers exceed their expectations through our enviable global experience, industry-defining products and an exceptionally friendly and stellar service."

To achieve this aim, Cogsdill has two key operating units; one in the United States and one in the United Kingdom:

Cogsdill Tool Products, Inc.
Camden, South Carolina, USA – corporate headquarters

Cogsdill-Nuneaton Ltd.
Nuneaton, England – subsidiary of Cogsdill Tool Products

Cogsdill Austria GmbH

Same Passion
Same Commitment
Same Dedication

The Finishing Touch

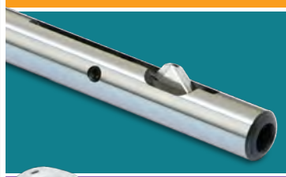
Our precision tools are used in the creation of every day items that touch every person on the planet.

From hypodermic needles and artificial hips to formula one engines and space rockets. The clothes you wear, the building you are in, the car you drive – planes, trains, and automobiles – whether sub-sea or the outer stratosphere – the list of applications is absolutely endless!

Cogsdill

Burnishing Tools

A fast, clean, and economical method of sizing, finishing and work hardening metal parts to exacting specifications.



Deburring Tools

A better way to get rid of those troublesome burrs of drilled holes – front, back or both sides in one pass.

ZX Tooling System

Perform multiple operations on large parts, in one set-up or a minimum number of tool changes, with the ZX System.

Reaming Tools

Designed to produce accurately sized, extremely straight and round bores with fine surface finishes.

Recessing Tools

Precision grooving, recessing, internal and external facing and chamfering; widest array of standard tooling.

Ready to roll

Cogsdill Roll-a-Finish tools offer you a fast, clean, and economical method of sizing, finishing and work hardening metal parts to exacting specifications.

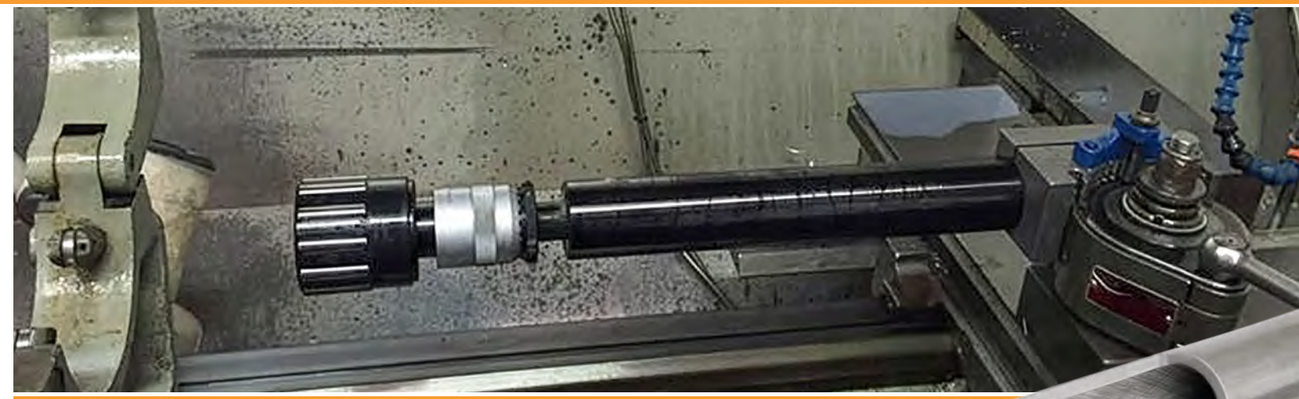
The tools can be operated on any spindle. Parts of virtually any configuration and material are accurately sized within “microns,” with surface finishes as fine as 2 µin (0.05 µm)… in seconds!

Accurate sizing. In one pass.

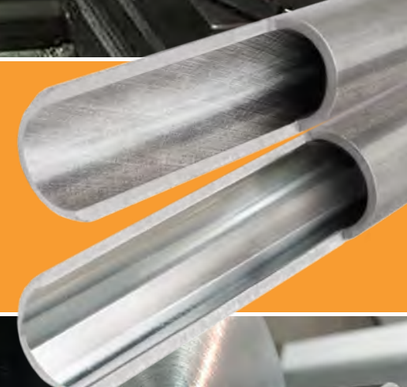
In process manufacture, no other operations required.

Standard Roll-a-Finish tools are available from stock for inside diameters from .156 to 4.000 inches, and for outside diameters from .062 to 2.000 inches. The tools are easily adjustable to suit application needs..

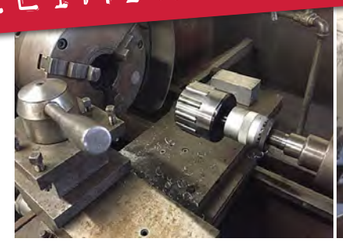
Special designs are available for larger and smaller diameters.

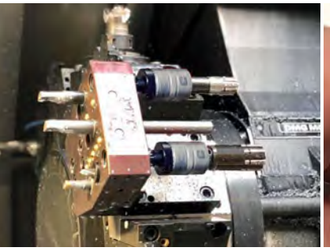


Superior surface finishes without secondary operations

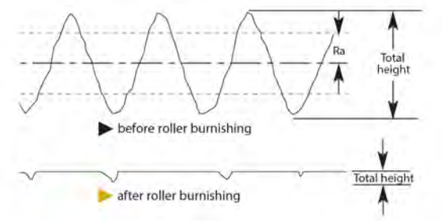


ELIMINATE HONING





Peak/Valley surface condition



Roller burnishing is a surface finishing technique in which hardened, highly polished steel rollers are brought into pressure contact with a softer piece part. As the pressure generated through the rollers exceeds the yield point of the piece-part material, the surface is plastically deformed by cold flowing of sub-surface material.

The result is a mirror-like finish and a tough, work-hardened surface with load-carrying characteristics that are superior to finishes obtained by abrasive metal-removal methods.

Standard internal range is offered in three styles:

- **SR**: Through-hole style (machine-feeding)
- **SRH**: Through-hole style with helix cage (self-feeding)
- **SRB:** Bottoming-style for blind hole (machine-feeding)

The Roller Burnishing Range

SR Series

Our premier line of internal burnishing tools, designed to suit all applications. Ideal for applications where tool length is restricted by tool changers, turrets, etc.

AEX Series

For burnishing the outside diameter of cylindrical parts, such as shafts rotating in bushings or bearings. Provides an ideal surface for grease and oil seals.

Micro Series

Micro Roller Burnishing series offers a compact design for use where limited space is available on multi-spindle automatic and screw type machines.

.156 to 4.000 inches internal tools for most sizes in stock for next working day delivery

We hold the largest range of burnishing tools and spares in the US.
Standard sizes available for immediate shipping!

Ask our engineers

Cogsdill Roller Burnishing tools can be applied to a wide variety of part configurations, including:

- Inside diameters (bores)
- Outside diameters (shafts)
- Flat surfaces
- Tapers
- Spherical and contours
- Fillets (radii at shoulders)

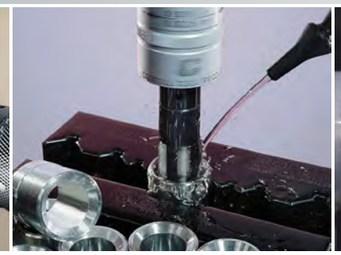
Compact and clever

Micro Roller Burnishing series offers a compact design for use where limited space is available on multi-spindle automatic and screw-type machines.

- **MR/B** –Internal tools from 0.187 to 0.501 inch (4.75 to 12.73mm) in through style, and bottoming style larger than 0.246 inch (6.25mm)
- **XBB-M** –External tools from 0.059 to 0.393 inch (1.5mm to 10mm) in bottoming style with two shank sizes available 16mm and 20mm.

With unique rear adjustment mechanism.

Due to the clever design, there is no component length restriction.



Whether large or small diameters, tapers, faces, contours – virtually any part configuration.

Special application tools on request.

Combination

Bespoke external

Bayonet style

Taper

Double diameter

Fillet radius

Flat-face

Internal/External Combination

MIRROR-LIKE

A tough, work-hardened surface that helps resist corrosion

Experience exceptional burnishing performance in a compact envelope, proving that greatness *can* come in smaller packages.

Versatile Burnishing

Cogsdill Universal Burnishing Tools are designed for burnishing shafts, faces, tapers, contours, and relatively large IDs (greater than 2.750 inches/69.85mm).

- Boring-Bar style and Indexable turning-holder style designs
- Tool designs to suit any part size or configuration, or any turning machine
- Low surface finishes
- Standard, available off-the-shelf
- Adjustable for optimum burnishing pressure
- Hardened steel or carbide rollers

Any size. Any configuration. On any turning machine.

We hold a range of tools and spare Carbide and HSS rolls in stock – in the US and UK.

One for the Chamber

Adjustable stop for chamber length

Ensure trouble-free shell casing ejection with the Cogsdill Gun Chamber Burnishing Tools (CBT).

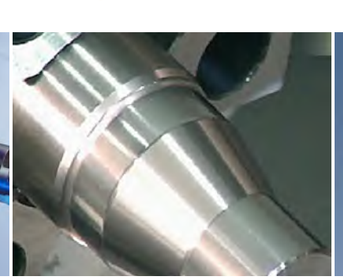
The chamber burnishing tools have been designed to the Sporting Arms and Ammunitions Manufacturers Institute (SAAMI) standard for Handgun and Rifle Chamber geometries.

Our selection of chamber burnishing tools cover standard calibers from leading manufacturers.

Improved quality. In one pass. In seconds.

Redefining convention

The conventional manufacturing process for armament shell chambers is reaming with a profiled reamer. Our expanding chamber roller burnishing tools enhance the reamed bore by producing an extremely fine surface finish (15 micro inches or less), which produces improved performance, repeatable shell ejection and prevents jams. Due to the fact that no metal is removed in the process, the surface finish depends on the existence of a uniform and tear-free reamed finish which will be caused to flow under the force exerted through the rolls.



Two styles are available:

Boring-Bar Style

The Cogsdill UBT-B series are designed for use in a machine turret configuration on a CNC lathe, where differing diameters are required from a single tool set-up.

- **UBT-B1** – For large diameters, tapers & faces (Hardened steel and carbide roll)
- **UBT-B2** – For smaller diameters, tapers & faces. (Hardened steel and carbide roll)
- **UBT-B3** – For smaller diameters where facing is not required. (Hardened steel only)

Turning-Holder Style

The Cogsdill UBT-T series are designed for use in an indexable turning holder configuration, mounted to a machine turret on a lathe.

This tool can be used in both left- and right-hand configurations.

