



Extreme Precision Manufacturing



Our Valued Customers



Who We Are

The KMM Group is a collaborative fusion of three world-class companies: The KVI Group, M&S Centerless Grinding Inc., and Meron Medical. We manufacture mission-critical medical device, aerospace, and other advanced components with exacting precision, leveraging a combined 100-year history of leading-edge milling, turning, grinding, EDM, engineering, and assembly.

Bringing together the brightest minds and the most advanced technologies, we boldly pioneer solutions for extreme manufacturing challenges with passion, perseverance, and integrity. We are an accomplished team of visionaries, continually pivoting to embrace the future of manufacturing today.

What Makes Us Different

We have the high-precision skills and equipment to hold exceptionally tight tolerances, allowing us to navigate extreme and difficult jobs when others may walk away – or fail. Our deep-rooted prowess spans a broad array of verticals, from medical devices and aerospace to military and power generation, giving us more experience solving thorny challenges for the industries making a difference.

Through an unwavering commitment to innovation, we've developed uniquely proprietary platforms that allow for more development work, paving a more efficient path toward progress that matters.

How We Do Business

As a progressive organization, we believe in a supportive client experience centered on transparency and responsiveness, with direct and frequent access to key members of our engineering, quality control, and project management teams. We are masters in the art of listening, diving deep into your project requirements to develop bold and groundbreaking solutions for seemingly impossible challenges. Our remarkable dedication to excellence is just one of the reasons we are leading the industry forward to an even brighter tomorrow.





Ultra-Precision Machining

We offer a full complement of machining capabilities to take your parts from concept to reality. With a blend of high-level milling, turning, Swiss-turn, EDM, and toolmaking expertise, we provide exceptional capability in highly demanding applications across the manufacturing spectrum. Thanks to our advanced skills and technologies, there are few components our ultra-precision machining team cannot handle. We are here to make the impossible possible.

Customer Benefits

With industry-leading state-of-the-art equipment and experienced craftsmanship, we provide full-service precision component manufacturing focused on your needs and budget.

With us, you can expect:

- Exceptional quality and accuracy with timely delivery
- Direct and open communication from engineering and quality control teams
- High-touch customer service process with routine status updates
- Urgent attention with expedited US and international shipping
- Secure data and file maintenance for easy reorders

Machining Capabilities

Ultra-Precision Machining (Milling)

Our ultra-precision vertical machining capabilities produce highly accurate results with tolerances as low as 2.5 microns. We offer 3-, 4-, and 5-axis milling and finishes to < 8 Ra to meet your most exacting standards. As specialists of medical and aircraft alloys, we have the tools and expertise to deliver precisely the solution for your manufacturing challenge.

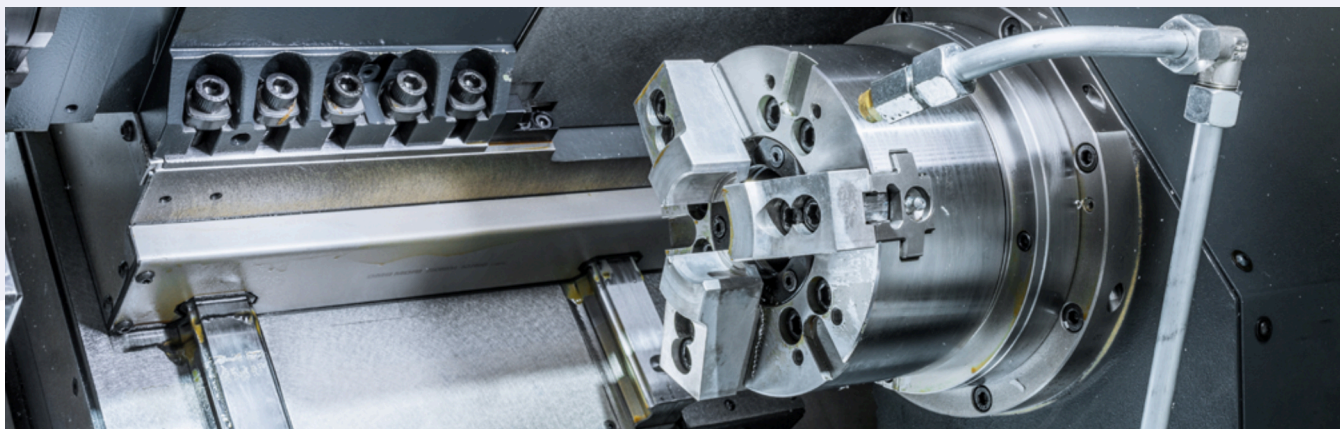
- Envelope up to 40" x 20" x 20"
- 3-, 4-, and 5-axis milling
- Specialists in working with medical and aircraft alloys
- Tolerances to .0001" (2.5 microns)
- Finishes to < 8 Ra



Wire EDM

Our wire electrical discharge machining (EDM) capabilities provide precise prototype or production solutions using any material your project requires, including any necessary certifications. With rapid turnaround service and ultra-precision near-zero tolerances, we blend talent, passion, and technology to boldly generate the results you need when you need them.

