# MEDICAL-GRADE ACCURACY FOR CONFIDENCE & CONSISTENCY

## Minimize liability with traceable, repeatable measurement results

The medical industry demands even stricter traceability requirements than the automotive or aerospace industries, with an acceptable margin of error approaching zero[1]. Meeting that demand means contending with intricate geometries, advanced materials, and stringent regulatory mandates along with growing requirements for traceability and documentation. Efficiency must rise as tolerances shrink. In this high-stakes environment, micron-level precision is the foundation for innovation, compliance, and maintaining a strong reputation based on the highest quality standards. In this paper, we'll explain how OGP advanced metrology can help you reduce spoilage and speed production.

# MOVE BEYOND ROUTINE INSPECTION TO COMPETITIVE ADVANTAGE

In medical manufacturing, compliance to exacting standards is the foundation of your reputation and license to operate. Rapid, repeatable, and highly accurate measurement enables you to meet FDA requirements, validate complex device designs, and maintain consistency across a global supplier base. When every component must be verified, every tolerance met, and every delay scrutinized, advanced metrology becomes a competitive advantage, not a checkpoint. Advanced metrology solutions give you the speed to adapt, the assurance to pass audits, and the reliability to deliver compliant devices at scale.

For many medical manufacturers, existing metrology systems are adequate for routine inspection, but they often struggle to deliver the speed, scalability, and traceability cutting edge medical manufacturing requires. Limited speed, inflexible setups, and constrained documentation capabilities can quietly slow your production line and keep innovation from reaching its full potential.

## Innovation Reveals Limits of Traditional Measurement

Orthopedic implants, stents, and robotic surgical tools all feature intricate geometries that are difficult to verify with basic inspection methods. When tolerances tighten and need for documentation increases, traditional measurement documentation methods can result in inconsistent inspections and compliance gaps. Regulators are already taking a harder line: recalls climbed 13.8% in Q1 2024, even as defective units fell by more than half, highlighting how stricter regulations and scrutiny make even minor quality deviations costly.[2] Advanced metrology provides the documented, repeatable precision needed to stay ahead of this escalating scrutiny.

## Medical Manufacturers Must Adapt Faster than Basic Tools Allow

One-size-fits-all systems struggle to adapt when new geometries, suppliers, or production volumes enter the mix. Routine inspection quickly becomes a bottleneck when devices grow more complex than basic metrology systems can handle. These slow-downs can have ripple effects cascading down thorough the supply chain: supply chain issues accounted for 38% of medical device recalls in 2023.[3]

## Complex Interfaces Impede Compliance and Training

Medical manufacturers are competing for talent in an increasingly shrinking labor pool. A Deloitte and Manufacturing Institute study projects that U.S. manufacturing could face a shortfall of 1.9 million workers by 2033 if current trends continue.[4] For highly regulated industries like medical devices, where precision and documentation are non-negotiable, that shortage adds serious pressure. Unfortunately, stripped-down metrology systems only compound the challenge. Siloed processes, confusing interfaces, and steep learning curves make training slow and resource-intensive. Instead of empowering new employees to contribute quickly, these systems tie productivity to a handful of specialists who can navigate their complexity. Turnover causes production efficiency to take a hit, causing dangerous bottlenecks that delay inspections and increase compliance risks. The combination of a shrinking workforce and hard-to-use metrology systems compromises efficiency and jeopardizes your ability to meet timelines, scale production, and maintain a flawless compliance record.

## Complicated Setups and Calibrations Cost Medtech Innovators Speed

Medical device innovation moves quickly—from next-generation implants to minimally invasive instruments. Implementation suffers when metrology tools can’t keep pace. Basic systems require extensive setup and calibration, slowing throughput and consuming valuable labor hours. The result is delayed product launches and increased cost at a time when the industry demands agility. Automated multi-sensor systems accelerate inspections without sacrificing precision, keeping your innovations moving forward.

# IN MEDICAL MANUFACTURING, EACH MICRON MATTERS

## Inspect Components with Certainty

There's a good reason OGP metrology is the gold standard for extreme accuracy and consistency.