- **UBT-T1** – For outside diameters, faces, tapers and contours (Carbide roll)
- **UBT-T2** – For outside diameters only (Carbide roll)
- **UBT-T3** – For large outside diameters only (Hardened steel)
- **UBT-T4** – For outside diameters where limited space is available. (Hardened steel only)

CBT are versatile

- Create an ultra-smooth chamber finish in one pass in seconds.
- Offers a simple burnishing process for use after chamber reaming.
- Improved chamber quality, spent shell ejection, & loading speed.
- Fast, easy tool set-up and operation. No special skills required.
- Use in any spindle from drill press to CNC machine.
- Easy to maintain, high quality tooling made by toolmakers.

SAAMI®
SPORTING ARMS AND AMMUNITION MANUFACTURERS' INSTITUTE, INC.
SINCE 1926

TROUBLE-FREE EJECTION

Our standard CBT are available from stock with many other chamber configurations available upon request.

An ultra-smooth gun chamber finish. Enhance performance, spent shell ejection and loading speed.

Universally speaking

The latest addition to the Cogsdill Burnishing portfolio is the Universal Diamond Burnishing Tool Series (UDBT). UDBT are designed to produce mirror-like finishes on any surface; from carbon steels to tool steels, cast iron to alloys, and most ferrous and non-ferrous metals up to 55 HRC.

With most metals, a turned or ground part with a prepared 1.02–1.54 µm (40–60 µin) finish can be burnished to a 0.10–0.20 µm (4–8 µin) finish in seconds. Cast iron can be burnished to an 0.20–0.38 µm (8–15 µin) finish.

Using Cogsdill's proven diamond insert geometry, our premium range of burnishing tools can achieve low Ra surface finishes in one pass – achieving results not attainable from any other metal removal process.

Standard model ranges available from stock:

- **UDBT-S-25** (Straight Shank with 25mm square section)
- **UDBT-S-0750** (Straight Shank with ³⁄₄" square section)
- **UDBT-S-1.00** (Straight Shank with 1" square section)
- **UDBT-C4, UDBT-C5** and **UDBT-C6** – integrated Capto Shank supplied with through coolant capability

Other shanks available upon request:

- **KM50 and KM63** – integrated KM with through coolant capability

For when size matters

ACTUAL SIZE

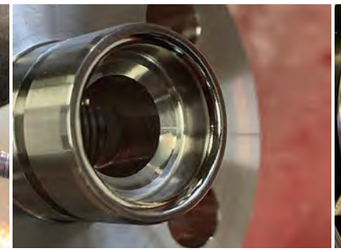
The range has just got bigger (actually, it's just got smaller!)

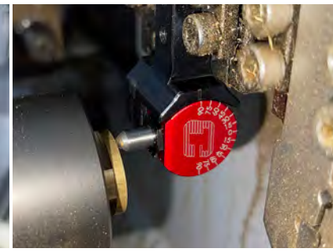
Following on from the success of the original UDBT, we are pleased to introduce a smaller sibling designed specifically for CNC sliding head lathes (Swiss-type).

Cogsdill Universal Diamond Burnishing Tool Mini Series (UDBTM) is a compact burnishing solution, with the adjustment head not much bigger than a penny (as shown in the illustration). But don't let it's small size fool you, this tool offers huge return on investment.

There are currently two different models available from stock:

- **UDBTM-S-12** (Square Shank with 12mm section + included clamp plate assembly)
- **UDBTM-R-16** (Round Shank with 16mm diameter)





Simple and Efficient

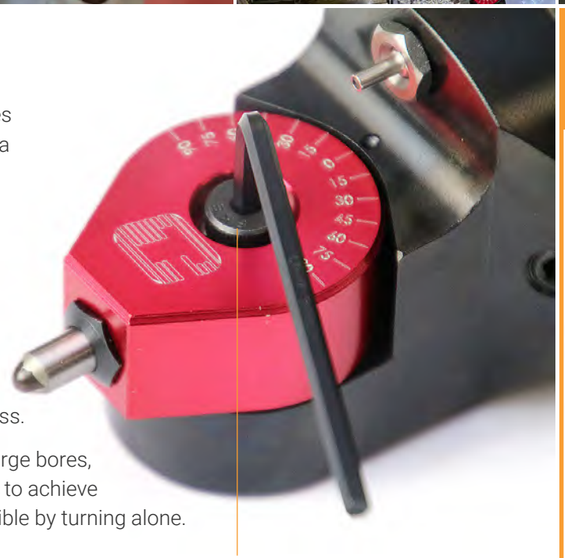
UDBT are designed to be adjustable through 180 degrees, which makes them the ideal choice tool for lower volume batch components where a designated orientated tool is not required.

This single tool streamlines operations significantly as it can be utilized in either left or right-handed machine configurations – eliminating the need for multiple tools in specific environments.

Further more, set up and operation is relatively simple, no special operator skills are required.

As a result, Cogsdill UDBT offers incredible production efficiencies and cost effectiveness.

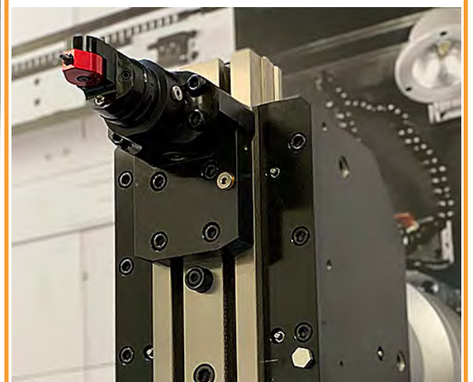
UDBT offers flexibility for burnishing large bores, outside diameters, tapers and faces to achieve superior surface finishes not possible by turning alone.



The quick and simple castellated adjustment makes this the most versatile diamond burnishing tool on the market.

Did you know?

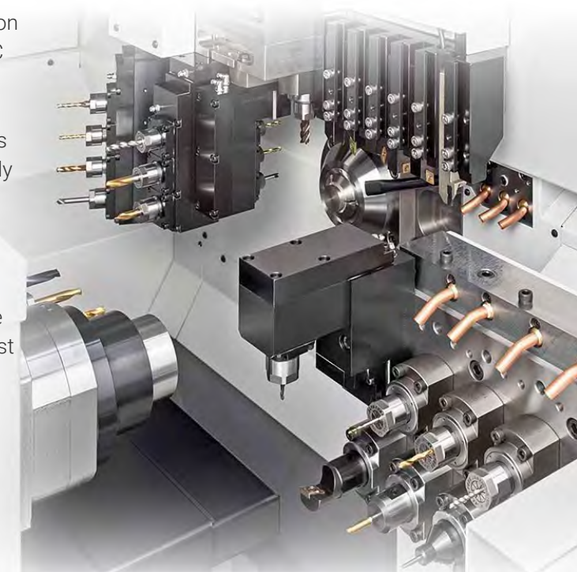
By combining Cogsdill's premium range of burnishing tools with the ZX facing heads, you can now achieve low Ra surface finishes in one pass from a single set-up.



Machine tool requirements

Developed as a solution for burnishing on CNC Swiss-type sliding head machines, this single tool streamlines operations significantly as it can be utilized in either left or right-handed machine configurations, with either round or square shanks to suit tool post or collet installation.

Compatible with most CNC sliding head lathes.



Diamond Hard

The Cogsdill Diamond Burnishing Tools are designed to produce high quality, low micro-inch burnished finishes on shafts, large bores, and faces. With most metals, a turned or ground part with a properly prepared 40 to 60 micro-inch (1.02 to 1.54 µm) finish can be burnished to a 4 to 8 micro-inch (0.10 to 0.20 µm) finish in seconds. Cast iron can usually be burnished to an 8 to 15 micro-inch (0.20 to 0.38 µm) finish.

- Multiple designs for use on most turning and Swiss-type machines – manual or CNC
- All tools have include a premium quality, replaceable and polished diamond insert
- Easily adjustable for optimum burnishing pressure

Simple and efficient, Cogsdill Diamond Burnishing Tools are designed to produce mirror-like finishes on any size stock; from carbon steels to tool steels, cast iron to alloys, and most ferrous and non-ferrous metals.

Flat on your face

The Cogsdill Diamond Burnish Face Mill Tool (DBFM) for burnishing flat faces achieves superior surface finishes.

Using Cogsdill proven diamond insert geometry, our premium range of burnishing tools can achieve low RA surface finishes, by cold flowing the peaks into the valleys in one pass – achieving results not attainable from any other metal removal process.

Simple and efficient, Cogsdill DBFM tools are designed to produce mirror-like finishes on any surface; from carbon steels to tool steels, cast iron to alloys, and most ferrous and non-ferrous metals.

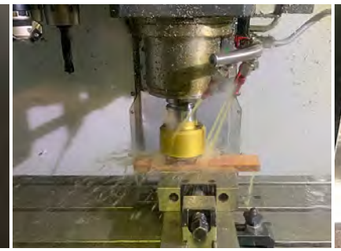
Set up and operation is relatively simple, no special operator skills are required.

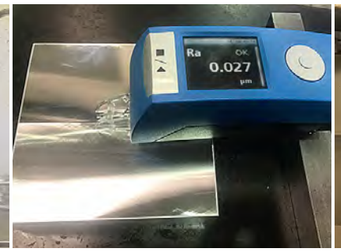
All tools are supplied with through coolant capability but while the tool must be used with coolant, no special coolant is required. Straight oils, soluble oils, and synthetic coolants can be used to provide the necessary lubrication.

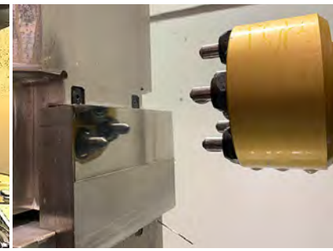
For conventional slide adapters

The DB Series offers enhanced flexibility for high-volume applications or when adjustable spring pressure is required.

Utilizing our unique and proven diamond geometry, but designed for use in conventional open-ended square shank slide adapters.







For high volume applications, there are a multitude of dedicated tools specific to your machine configuration.

DB Series

Turning-Holder style, designed for use in a tool-post in either a manual or a CNC machine.

SMDBR Series

Mini round Boring-Bar style, designed for use in turrets in Swiss-Type CNC machines.

RDB Series

Round Boring-Bar style, designed for use in turrets in CNC machines.

SMDBS Series

Mini Turning-Holder style, designed for use in a tool-post in Swiss-Type CNC machines.

De Beers

All diamonds that Cogsdill use in their tool manufacturing are sourced via De Beers and adhere to their Code of Origin to provide assurance that it is natural, conflict free and meets industry-leading ethical standards.

FLAT OUT

MIRROR FINISH

Work harden to a superior finish in one pass. Burnish flat surfaces effortlessly.