- Envelope up to 41.3" x 31.5" x 11.86"
- Ultra-Precision Wire EDM Tolerances <.0001"
- Finishes to 4 RMS
- B Axis (Rotary) for 6-axis 'Turn and Burn'
- Robotic Load/Unload for High Volume applications



Ram EDM

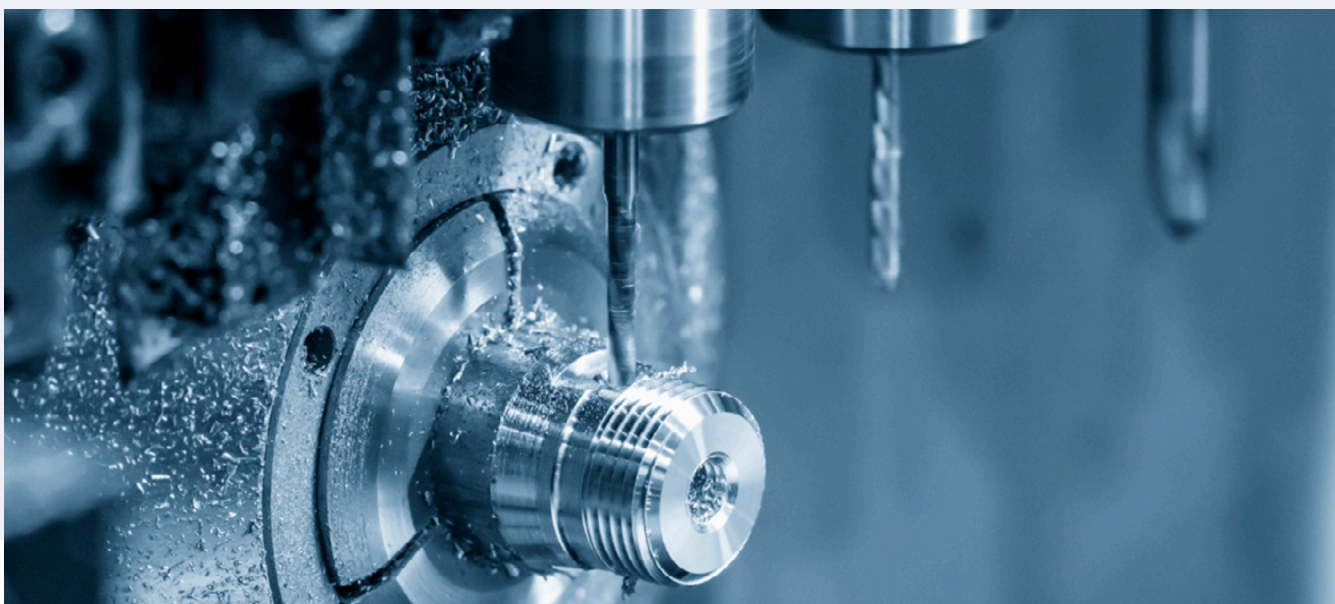
Our ram electrical discharge machining (EDM) capabilities use industry-leading machines to create critical components with exacting precision. With state-of-the-art ram EDM technologies and skilled operators at the helm, we can achieve highly accurate results with ultra-quick turnarounds for the most demanding jobs that others cannot handle.

