

METROLOGY & INSPECTION SERVICES

Novanta Precision Medicine delivers high-confidence metrology and inspection services backed by a dedicated team of experienced engineers and application experts. Working in close collaboration with customers, our team leverages advanced metrology and ultra-precise motion and control technologies to accelerate system validation, ensure regulatory compliance, and safeguard long-term performance.

We verify critical dimensional, geometric, surface, and optical characteristics with exceptional accuracy and repeatability—enabling early defect detection, consistent quality, and optimized performance from design through production and field deployment. All services are delivered under ISO 9001 and ISO 13485-certified quality systems, supporting industrial and regulated medical applications.

Quality Assurance & Inspection Lab Capabilities

Novanta Precision Medicine maintains an internal Quality Assurance and Inspection Laboratory equipped with advanced metrology and inspection tools, including:

- Multiple Coordinate Measuring Machines (CMMs) for dimensional verification
- Laser interferometers for straightness, flatness, and positioning accuracy measurements
- Surface profilometers and autocollimators for geometric and surface characterization
- Leak and pressure test equipment

These tools are used by trained technicians to verify components and assemblies throughout manufacturing and prior to shipment, ensuring conformance to design specifications, consistent quality, and reliable performance in metrology-driven applications.

Laser Metrology for Motion Products

In specialized cases such as precision stages, Novanta Precision Medicine uses laser interferometry to characterize motion accuracy in multiple degrees of freedom (linear accuracy, repeatability, pitch/yaw/roll, flatness, straightness). This is a form of metrology testing applied directly to the motion components they engineer and build.

Built-In Inspection Protocols

Inspection isn't just a final check — Novanta Precision Medicine integrates metrology into its manufacturing and assembly process, creating inspection procedures and checklists, and testing units at multiple stages. Each product is shipped with documentation of its inspection results.

Core Metrology & Inspection Service Pillars



Laser Inspection & Metrology Services

Purpose: Verify motion accuracy, stability, and degradation over time.

Services may include:

- Linear accuracy, repeatability, straightness, flatness
- Pitch, yaw, roll measurement
- Thermal drift and stability characterization
- Baseline performance certification + periodic re-certification

Value:

- Supports IQ/OQ/PQ documentation
- Detects early performance drift before failures occur
- Reduces need for customers to invest in internal metrology tools



Grease / Lubrication Optimization

Purpose: Extend life, reduce contamination risk, and maintain consistent performance.

Services may include:

- Lubrication compatibility assessments
- Re-lubrication schedules by application and duty cycle
- Cleanroom-compatible lubrication validation

Value:

- Longer component life
- Reduced particle generation (critical in medical & diagnostics)
- Predictable maintenance intervals



FEA Simulation & Digital Validation

Purpose: Predict performance before failure and support design optimization.

Services may include:

- Load, stress, vibration, and thermal simulations
- Motion accuracy under real-world loading
- Design change impact analysis
- Application-specific performance modeling

Value:

- Faster design cycles
- Reduced physical prototyping
- Better design decisions with lower risk



Life & Load Testing

Purpose: Validate durability, reliability, and compliance.

Services may include:

- Accelerated life testing
- Load and duty cycle validation
- Wear characterization
- Failure mode documentation

Value:

- Confidence in long-term performance
- Data to support regulatory filings
- Reduced field failures and warranty exposure

OUR FACILITIES

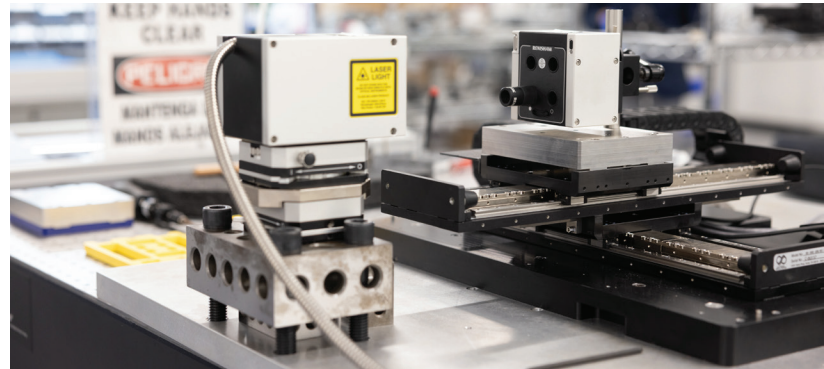
The Equipment to Get the Job Done Right

Our 48,000 square-foot facility is purpose-built for precision. It includes:

- Eight dedicated manufacturing bays for specialized operations
- A Class-1000 clean room with a Class-100 laminar flow bench
- Specialized cleaning systems for clean-room-compatible parts
- An in-house machine shop equipped with CNC milling and turning capabilities

A full suite of specialty tools to ensure assemblies perform exactly as designed, including:

- A fully equipped electronics lab for testing motors, drives, and other components
- Three CMMs with travel ranges up to two hundred inches
- A Renishaw laser interferometer
- A Mitutoyo surface profilometer
- A laser autocollimator
- A helium vacuum-leak detector
- Water-pressure testing systems
- Custom-designed test systems and fixtures



Contact Us

Let's connect today and discuss how we can partner on your next project. Call **1.949.586.7442** or email us at moso-sales@novanta.com. For specific locations, please use the contact information below.

To explore our company and solutions further, including case studies, webinars and other research material, please visit our website at www.motionsolutions.com.



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