- Designed to fit in your CNC machining center, with a common interface to suit industry-standard milling arbors.
- The tools can be used on both large and small areas, and are ideal for short production runs. The Diamond Burnish Face Mill Tool can produce quality finishes on interrupted surfaces, such as a face of a flange having a series of bolt holes or a keyway.
- The tools are supplied pre-loaded, but the spring pressure can be adjusted to ensure consistent pressure on the face of the component, assuring repeatability from part to part.

replaceable **diamond nibs**

Spare diamond inserts are easily replaced and available from stock. Diamond nibs are interchangeable between all sizes and styles.

The premium quality and replaceable diamond burnishing insert is polished and contoured to provide superior finishes and long tool life.

Although the diamond nibs are qualified, Cogsdill recommended replacing nibs as a set.

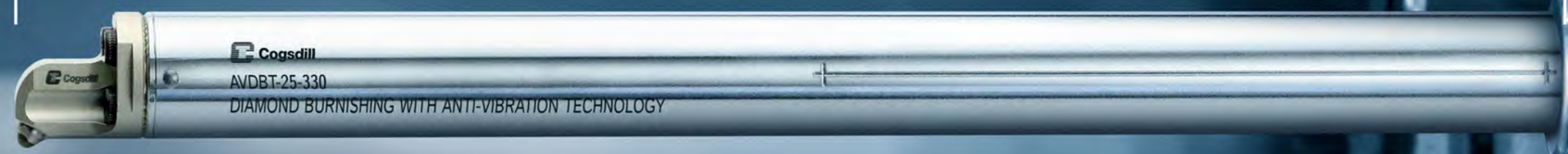
Cogsdill are the premium manufacturer of burnishing tools.

Diamond tools available for immediate shipping!

ANTI-VIBRATION TECHNOLOGY

UP TO 15xD

3xD

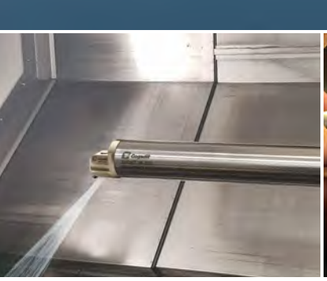
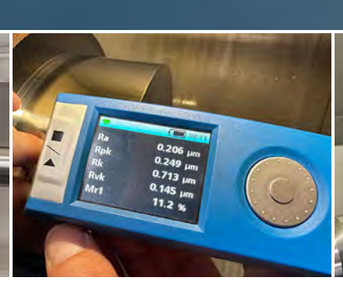


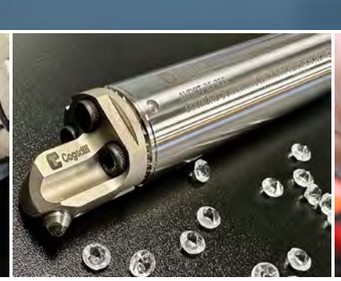
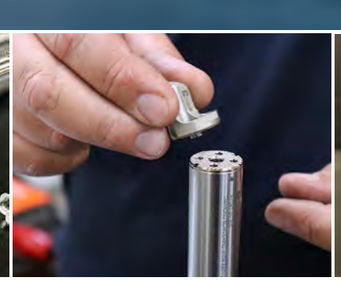
ACTUAL SIZE

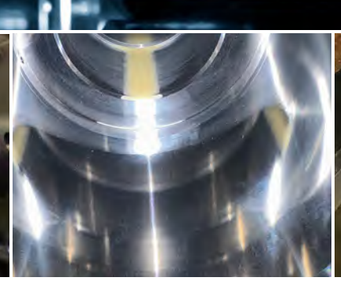
Introducing the most anticipated addition to the Cogsdill's burnishing portfolio

Anti-Vibration Diamond Burnishing Tools (AVDBT)

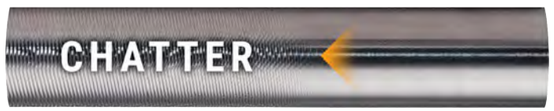
Combining Cogsdill's proven diamond insert geometry with the latest auto-tuning, mass dampening, anti-vibration technology – AVDBT offers incredibly low Ra surface finishing for both external diameters and internal bores at depths up to a staggering 15xD!

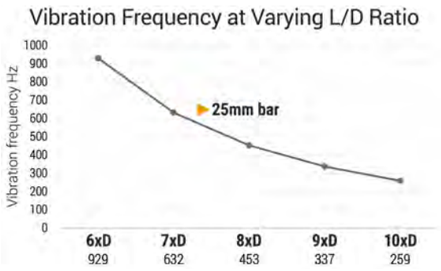



Good(bye) Vibrations



Typically, with conventional single point boring and burnishing, surface finish deterioration can arise when machining applications over 4xD due to increased vibration and regenerative tool chatter. This becomes more problematic when working with even higher overhangs.

Trying to stabilize the surface finish usually involves a lower cutting speed, reduced depth of cut, or increased feed per revolution. All adding to higher production costs or compromising on quality.



Our Anti-Vibration technology starts with the auto-tuning mass damper.

Cogsdill's tooling is unique due to the complex polymers that surround a tungsten mass within the boring bar. Vibration frequencies differ significantly over varying lengths. The polymers in turn respond by changing their form, adjusting to the cutting frequency which counteracts vibration – automatically and consistently – effectively auto-tuning the "sweet spot" with no manual adjustment required.

Turning a complex technology into a simple plug-and-play solution.

QUICK CHANGE

Designed with a quick-change interface that incorporates a serrated coupling for alignment and secure tightening. With our exchangeable heads, you can switch from turning/boring to burnishing in seconds with repeatable results time after time.

AVDBT Benefits

- **Instant set-up (plug-and-play)**
- **No manual tuning / adjustments required**
- **Turn, bore and burnish from one tool**
- **Internal bores & external diameters**
- **Greater working length**
- **Superior surface finishes**
- **Incredible cost efficiencies**
- **Guaranteed repeatability**
- **Internal through coolant**

Anti-vibration technology incorporating complex polymers

Portable Versatility

Cogsdill's CX machines roller burnish cylindrical diameters of any length in seconds.

Parts are sized, finished and work hardened by highly polished, precision rollers in one quick pass. Fatigue life, corrosion resistance and appearance are enhanced as your parts are accurately sized and finished. Various model options are designed to meet your manufacturing requirements. Equipment options are available to accommodate through-feed applications, parts with obstructions, and part-to-part size variations.

Cylindrical parts of any length, bars, tubing, wire and stranded cable may all be processed with Cogsdill's self-contained, self-feeding roller burnishing machines.

IN ONE QUICK PASS

ROLLING IN THE DEEP

Thread Root Rolling Tools (TRR), also known as **cold root rolling**, significantly increase the fatigue strength of highly stressed components whilst also producing a superior surface finish.

Cold Root Rolling is an advanced method of roller burnishing that uses controlled pressure to cold-form the material at the root of newly machined or previously cut threads.

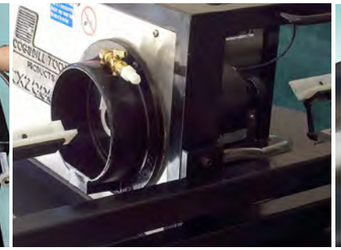
This process introduces a compressive residual stress that cancels out the tensile stress that the component is subjected to during use.

Reduce the chance of corrosion and dramatically extend the life of threaded connections.

- **TRR-IN** (Box) for internal (female) threads
- **TRR-EX** (Pin) for external (male) threads

Available with various roll radii options

IN SECONDS!



Better quality parts with improved surface finishing – produced in less time at a lower cost.

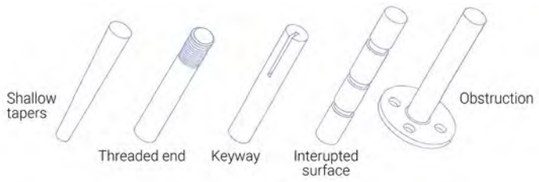
Accurate sizing – Tolerances within .0001 inch (.0025mm) are attainable, depending on variables. A prepared tolerance of .002 inch (.05mm) can usually be reduced by 50 % (.001 inch /.02mm).

Low micro finishing – One pass through a Cogsdill CX machine can quickly reduce a 20-40 microinch Ra (0.5 to 1.0 micrometer) ground surface or an 80-120 microinch (2-3 micrometers) Ra turned surface to a mirror like 5 microinch (.125 micrometer) Ra finish or lower.

Work hardening – With certain materials, increases in surface hardness of up to 3 points on the Rockwell "C" scale are attainable.

Appearance improvement – Machined parts (turned or ground) can be roller burnished to lustrous, mirror like finishes.

Fast processing – Cylindrical parts of any length are processed at speeds up to 30 feet/min (9.14 m/min).



Examples of various types of parts which are processed by CX external roller burnishing

Coolant systems are designed and recommended to supply the necessary part lubrication for burnishing.

COMPRESSION → ← TENSION

DRILL STRING CONNECTORS

Oil & Gas

Cold Root Rolling ensures extended wear life to the pipe thread connection by altering the materials substructure and improving the surface finish to diminish corrosion that occurs in harsh environments.

Plastic deformation

Using a hardened formed HSS roll that matches both the profile and designated radius of the tapered thread, pressure is applied in order to deeply penetrate the root radius, which displaces and deforms the thread material.

Burraway®

We hold a range of metric and imperial tools plus assortment of blades.
Available from stock for immediate shipping!

Taking the edge off

Burraway tools suit a variety of machines from manual to CNC – and can even be used in a hand-drill with excellent results.

They are available in an assortment of metric and imperial sizes ranging from 2mm to 50mm / 0.093" (3/32") to 2 inches, with a range of standard size tools and blades always held in stock.

The Burraway tools feature an inexpensive, replaceable cutting blade which adjusts to control the amount of edge break and can be easily replaced within a few seconds. A range of cutting-edge geometry options to suit different materials are offered, and as standard, tools are supplied already fitted with a double acting blade. The crowned and polished top surface of the blade will not mar the inside surface of the hole.

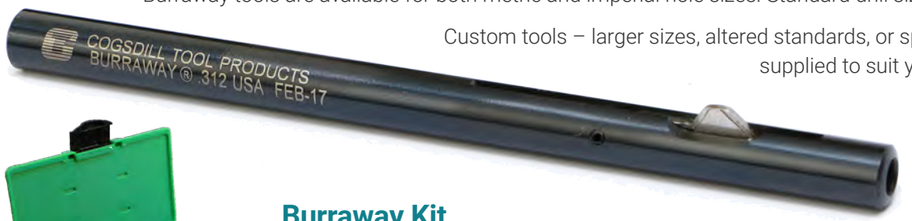
All Burraway tools support a simple method for easily adjusting cutting pressure and chamfer size via a tension adjustment screw.

*Polished blades are designed **not** to damage the bore.*

A variety of tool designs to meet your needs

Burraway tools are available for both metric and imperial hole sizes. Standard drill sizes are available from stock.