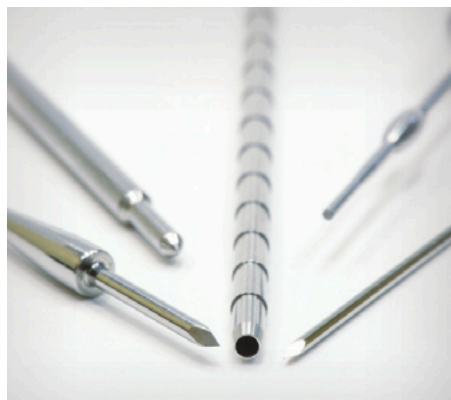
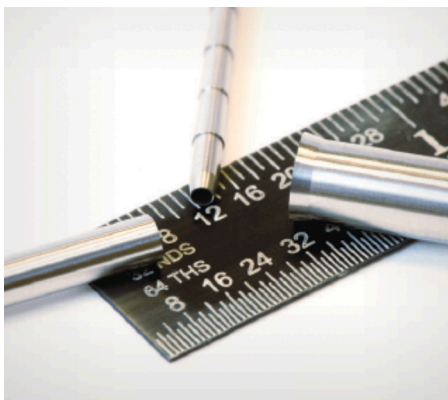
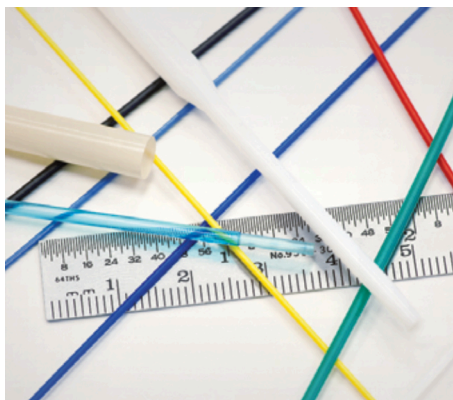
- Hex, Torx, Clover and other Socket Features for Surgical Devices and Implants
- Fine Finish Performance to 4 RMS
- 0.0002" Tolerance Capability
- Thin Wall/Deep Cavity applications
- EDM Drilling

Swiss Screw Machining

Our 13-axis Swiss screw machining capabilities can produce high-precision components with tolerances as low as 5 microns. Ideal for close tolerances and complex parts, our Swiss department delivers exacting precision on low to high volume runs of 50 to 500,000 parts.

- Up to 32mm through the spindle
- Up to 13 axes
- Tolerances to .0002" (5 microns)
- Specialists in working with medical and aircraft alloys
- Low volume to high-production (50 to 500,000 pieces)





Micro-Machining

Our micro-machining capabilities blend the latest state-of-the-art technologies with advanced technician experience to deliver ultra-fine parts with near-zero tolerances. Fueled by our passion and commitment to excellence, we have the advanced skills and equipment to meet your most exacting standards.

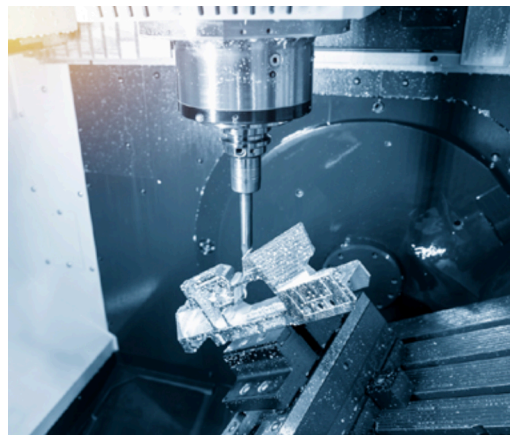
- Extremely small, intricate components
- Features as small as .002"
- Tolerances to microns
- Possible in all manufacturing disciplines - Swiss, milling, EDM and grinding



Mill/Turns

Our milling/turning capabilities combine state-of-the-art equipment and talented machine technicians to produce complex parts within near-perfect tolerances, giving us an edge in high-precision industries. Our deep dedication to excellence and vast experience with an extraordinary number of material types make us the leading supplier to tier-one aerospace companies around the globe.

- 3.15" bar through spindle and 17" between centers
- 11-axis capability
- .0002" tolerances
- 8 Ra finishes
- Experience with over 60 materials



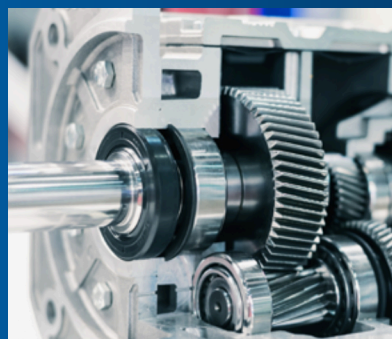
Tooling/Toolmaking

The KVI division started as a high-end tool & die shop and has always remained connected to its roots. Boasting 45 years of engineering solutions to complex challenges, our dedicated toolroom and vast experience with tooling and fixturing gives us a leg up on our rivals, continually providing solutions where others see problems.

