



METALCUTTING

CAPABILITIES OVERVIEW

CUTTING



MetalCutting[®] provides burr-free Abrasive and EDM cutting, precision grinding, high finish polishing and lapping and custom 4-Axis CNC machining of all metals.

From raw material sourcing to advanced metrology, we continuously endeavor to provide a variety of value-added services that compliment our core capabilities.

Over 40 years of delivering micron tolerances combined with exceptional quality, and the service our customers depend on, has helped us to achieve global supplier status. We look forward to helping you achieve your close tolerance, high-precision requirements efficiently and cost effectively!

Metal Cutting has been perfecting the science and crafting the art of burr free cutting for over 40 years. All 46 of our proprietary Abrasive and EDM cut-off machines offer unmatched precision and high-speed capability.

IMPORTANT FACTS

Diameters from 0.0005" to 3.00" (0.0125 mm to 75.0 mm) can be cut.

Cut lengths from as uniquely short as 0.008" (0.20 mm) are achievable.

Cut length tolerances down to 0.001" (0.025 mm) are achievable.

Any tube ID—no matter how small—can be cut, and tube walls as thin as 0.001" (0.025 mm) can be cut without deformation.

Exceptionally tight tolerances can be held on long-length cuts (± 0.005 " over 6.0 feet or ± 0.125 mm over 2 meters).

Coated parts can be cut without damaging surface coating.

Coated tubes can be cut without damaging OD coating and maintaining ID cleanliness and integrity.

Parallelograms with square or angle ends can be cut within arc seconds.

GRINDING & LAPPING



In addition to precision lapping, we offer an extensive range of CNC surface, profile, double disk, and centerless grinding. Our full-service grinding and lapping center allows us to generate specific surface finishes and create highly customized end features.

IMPORTANT FACTS

Offering unmatched versatility holding grinding tolerances down to $\pm 0.000020''$ (± 0.5 microns).

Our lapping machines hold length and thickness tolerances down to $\pm 0.0001''$ (± 0.0025 mm).

Can grind down to a Ra 0.10 μm ($4 \mu\text{m}$) surface finish and achieve a Ra 0.05 μm ($2 \mu\text{m}$) lapped end finish on both solids and tubes, including thin wall tubing, long-length components and wire diameters as small as 0.004" (0.10 mm).

Can grind precision inside corners and end radii from sharp to full round while holding angle tolerances in the arc seconds to produce profiles, forms, single tapers, slots, angles and pointed metal parts with speed and accuracy.

Capable of holding and producing geometric features including perpendicularity, squareness, parallelism and flatness, all within arc seconds.

POLISHING



Metal Cutting has carefully crafted polishing recipes that combine time, temperature, action, fluids and abrasives in order to yield consistent and specialized results—regardless of quantity or part size.

IMPORTANT FACTS

Running over 100 mechanical polishing machines on a lights out schedule.

Our extensive range and quantity of polishing machines includes vibratory, barrel, centrifugal, and ultrasonic.

Controlled surface finishes as smooth as Ra 0.025 μm ($1 \mu\text{m}$) are achievable.

Can polish customer-supplied complex machined parts as well as laser, stamped and etched components.

Small diameter wire can be mechanically polished in our custom abrasive media to surface finishes beyond the reach of electro-chemical based polishing methods.

MACHINING



Metal Cutting's experienced machinists and versatile CNC machines are perfectly equipped to tackle even the most complex precision metal components with features including flares, custom profiles, holes, forms, single tapers, slots, angles and points.

IMPORTANT FACTS

4-Axis CNC mills are capable of working to diameters as small as 0.010" (0.25 mm).

CNC lathes with live tooling can work to diameters as small as 0.010" (0.25 mm).

CNC wire EDM machines process diameters as small 0.0005" (0.0125 mm).

Can achieve tolerances to $\pm 0.0002''$ (± 0.005 mm).

Our extensive capabilities allow us to serve the micro-machining market with a specialty in small batch, fast turn-around jobs.

WE ALSO OFFER:

TUNGSTEN & MOLYBDENUM PRODUCTS

For over 30 years we have been supplying a variety of tungsten and molybdenum products, including wire (both gold plated and non plated, round and ribbon) and rod. We maintain inventory of various wire diameters ($\geq 0.00030''/ 0.007$ mm), compositions and surface finishes available on spools or in straight lengths. And we offer exclusive specialties such as the highest potassium doped wire and the purest 99.999% tungsten wire.

SANDBLASTING

We have a dedicated sand-blasting facility that can be used to roughen parts to any adhesion requirement. An abraded part can be completely treated or differential portions can be made rough with tight dimensional precision.

PASSIVATION

For customers requiring a non-reactive surface treatment, we perform passivation including the latest environmentally friendly chemical processing.

METROLOGY

We have an array of constantly updated technology: a cleanroom, camera vision defect detection systems, 100% dimensional grading, robotic multi-stage ultrasonic cleaning stations and electromagnetic non-destructive eddy current metallurgical flaw detectors.

MEASURING

To ensure exceptional accuracy, all specifications can be measured using our in-house semi-micro balance scales, single and multi-axis laser micrometers, optical digital edge gauging microscopy and high-resolution contact profilometers.



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