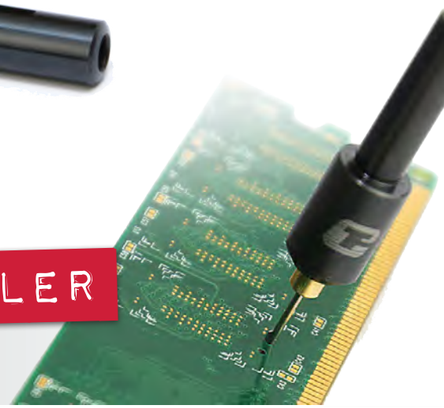
Custom tools – larger sizes, altered standards, or special designs – can also be supplied to suit your particular requirements.



Burraway Kit

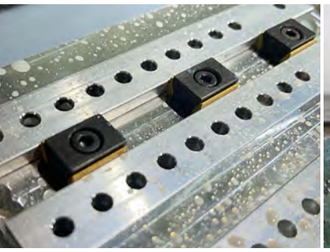
A durable box containing five deburring tools with replacement blades in popular imperial hole sizes:

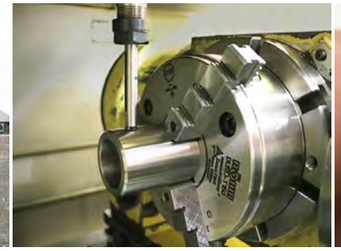
1/8 in. • 5/32 in. • 3/16 in. • 7/32 in. • 1/4 in.



SMALLEST JUST GOT SMALLER

Micro-Burraway for your small hole applications from Ø 1mm





Both Sides in One Pass

How Burraway tools work:

1. Upon entry, spring tension holds the cutting blade in the extended position as it removes the burr on the front of the hole.
2. As the feed load increases, the pre-set spring tension is exceeded and the blade retracts automatically as the tool passes through the workpiece.
3. Spring tension again causes the blade to extend as it emerges from the ID of the part; the burr is removed on the back side of the hole on the return stroke.

Design features

There are three types of Burraway tools – Types A, B & C – that correspond to differing diameters.

Type A tools

Two-piece construction (arbor assembly and adapter).

- Imperial: hole sizes from .093 through .203 in.
- Metric: hole sizes from 2 to 5mm

Type B tools

A single-piece construction.

- Imperial: hole sizes from .218 through .750 in.
- Metric: hole sizes from 5.5 through 19mm

Type C tools

A single-piece construction.

- Imperial: hole sizes from .750 through 2 in.
- Metric: hole sizes from 20 through 50mm

Blade information

Various blade rake angles and spring tension options are available and recommended for deburring specific material types.

- Positive rake – Ideal for steels and stainless steels
- Negative rake – Ideal for softer materials such as brass or hard plastics
- Neutral rake – Ideal for aluminum

Double-Acting (DA)
For deburring both front and back of holes

Back-Acting (BA)
For deburring back of hole only

Front-Acting (FA)
For deburring front of hole only

We hold a range of metric and imperial tools.

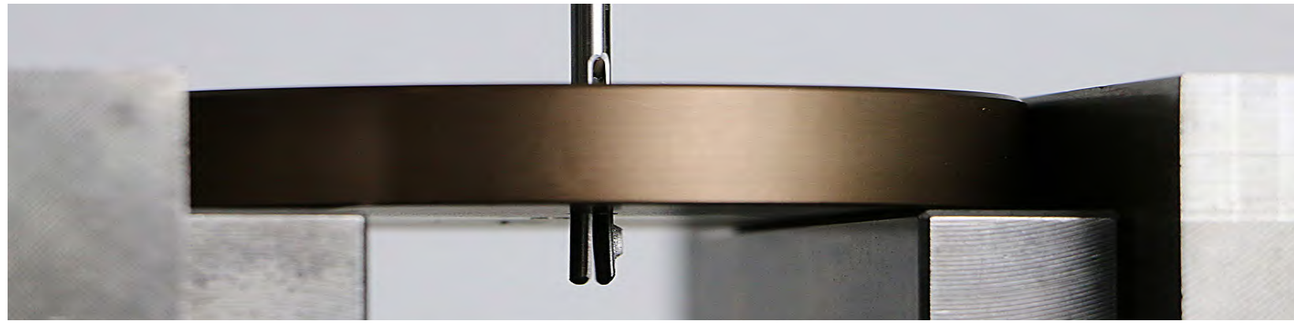
Available from stock for immediate shipping!

The original “Clothes Pin” tool

Often copied but never beaten, Burr-Off is one of the most efficient and economical hole de-burring tools ever made for mass production.

Cogsdill originated the “Clothes Pin” tool over half a century ago. The Burr-Off is a simple one-piece construction. Delivering super efficient hole deburring in a wide range of sizes. The Burr-Off operates on the same basic principle as the Burraway, but is designed for high-production, automated deburring operations, where hole alignment can *not* be guaranteed – and primarily for ferrous materials. The open-slot design of the “clothes pin” tool allows chips to clear easily, which makes the tool ideal for automatic equipment and multi-spindle machines. Just like the Burraway, the Burr-Off deburrs the front, back, or both sides of holes in one fast pass.

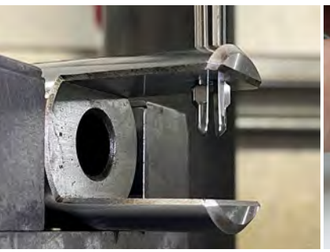
Burr-Off tools CP-04 through CP-13 are for hole sizes from 1.57mm (.062 inch) through 5.56mm (.219 inch) and have a single cutting edge. Larger tools feature two cutting edges.

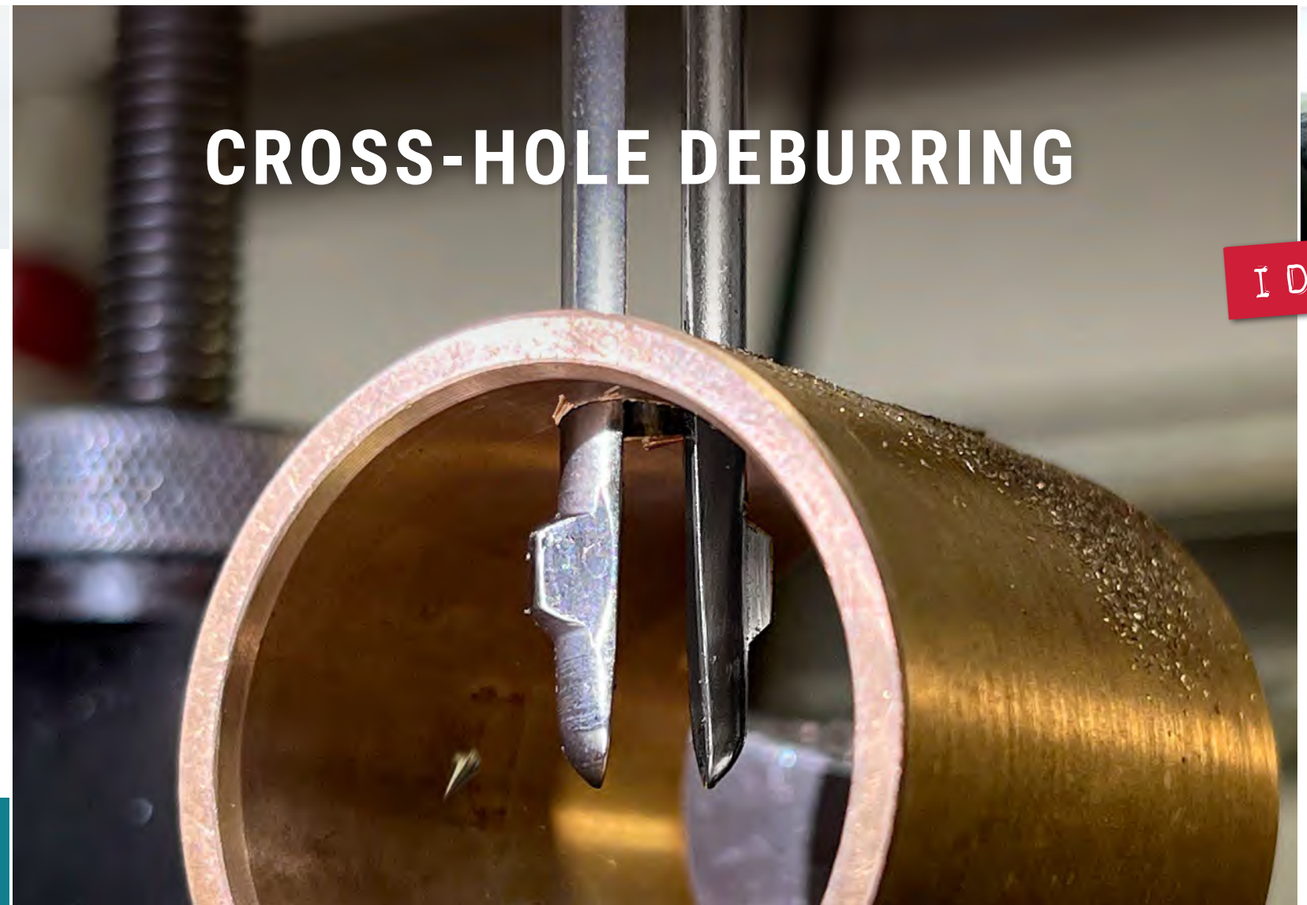


High volume. No adjustment.

For mass production hole de-burring with no tool adjustment necessary.

Ideal for where access is restricted, Burr-Off tools are perfect for interrupted or interference cuts, holes close to shoulders, bosses, back folded sections, multi-layer or multi-sectional parts – pipes, tubes, liners housings, flanges – whether cast, stamped, extruded or machined.





IDEAL FOR FERROUS

How Burr-Off tools work:

1. Integral cutting edges remove the burr from the front of the hole as the tool enters the hole.
2. The slotted design allows the tool to “collapse” under load as the tool feeds through the workpiece. The crowned and polished top surface of the cutting edges will not mar the inside surface of the hole.
3. The back of the hole is deburred on the return stroke.

Both Sides in One Pass

Variety of tools

Burr-Off tools are available for both metric and imperial hole sizes. Standard drill sizes are available from stock.

The integral cutting edges can be altered upon request for front or back-cutting only.

Custom tools – larger sizes, altered standards, or special designs – can also be supplied to suit your particular requirements.

Micro stop. Piloted countersink.

Precision depth control with accuracy and consistency.

Countersink with precision

The Micro-Limit is a precision depth-control countersinking tool. Consisting of a drive with a piloted countersink and a depth control adjustment feature, suitable for hand held power tools or machine tools.

The Micro-Limit drive is designed and built for rugged production work with repetitive accuracy. The thrust load is taken up on ball bearings through a hardened steel stop collar. The drive shaft rides on needle bearings. This design makes our drive the most durable in the industry and why it is the preferred countersinking tool for high-production requirements, such as rivet hole preparation in aircraft manufacturing.