Industry Focus

We have worked within the medical, aerospace, defense, high-tech, and power generation industries for a combined 100 years helping to solve mission-critical manufacturing challenges. *We are your trusted source for accurate and timely high-precision components.*

- **Medical** – Medical device components
- **Aerospace** – Fighter jet parts, space exploration parts, intricate valve spool and actuators, test coupons
- **Defense** – Firearm bolts and carriers
- **Robotics** – Pinion gears and actuator bodies
- **High-tech** – Motor shafts, air bearing spindles, race engine parts



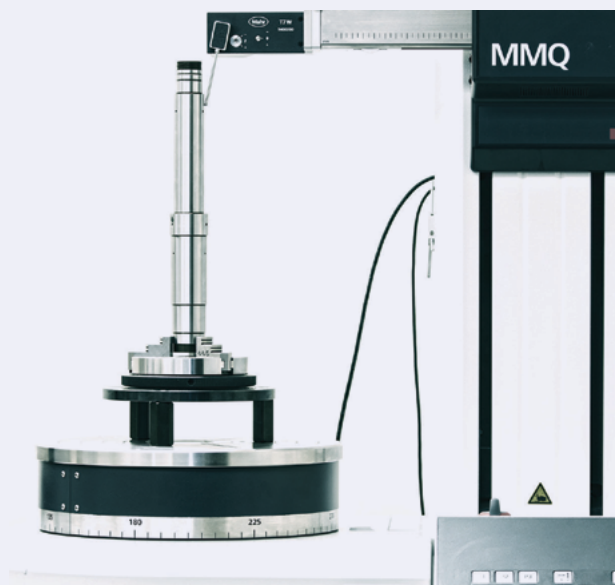
Ultra-Precision Centerless

Our ultra-precision centerless grinding capabilities flawlessly complement our expert machining skills, allowing us to take your highly exacting project to completion under one roof. We have all the tools to design and execute a plan to meet your most demanding needs with speed and accuracy, from single-operation grinding services to dock-to-stock part production.

Having mastered both the art and science of grinding, our ability to produce expert-quality results on the most difficult applications is second to none. Every day, we grind sub-micron tolerances on diameters, complex geometries, and intricate part features previously thought unattainable. When there is no margin for error, choose us to get it right.

Customer Benefits

We are not just another grinding shop. We are a passionate team of smart solution-finders obsessed with every detail. Besides producing a reliably high level of quality work, our ultra-precision centerless grinding services always come with an unmatched level of responsiveness attuned to your needs. We listen, understand, and thoughtfully communicate – it's what we love to do.



Choose us for:

- Smart, innovative component manufacturing solutions for complex parts and materials
- Responsive R&D/developmental projects and dependable long-run production work
- Same day service for tight timelines with UPS-red shipping in the US and internationally
- Effective communication with engineers, quality control, and project management teams
- Peace of mind that your precious asset is in safe and capable hands

Centerless Grinding Capabilities

Ultra-Precision Centerless

Our ultra-precision centerless grinding capabilities hold tolerances on diameter size and cylindricity to the sub-micron level, helping to eliminate tedious and expensive ring-lapping operations on match-fit requirements. In addition, we strive for six-sigma capability and use only the most advanced technologies in CNC grinding equipment to ensure accuracy for your most demanding specifications.

- OD tolerances to $\pm .00002$ " (.5 micron)
- Roundness to $.000015$ " (.35 micron)
- Surface finishing to < 2 Ra (.05 micron)
- Diameter sizes to $.750$ "
- Lengths to 10 "
- We work with ANY material



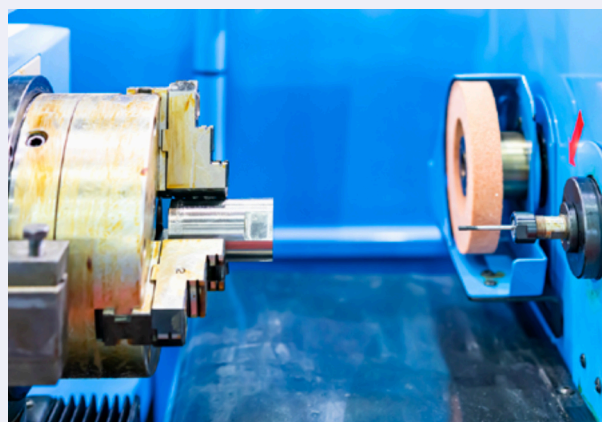
Precision Centerless Grinding

Our precision centerless grinding capabilities combine exceptional talent with state-of-the-art technology and innovative processes to elevate the traditional industry standards. With unsurpassed expertise in both precision Thrufeed and Infeed centerless grinding, we produce consistent dimensional tolerances and straightness designed to surpass your expectations.

- Diameter Capacities
 - Thrufeed: .005" (.127mm) to 2.50" (63.5mm)
 - Infeed: .014" (.355mm) to 14" (355.6mm)
- Lengths to 14 feet (4.267 meters) ** (14 foot length limited to bars \leq .75" (19mm) diameter)
- Standard tolerances to $\pm .0001$ " (2.5 microns)
- Precision bars ground for Swiss-screw machines with tolerances to $\pm .0001$ "
- Finishes to < 2 Ra (.05 micron)
- All materials, including glass, M2, Tungsten, Titanium, Nitinol, etc.