Three drive models cover a wide range of hole sizes. Adjustment is in increments of .025mm (.001 inch).

An array of interchangeable countersinks and pilots are available as standard.

The Micro-Limit is also offered with an overtravel unit built into the standard drive.

Elliptical Illusion

The Ellipti-Bur® is designed for deburring irregular hole surfaces, such as those which are generated by drilling into curved surfaces, or by drilling at an angle. Enabling the user to perform these difficult deburring operations quickly and accurately, and without jigs, fixtures, or special operator skills.

This automatic self guiding feature produces a relatively uniform break on the edge of the hole.

Design Features

The Ellipti-Bur features a spring-loaded and self-centering conical pilot to locate and seat the tool for consistent results. Upon contact with the part, the HSS blade disengages and floats, remaining free to oscillate and follow the irregular surface geometry of the hole. This ensures both radial displacement resulting from the elliptical shape of angular drilled holes and axial displacement (“rise and fall”) from the saddle shaped configuration of holes drilled in cylindrical surfaces.

All essential tool parts are hardened and ground for durability.

Three models cover a range of hole sizes from 3.96 to 25.4mm (5/32 to one inch).

Curved surfaces. Simply deburred.

All the small things

With medical, automotive and electronic applications ever demanding continually smaller sized holes, the Micro Burraway series of tools will deburr both sides of even the smallest of holes in one pass.

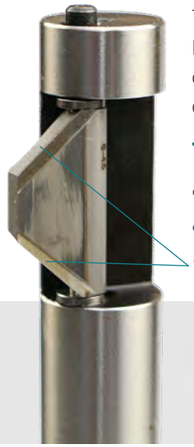
Suitable for materials such as aluminum, steel, stainless steel, titanium and even composites, these micro deburring tools suit holes ranging from 1.00mm (.040") to 2.33mm (.092").

Designed with a flexible blade that retracts into the arbor to adjust to the hole's diameter, the Micro Burraway series features inexpensive, replaceable cartridges which include the blade and arbor, and a standard cartridge holder that has a larger 6mm (.234") shank for convenient clamping. The cartridges are available in different sizes.

Micro Burraway is offered with two blade choices; Double-acting as standard (front & rear cutting) or Back-acting (rear cutting only).

Flippin' Genius

The Flipcut is designed to perform back-spotfacing or back-chamfering operations in one set-up.



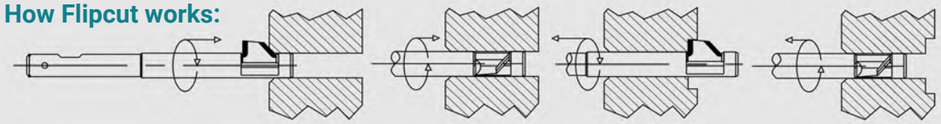
The cutter extends, with right-hand rotation of the tool. Left-hand rotation initiates positive mechanical closure of the cutter; assisted by centrifugal force. When the cutter is fully enclosed within the arbor pocket, the tool can be easily withdrawn from the bore. The steel body absorbs any shock.

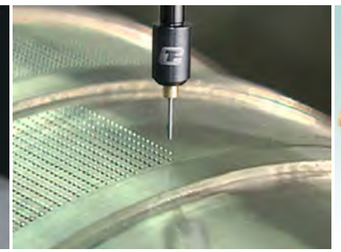
Two standard cutters are available:

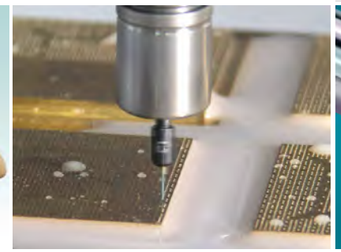
- Cutter designed for back-spotfacing and front-chamfering operations.
- Cutter designed for back- and front-chamfering operations

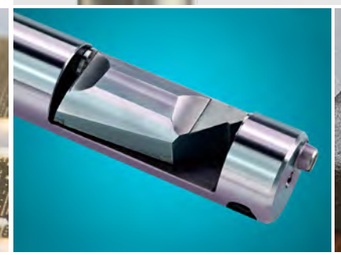
The brazed carbide cutting edges dissipate heat, for outstanding cutting performance.

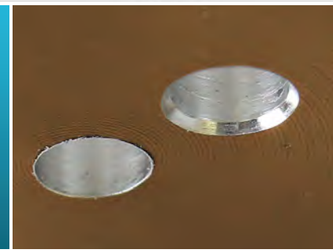
How Flipcut works:



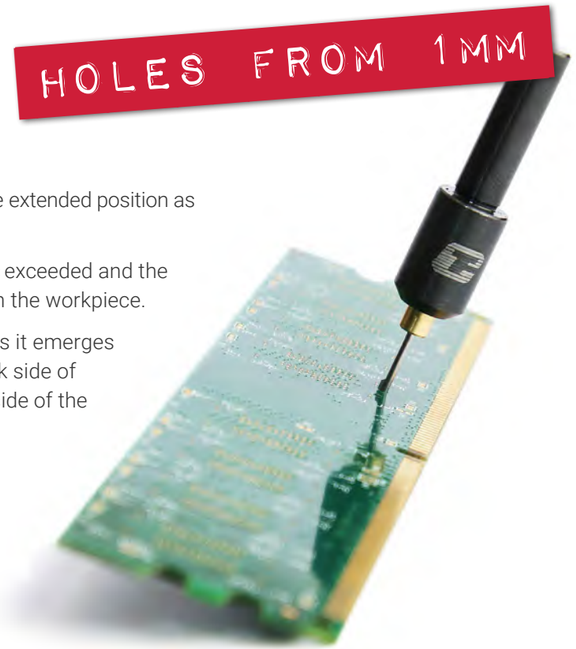








Small Hole. No Problem.



How Micro Burraway tools work:

1. Upon entry, spring tension holds the cutting blade in the extended position as it removes the burr on the front of the hole.
2. As the feed load increases, the pre-set spring tension is exceeded and the blade retracts automatically as the tool passes through the workpiece.
3. Pre-loaded tension again causes the blade to extend as it emerges from the ID of the part; the burr is removed on the back side of the hole on the return. stroke.is removed on the back side of the hole on the return stroke.

A one-pass solution for your small hole deburring applications.

Nobur JB

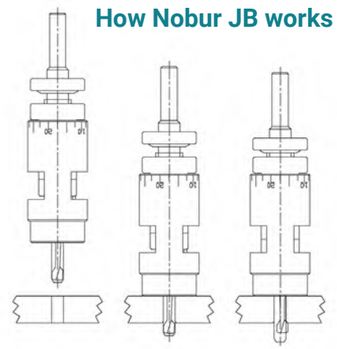
Automatic Back-Chamfering

For back-chamfering or deburring on drill presses, CNC machines, tool or turret lathes, multi-spindle machines and jig boring machines.

Features:

- Consistently accurate back-chamfering, deburring, and back-countersinking operations
- Pilots in hole for precise concentricity
- Rigid support of the cutter virtually eliminates deflection
- Micrometer-stop adjustment
- Standard pilots and cutters for hole sizes from 4.75 to 19.05mm (3/16 to 3/4")
- Special pilots and cutters upon request

How Nobur JB works



Turn your boring machine into a lathe

The Cogsdill ZX range of Facing / Contouring Heads and Modular Boring tools allow relatively simple 2-axis CNC programs to perform a variety of machining operations by converting linear motion into radial slide movement by mechanical actuation.

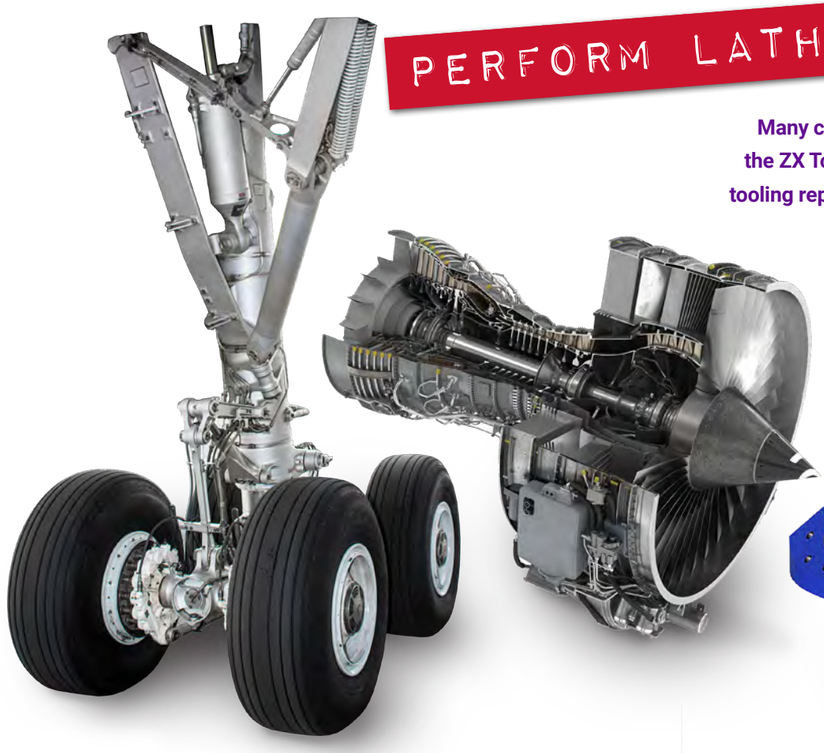
No need for an additional electronic interface, expensive software or hardware.

Part changes can be accommodated quickly and easily with program changes. Operations that were previously performed manually can be converted to CNC Control, thus improving productivity, accuracy, part to part repeatability and improved surface finish.

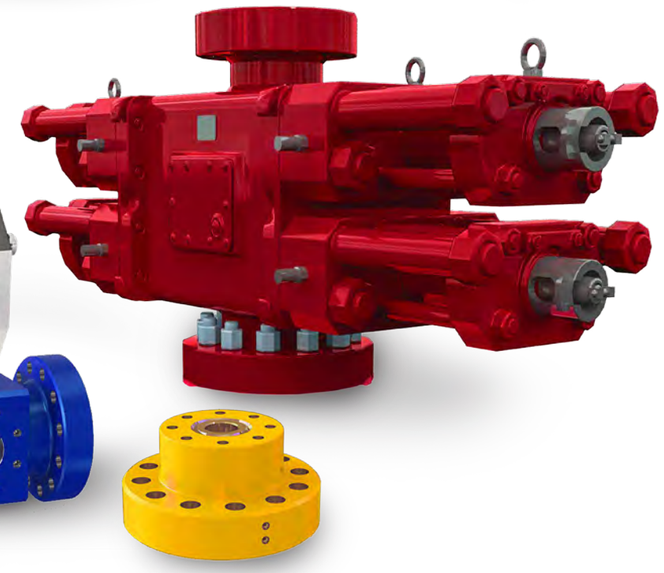
PERFORM LATHE-TYPE OPERATIONS

Many customers who have changed to the ZX Tooling System from conventional tooling report productivity increases of up to

500%



Compatible with most leading HBMs



As used in manufacturing applications:

- Oil Valves
- Blowout Preventers
- Gearboxes
- Pump Housings
- Compressors
- Frac Pumps
- Engine Housings
- Aerospace Components
- Landing Gear
- Tubing Hangers
- Large Castings
- Machine Manufacturing
- Heavy Equipment Components
- And many more...

The most versatile solution to increase the productivity of your HBM.

Operating Principles

The ZX Tooling System is comprised of two basic styles of tools:

- **Facing / Contouring Heads**
  featuring a single slide onto which various top tooling can be installed.
- **Modular Boring Tools (MBT)**
  used primarily in boring operations inside bores.

By programming simultaneous movement of two CNC axes (typically 'W' and 'Z'), complex turning features can be machined on a Horizontal Boring Mill (HBM)* allowing you to realize the full potential of your machine tool.

ZX Tooling System provides the ultimate solution in terms of productivity, flexibility, and accuracy for machining large parts that require multiple operations.

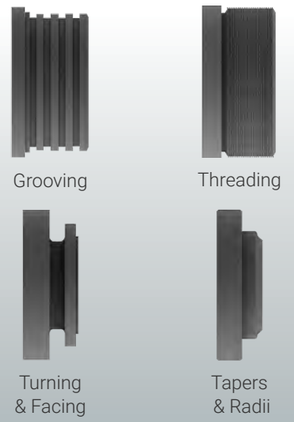
ZX benefits over conventional tooling:

- Improved accuracy
- Repeatability from part to part
- Superior part quality
- Enhanced surface finish
- Backlash-free actuation mechanism
- Extremely rigid design for roughing and finishing
- Modular design for maximum application flexibility
- A wide array of solutions to suit a variety of applications

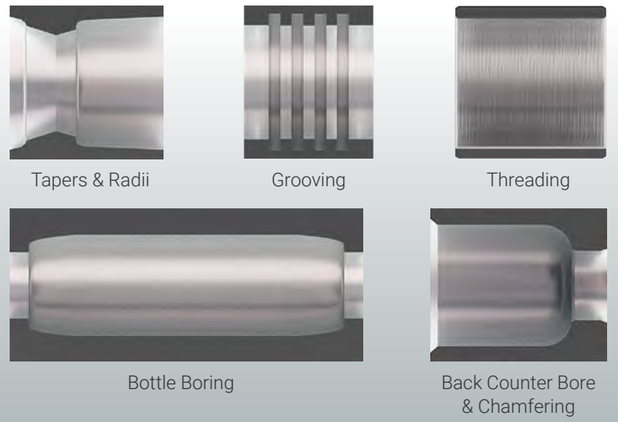
TYPICAL OPERATIONS	FACING HEAD	BORING TOOL
Boring	●	●
Facing (inc. Phonographic)	●	○
Contouring	●	●
Threading	●	●
Taper Boring	●	●
Deep Cavity Boring		●
Grooving	●	●
Profiling	●	●
Back Spot Facing	●	●
Ring Grooving	●	
Chamfering	●	●
Bottle Boring	○	●
Overturning	●	
Radii	●	●

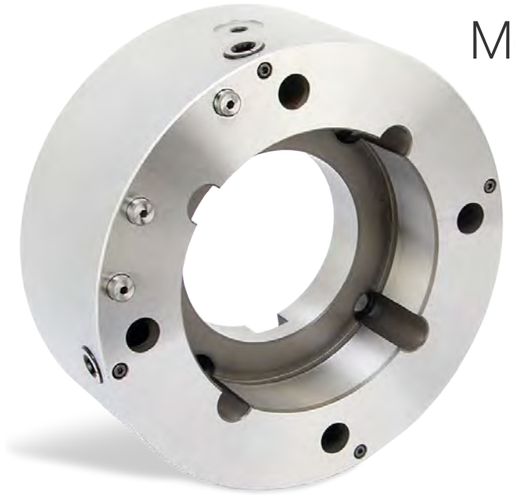
Other operations are possible.

External operations



Internal operations

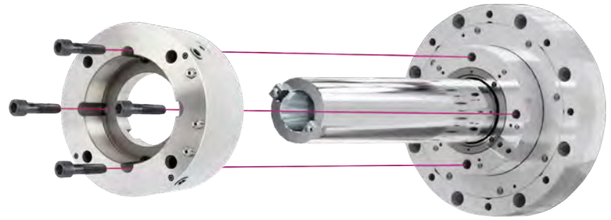




More flexibility. Extra support.

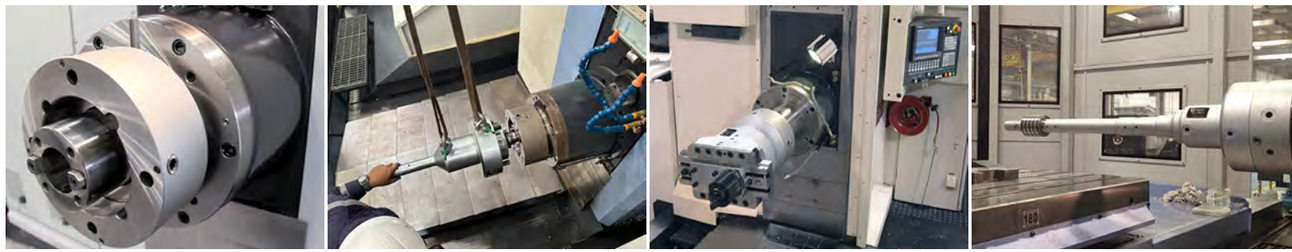
The ZX tooling system includes a quick release mounting interface called a Cam Lock bonnet.

This precisely machined bonnet is designed to fit the specific HBM onto which it will be installed and utilizes our quick-release Cam Lock mechanism, designed to minimize production downtime.



The bonnet securely bolts to the outer spindle of the machine.

"No HBM is complete without the ZX Tooling System"



Requires the use of a HBM with a programmable inner spindle that rotates in unison with the outer spindle, or milling sleeve.*

* Did you know?

Certain CNC lathes can be retrofitted with a Cogsdill Drive Box to incorporate the ZX Tooling System.

See Drive Box section for more info

Machine tool spindle requirements

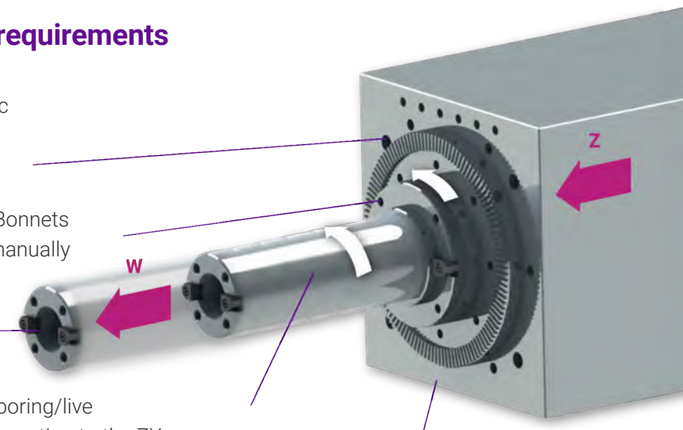
Location of automatic hydraulic clamping & pick up device utilized by Rotary Couplings

Location to bolt on Cam Lock Bonnets on the rotating milling sleeve manually

Connection to ZX tool shank

Rotating CNC-controlled quill (boring/live spindle) provides linear moving motion to the ZX mechanism where it is converted into radial stroke.

For all ZX Tools a quill (live spindle) is essential.



Linear moving Horizontal Boring Mill column or RAM. (In some case the machine table moves parallel to the spindle).

Facing / Contouring Heads

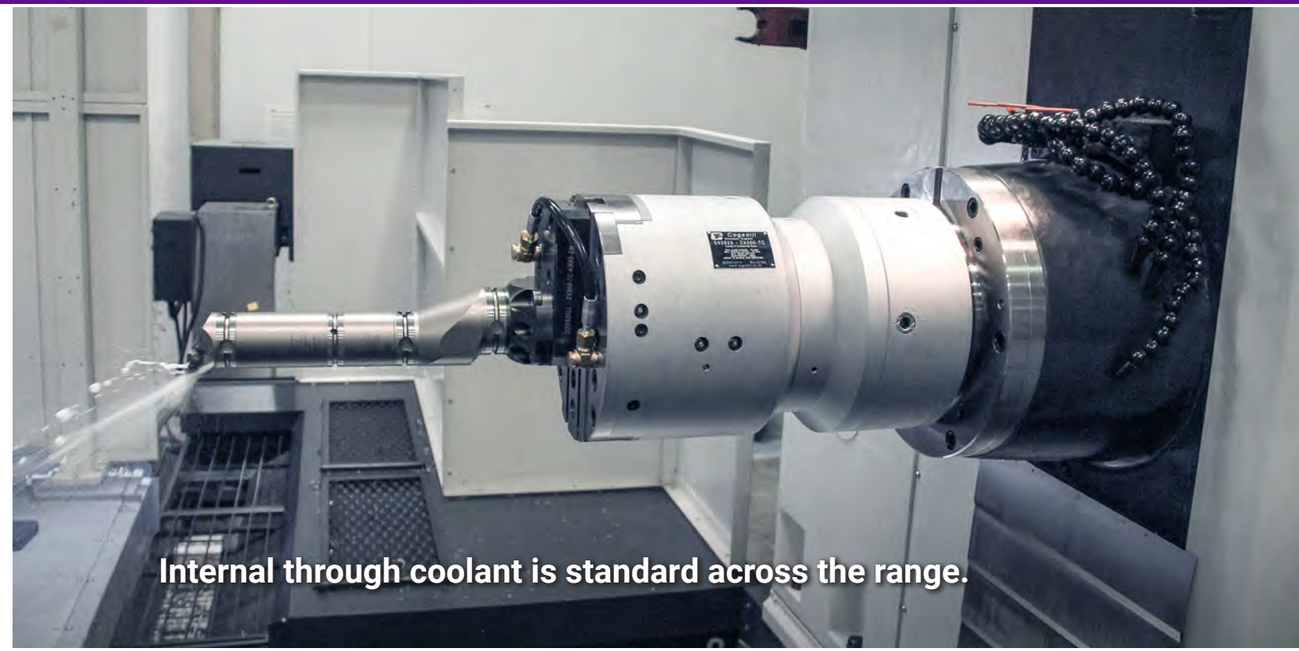
We’re talking heads

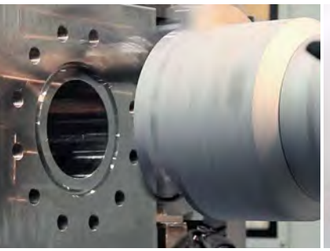
A complete range of ZX heads featuring Cam Lock studs for manual connection to Cam Lock bonnets or Rotary Couplings.