Hybrid CNC Centerless

Our hybrid CNC centerless grinding capabilities provide exceptional solutions for "problem" parts that our competitors have declined. Anything but traditional, our expert hybrid CNC centerless grinding processes allow us to work with materials and part configurations not easily managed by conventional methods, illuminating the way for extremely intricate forms and micro-sized parts.



- CNC OD and CNC ID Grinding
- Super-thin (.001") wall thickness on OD/ID grinds without crushing the parts
- Diameter tolerances to $\pm .00005$ " (1.2 microns)
- Diameter range: OD - .003" to 2.50", ID - .060" to 2"
- Micro parts (ODs)
- Finishes to 2 Ra (.05 micron)
- All materials including glass, M2, Tungsten, Titanium, Nitinol, etc.

Guidewire Grinding

Using innovative grinding techniques, we solve many capability and cost-related challenges with guidewires. We thrive on pioneering methods to satisfy extremely small diameters ($<.002''$) and intricate configurations. Through advanced technologies and seasoned expertise, our guidewire grinding services produce wires and stylets for devices used in aneurysm coiling, clot extraction, CRM, interventional cardiology, angioplasty, neuromodulation, thrombus busting, and more.



- Diameter tolerances to $\pm .0001''$
- Ground length tolerances to $\pm .005''$
- Wire lengths to 15 ft+
- Steps, tapers, ball ends, back tapers, tight corner radii, paddles, flats, etc.
- Long grind lengths up to 48" (1200mm) in ongoing production
- Range of materials, including SST, NiTi, MP35N, and Precious Metals, and additional "exotic alloys" like Inconel, Hastelloy, etc.

Industry Focus

For over 60 years, we have put our ultra-precision centerless grinding expertise to work, pioneering and engineering mission-critical components for industries, including medical, aerospace, defense, high-tech, and more.

- **Medical** – Device guidewires, device components, core pins, implants, dilator modifications, mandrels, hypotube grinding, plastics (PTFE, PEEK, HDPE, etc.)
- **Aerospace** – Spools/sleeves match-fitting, test coupons, intricate missile components, specialty bearings for space exploration
- **Defense** – Non-metallic rods to visibly perfect finishes, actuator pistons, tiny robotics parts, firearm bolts, and carriers
- **High-tech** – Shafts for mass spectrometry, spools/sleeves for prosthetics, high-speed spindles, chip-making equipment components, racing engine components, specialty bearings, and space explorations applications

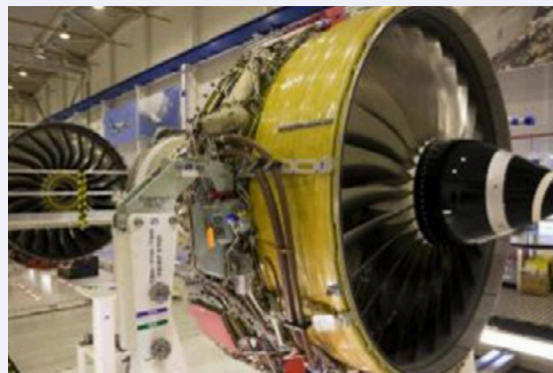


Multi-Axis CNC OD/ID

Tackling the most demanding sub-micron tolerances for concentricity and runout can be achieved through our ability to grind multiple part features (OD's, ID's and faces) in one chucking. Diameters can be controlled to the same tolerances with in-process gauging, and Non-Round shapes/features can be ground to highly precise geometries and tolerances.

Unique Capabilities

- Multiple part features in one chucking
- Eccentric and Non-Round grinding - shapes and non-round features generated by interpolation of the grinding wheel
- Diameter range: OD to 14", ID to 7"
- Length range: OD to 40" Long, ID to 7" Deep
- Diameter tolerances to $\pm .00005"$ (1.2 micron)
- Finishes to 2 Ra (.05 micron)
- Wide range of materials