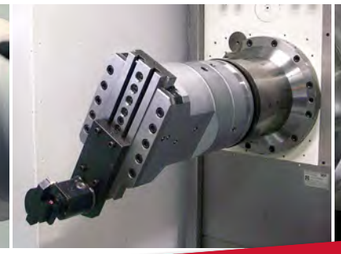
ZX Facing / Contouring heads offer the greatest versatility within the Cogsdill ZX tooling range. These mechanically actuated heads are designed to perform internal and external contouring, having a single tool slide onto which top tooling is mounted into qualified locating holes. This provides for repeatable set-ups.

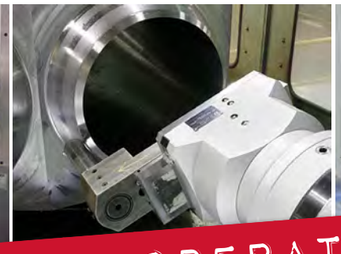
With appropriate top tooling, these robust heads can perform boring, facing, turning, grooving, taper boring, radius forming, chamfering, recessing, and threading.

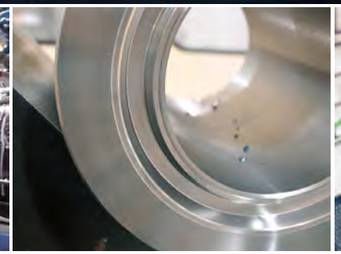
Large parts can be machined without having to remove the work piece!

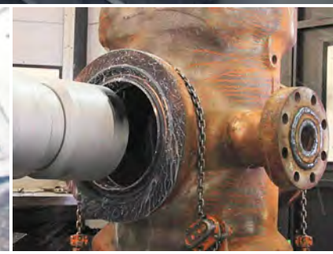










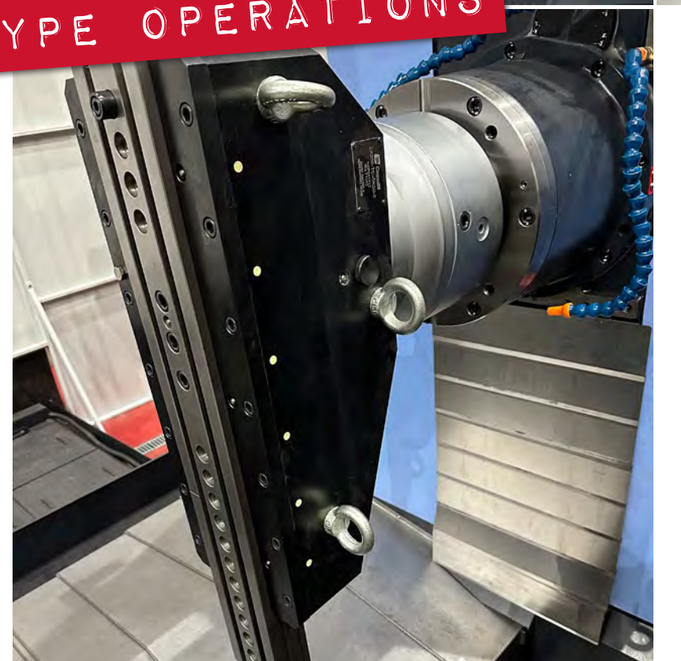


PERFORM LATHE-TYPE OPERATIONS

Operation capabilities:

- Boring
- Facing
- Contouring
- Turning
- Threading
- Taper Boring
- Grooving
- Profiling
- Back-spotfacing
- Chamfering
- Ring Grooving
- Overturning
- Radii
- Phonographic Facing
- Other operations

Standard stock sizes range from 200mm to 900mm slide lengths.



All ZX heads incorporate four Cam Lock studs that locate into the bonnet, providing exceptional rigidity.

Product features:

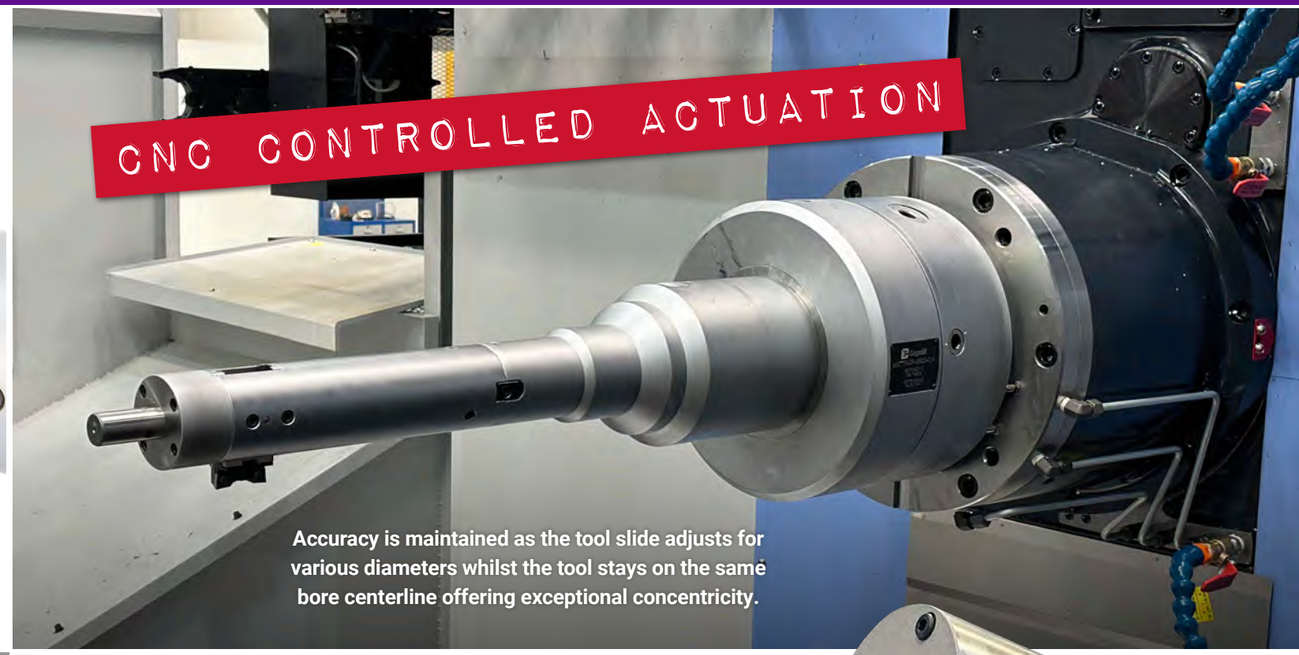
- Perform Lathe-type operations on boring mills
- Maximum application flexibility – machine I.D.s, O.D.s, faces, tapers, radii, and contours
- Large Diameter Range (from 0mm to 1700mm on ZX900)
- Accepts industry-standard top tooling and inserts (Modular tooling packages also available)
- Qualified tool location points in tool slide for accurate and repeatable set-ups
- Extremely rigid and durable design
- High material removal rates
- Backlash-free operation

Boring just became interesting

Modular Boring Tools offer versatility and economy when machining complex contours inside large components that require multiple operations in one set-up.

Modular Boring Tools (MBT) are used primarily in boring operations inside parts that require multiple operations in one set-up. Eliminate the need for several different tools with an easy modular system, that not only increases productivity but also reduces costly machine downtime.

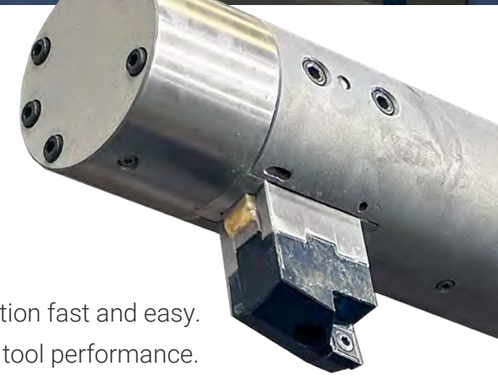
Conventional cutting tools are set to machine a specific diameter. A tool change is normally required to change diameters, or to machine a different feature. With the ZX Tooling System, the same tool can perform a wide variety of operations; **no tool change required.**



Accuracy is maintained as the tool slide adjusts for various diameters whilst the tool stays on the same bore centerline offering exceptional concentricity.

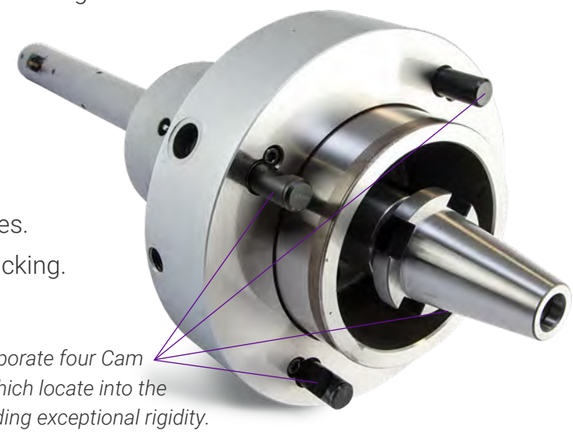
Increased capacity

The tools can perform versatile forward and back boring operations. Combined with the appropriate tool slide and cartridge, large parts can be machined without having to remove the work piece thus improving part to part repeatability and enhanced quality.



Product features:

- Modular design makes adjustment of length and configuration fast and easy.
- Large sliding load-bearing surfaces provide extremely rigid tool performance.
- Wide keys and deep key slots ensure long wear life under heavy cutting loads.
- Internal through-tool coolant is standard across the range.
- Quick change cartridge and tool slide for varying operations.
- Can be converted for extended-reach applications with piloted support.
- High cutting speeds and material removal rates.
- Bottoming-style assembly available for blind bores.
- Fully enclosed actuation mechanism: No chip packing.
- Internal forward hard stop and anti-torque features for tool protection.



All MBT incorporate four Cam Lock studs which locate into the bonnet, providing exceptional rigidity.

Valve Seat Pocket Tools

Specially adapted ZX Modular Boring Tools feature piloted cutter support for use in machining seat pocket areas in oil valves and other extended reach applications.

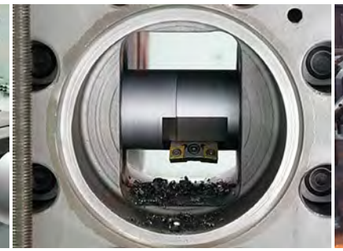
Interchangeable collets are available in a variety of sizes

Extended and supported long-reaching ZX Modular Boring Tools called Valve Seat Pocket Tools are dedicated to machine cavities or different profiles inside deep bores. Valve Seat Pocket Tools feature an end cap mounted pilot shaft which feeds inside a collet pilot, mounted inside the bore for accurate support during machining operation.