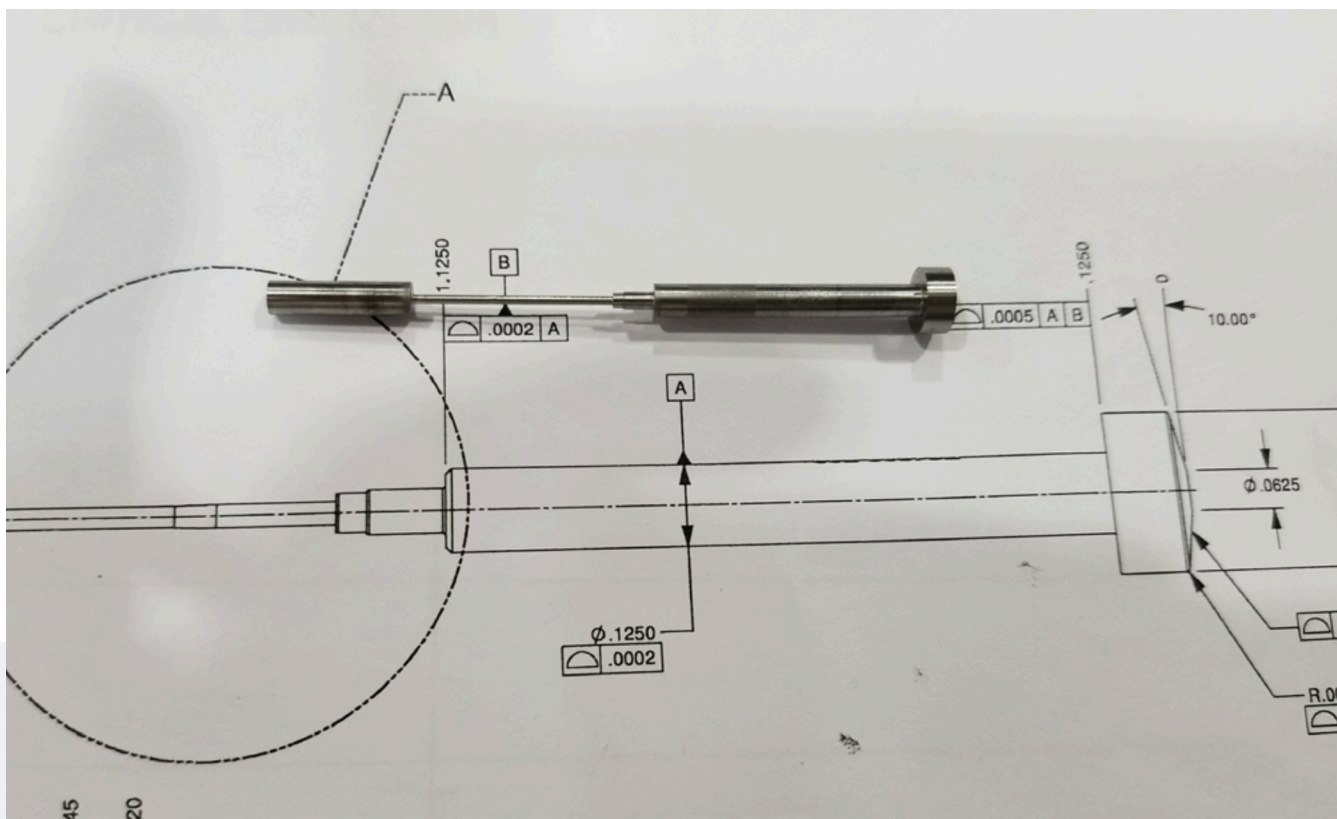


Additional Capabilities

Our passion for excellence doesn't stop with our industry-leading machining and grinding services. We also provide the full spectrum of manufacturing services to support your needs. Whether we are machining, grinding, or performing one of our many additional capabilities, we are achieving extraordinary feats every day.

We Also Do:

- Custom Tooling & Fixtures
- Assembly & Welding
- Nitric & Citric Passivation
- Gear Hobbing
- Chemical Processing



Design & Engineering

We reverse engineer contoured parts and worn dies and tools that would otherwise be difficult or impossible to manufacture due to missing tooling drawings and information. Consultative engineering for input on design for manufacturing (DFM) and assembly (DFMA) is a core strength, and is an asset that is difficult to overvalue for the cost and time it has saved for our client base. When our clients work through the development process they see our engineers as an integral part of their team.

Processes We Manage

KMM Group manages secondary outside processes seamlessly to effectively offer a wide array of production capabilities for our client base. Our project and vendor management teams integrate the capabilities of these critical vendors to interface with our clients as a single point of contact.

- Plating & Coatings
- Heat Treatments
- Type I, II, III Anodize
- Chem Film
- Laser Welding and Cutting
- Additive Machining (3D Printing)

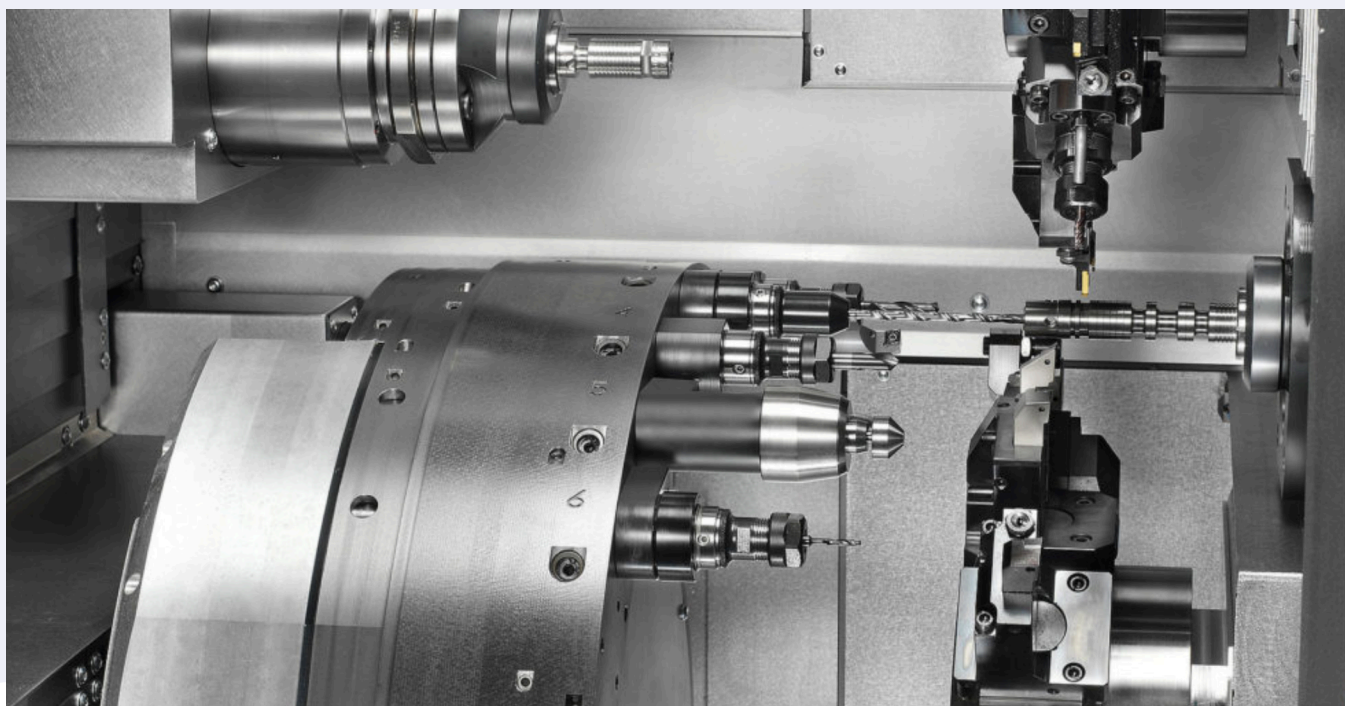
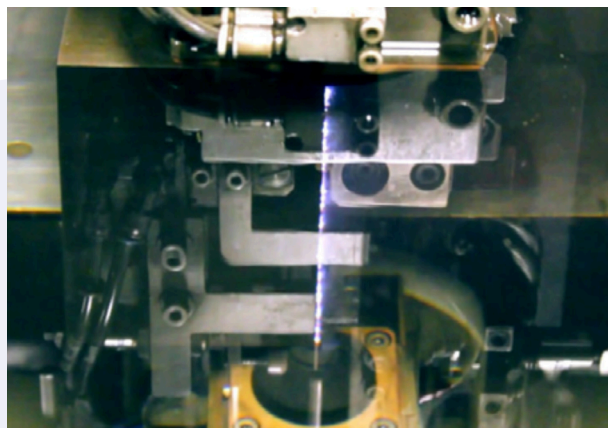
R&D Capabilities

When it comes to meeting rigorous R&D demands, it's not a pipeline of viable projects that fuels our perseverance to rise to a challenge. Instead, it's the thrill of the breakthrough and the knowledge that we have achieved what others said could not be done.

For decades, we have solved perplexing manufacturing challenges across every high-tech industry and are ready to do the same for you. Our R&D Lab supports all your engineering needs, from feasibility and prototyping to validation and full production. Gain access to dedicated equipment and passionate people committed to solving your biggest machining and grinding conundrums to expedite your timeline and save costs.

Our Dedicated R&D Resources Include:

- 5-Axis Milling
- 10-Axis Swiss
- Surface Grinding
- Hybrid Centerless
- Guidewire Grinding
- EDM (coming soon)
- ISO Class 8 Cleanroom



ISO 14644 Class 8 Cleanroom

Our team understands that now more than ever a higher standard of quality and cleanliness is needed in the manufacture of medical devices. Located in the Quality Control (QC) area of our facility, our cleanroom functions as the final stage of cleaning and packaging. Investing in an ISO 14644 cleanroom isn't just the right move in our ongoing quest for excellence, it also adds value by eliminating a cleaning step downstream, saving our customers time and money.