ZX Valve Seat Pocket Tools have enough stroke and strength to rough-machine pre-clad seat pocket cavities and, using the same tool, to finish-machine the pocket in Inconel after cladding. Non-clad pockets can also be machined.

Seat pocket tools are commonly used in steel, stainless steel, and Inconel.

All tools feature 2:1 actuation ratio for easy programming.



Product features:

- In-bore piloting for rigid cutter support.
- Available in standard flow bore sizes.
- Supplemental tool slides and cartridges available to increase diameter range.
- Support collet pilots with wrench sets are included on medium and long-reach tools.
- Longest tool slide strokes available, for maximum diameter range.
- Internal through-tool coolant is standard.
- Internal forward hard stop and anti-torque.
- Modular vibration damper units available.
- Fully enclosed actuation mechanism. No chip packing.
- Conversion kits provide ability to easily change tool for use in valves of various sizes.

Drive Boxes

Gain another axis

Adding more flexibility to your manufacturing facility.

Unlock the potential of your CNC lathe with the Cogsdill ZX Modular Boring Tool system. If your machine features a FANUC control system* and maintains precise accuracy, we can seamlessly integrate an additional axis, with the integration of a Cogsdill Drive Box, eliminating the need for a costly separate boring machine!

With a simple single-plug design and easy one-touch button connection, the operator can effortlessly remove and attach the tool as needed. This additional axis, which functions as a parallel Y axis to the X axis, facilitates the creation of interpolated contours and incremental moves.

** Certain software requirements apply.*

Plinths are designed to match your machine spindle centerline.

Increasing the capabilities of your lathe

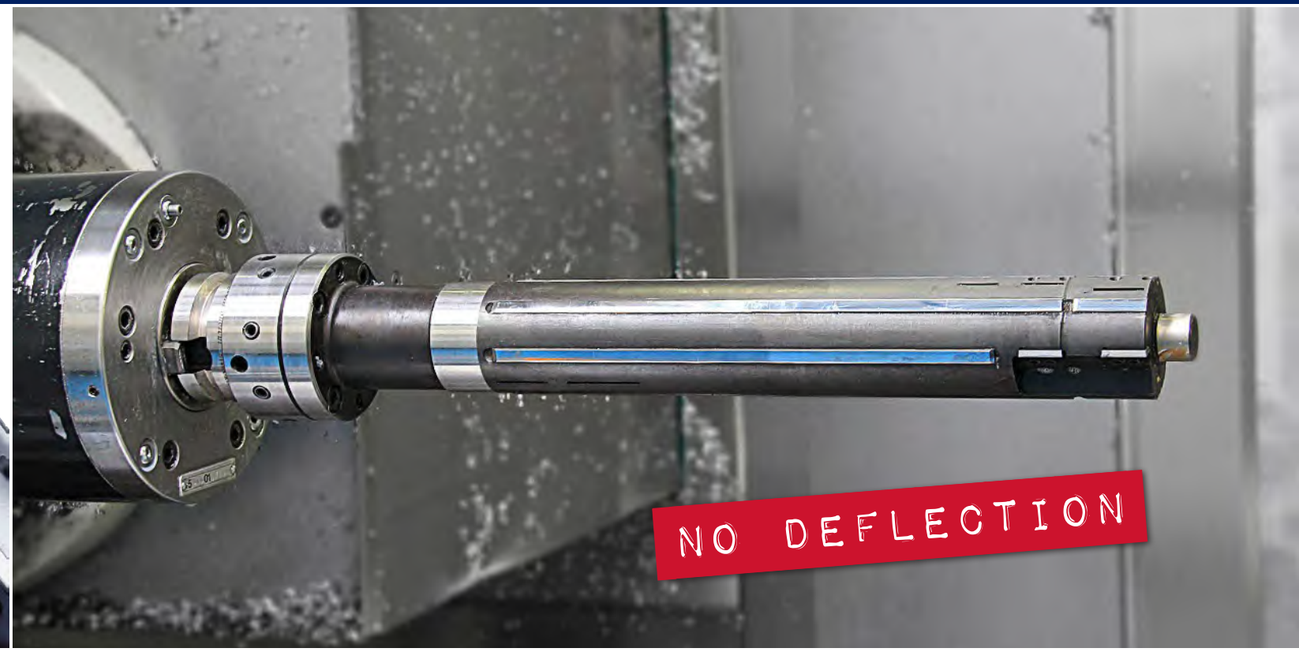
Combined with standard modular extensions, the ability to machine components with your CNC lathe is now endless.

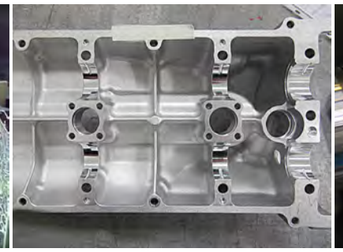
The Shefcut® design concept

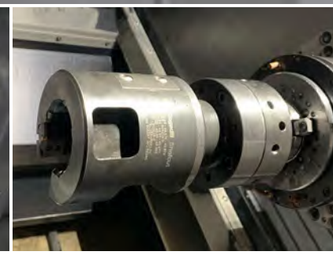
Conventional multi-fluted reamers are guided by their cutting edges. The Shefcut design separates the cutting, guiding, and supporting functions of the tool for maximum advantage.

Shefcut precision reamers and boring tools are designed to produce accurately sized, extremely straight and round bores with fine surface finishes. Multiple guide pads rigidly support a single, replaceable cutting blade for exceptional stability and alignment. Size control, surface finish quality, and hole geometry are superior, compared to results from conventional reamers and boring tools.

Each tool is designed for a specific cut diameter. Standard and custom tool designs are offered. Also available from Cogsdill: tool holders designed to complement and enhance the performance of Shefcut tools, and Shefcut setting fixtures for fast and accurate tool settings.







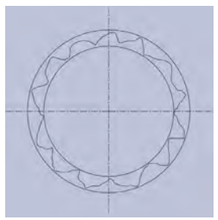


Figure 1: Typical lobed hole geometry generated by multi-fluted reamer.

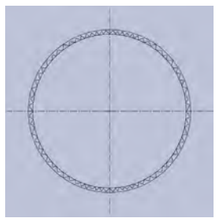


Figure 2: Typical hole geometry generated by Shefcut tool; no lobes, only surface finish irregularities.

Fine surface finishes

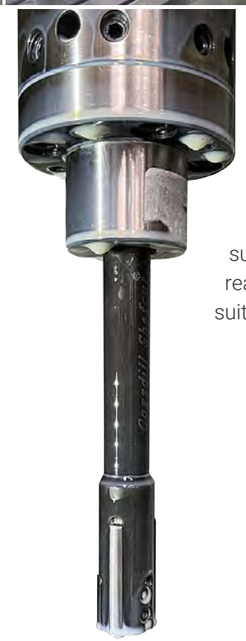
Shefcut produces lower surface finishes than conventional cutting tools. Surface finishes as fine as 0.1 micrometers (4 microinches) Ra or better are attainable in some materials.

The face of the Shefcut blade is highly polished to reduce friction between chip and blade, which in turn reduces the tendency toward edge build-up. The Shefcut blade has a very sharp edge, and the cutting geometry reduces chip thickness. These blade design advantages, along with the rigid support provided to the blade by the guide pads, enable the user to achieve excellent surface finishes.

Accurate sizing and superior bore geometry

The Shefcut tool produces hole geometry that is superior to the hole geometry produced by conventional reamers. Since multifluted reamers are guided by the cutting edges, they inevitably generate a lobed bore geometry (refer to figure 1). The Shefcut design produces better hole geometry due to rigid support of the cutting blade by the guide pads (see figure 2).

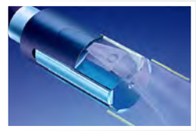
Bore tolerances, including straightness and roundness, can usually be held within 5 microns (.0002 inch) using Shefcut tools on typical shop equipment, provided that reasonable care is taken.



Consistent performance

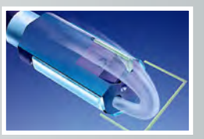
Because the cutting blade is independent of the tool body, it can be micro-adjusted over a limited range and pre-set to a cut diameter that the tool will then produce with consistent accuracy. Worn cutting blades can be replaced quickly and easily.

Pads that are independent of the cutting blade optimize the guiding and supporting functions of the tool. While the tool is in operation, cutting forces are opposed by pad reaction forces in perfect balance, providing rigid support for the blade edge. Pads can be tailored to suit the application; e.g., for interrupted cuts, piloted operations, etc.



Through-Hole

Coolant flows through the center of the tool and exits above the blade and pads, flushing chips out of the bore ahead of the tool.



Blind-Bore

Coolant exits at the end of the cutting head, flushing the chips back and out of the entrance of the blind bore.

Greater accuracy

Cogsdill Automatic Recessing Tools will save you time and money.

Cycle time is reduced from minutes or hours to seconds. The precision is built into the head so that grooves and recesses can be machined with exceptional accuracy and repeatability. The Automatic Recessing head changes the operational direction by 90˚ (i.e., axial spindle motion is converted to radial cutter movement). Recessing operations can be performed on a variety of machines, even on a drill press.

Four styles are available:

- **AR Series** – Automatic recessing tools, for machining precision internal and external grooves and recesses on virtually any type of machine.
- **Nobur JA Series** – For deep bore recessing and grooving. These tools can be used on drill presses, jig boring machines, milling machines, tool or turret lathes, horizontal boring machines, CNC machines, and special purpose machines.
- **Nobur JB Series** – For back-chamfering or deburring on drill presses, CNC machines, tool or turret lathes, multi-spindle machines and jig boring machines.
- **Generating Heads** – Designed to work on virtually any machine where the tool slide stroke is controlled by a drawbar.

Infinite control

Cogsdill Generating Heads are designed for facing, recessing, boring, and contouring. Multiple operations can be performed faster, more economically, with better quality, and at one spindle location.

Used on special-purpose machines and other high production machinery, including transfer lines and dial machines. Custom-designed top tooling is mounted in qualified holes on the toolslide.

- Single or double-slide models are available, designed for feed-out or feed-in
- Sizes from 100 to 250mm (3.937 to 9.842 in.) in diameter

Actuation mechanism eliminates backlash.

total control under pressure

Zero backlash for ultimate precision

Our ZX facing, contouring and modular boring systems have become the oil and gas industry's preference for reliable and efficient production. The latest advances are not only designed to be strong, durable and consistent, but offer unrivaled accuracy and quality to meet the most stringent demands.

No HBM is complete without the ZX tooling system

SEE OUR TOOLS IN ACTION ON YouTube

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