Quality

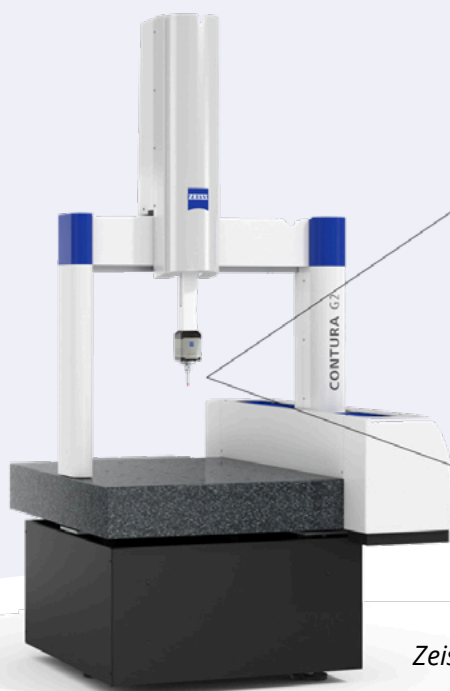
To ensure the level of excellence that defines our commitment to quality manufacturing, the ability to measure that quality must be as good or better than the ability to manufacture it. So, we stand firm in the belief that if we are 'splitting microns,' we better be able to measure it – and we can.

With the help of the most advanced metrology equipment in the industry, we perform periodic analysis, evaluation, and continuous improvement of our Quality Management System to satisfy every customer, regulatory, and statutory requirement. We stand behind what we do, consistently delivering precise and accurate results that we can measure – and guarantee.

How We Measure:

Our inspection equipment includes multiple comparators, vision systems, and high-end testing devices including:

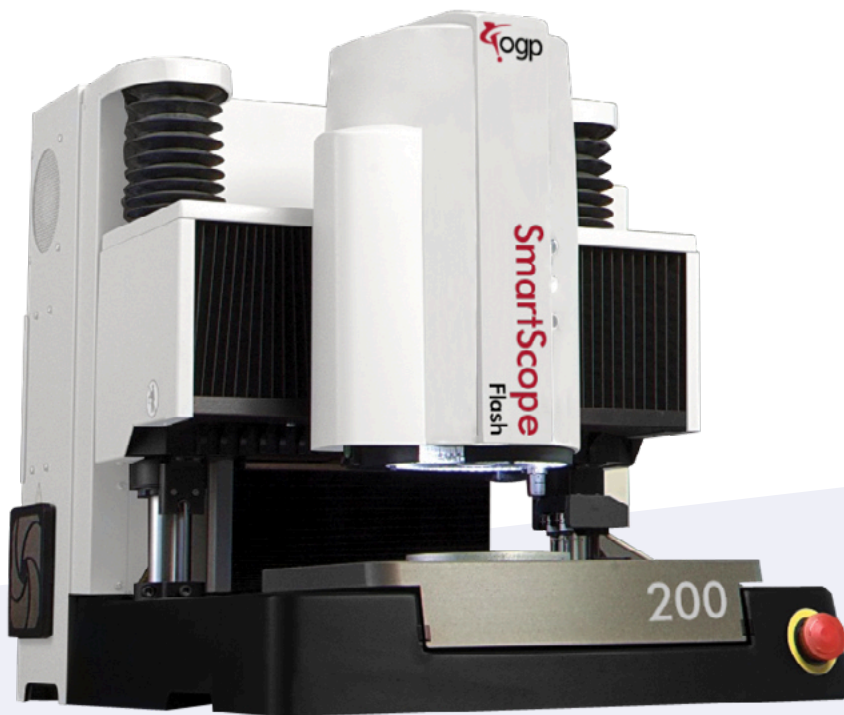
- Zeiss Contura Full CNC Scanning CMM with CALYPSO software & articulating probe
- P4K Vision Based Wire Inspection Systems
- Keyence Instant Measuring Systems
- Multiple Z-Mike 4050 laser micrometers – .003" to 2.020" capacity
- Mahr MMQ-400 Roundness and Cylindricity System
- OGP SmartScope with TP20 Touch Probe System



Zeiss Contura Full CNC Scanning CMM with Articulating Probe



Keyence Wide Range Instant Measurement System



OCG SmartScope Flash 200 with TP20 Touch Probe System

Certifications & Associations

Setting the tone for the future of manufacturing starts with aligning ourselves with reputable standard-setting organizations and associations. It is our honor to have earned recognition and affiliation with the following industry leaders.

Proudly Certified and Associated With:

ISO 9001

ISO 13485

AS9100

AS9100D

ITAR Registered

National Tooling & Machining Association

The Society of Manufacturing Engineers





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