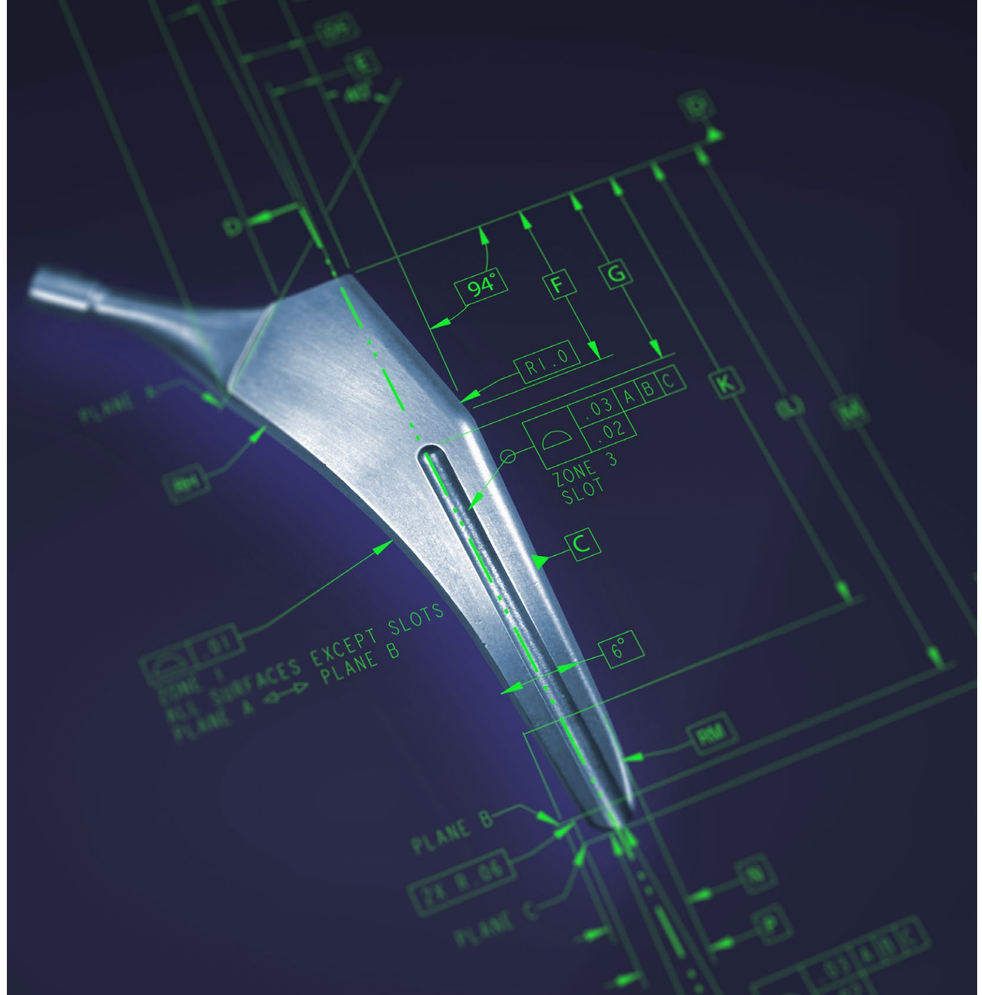
- Superior IntelliCentric optics, high-definition sensors and advanced illumination enable ultra-sharp edge detection and micron-level accuracy—crucial for tight tolerance parts
- No critical detail goes overlooked thanks to OGP's multisensor functionality; it captures a complete characterization of your components, ensuring more stringent quality control
- Robust construction minimizes mechanical drift and maximizes the stability and repeatability of your measurements every time

## Adapt Quickly, Scale Seamlessly

With OGP metrology solutions, you're ready for whatever comes next.

- Our modular systems make it easy to add capabilities as needed whether you're developing new prosthetics, adjusting to alternative production methods or scaling up output
- Seamless integration with Industry 4.0 technologies, including AI and advanced robotics keeps you agile and future-ready
- The ability to handle a wide variety of novel materials is a must to remain innovative and meet changing quality standards






## Simplify Training and Execution

Count on OGP systems to reduce complexity from the shop floor to the factory floor. Every facet and functionality has been designed for faster training, easier operation, and greater independence from specialized operators.

- Offline programming maximizes efficiency by allowing operators to build, test, and refine measurement routines in a simulation-based environment
- Walk-up measurements empower operators at every skill level; they can launch pre-programmed routines and utilize our apply-to-similar auto generation for consistent results
- OGP's all-in-one system alleviates the need for separate operators running different processes, which in turn frees each technician to oversee more work

## Throttle Up Throughput

OGP metrology systems are engineered for the utmost in efficiency, translating into greater throughput.

- VIRTUAL ZOOM instantaneously changes magnification without the need to move parts, accelerating setup and runtimes
- Our larger field of view allows for more features to be measured simultaneously —a significant time-saver in high-mix, high-volume production environments
- Parallel processing quickly identifies and corrects errors via visual feedback and validation
- Light intensity automatically adjusts with magnification changes, picking up the pace of processes

# RAPID PRECISION YOU CAN TRUST, START TO FINISH

When measurement challenges threaten to slow you down, OGP metrology has the versatility, precision and speed to propel you forward. From initial prototypes to final inspections, our integrated hardware and software are built from the ground up to ensure you can meet the moment with velocity and veracity.

## Improve Prototyping

Faster turnaround on part characterizations

Readily evaluate complex geometries

Quickly create routines for subsequent iterations

Avoid limitations due to surface characteristics

Support multiple projects with a single metrology system

## Optimize First-Article Inspections

Easily increase sampling sizes

Ensure dimensional accuracy

Support thorough process verification

Build stronger First Article Inspection (FAI) Reports

Easily keep up with FAI triggering events

## Support Full-scale Production

Improve data with greater accuracy

Make quicker process adjustments

Address defects quickly and readily

Respond faster with more samplings

Minimize spoilage

## Reinforce Your Brand

Maximize product consistency

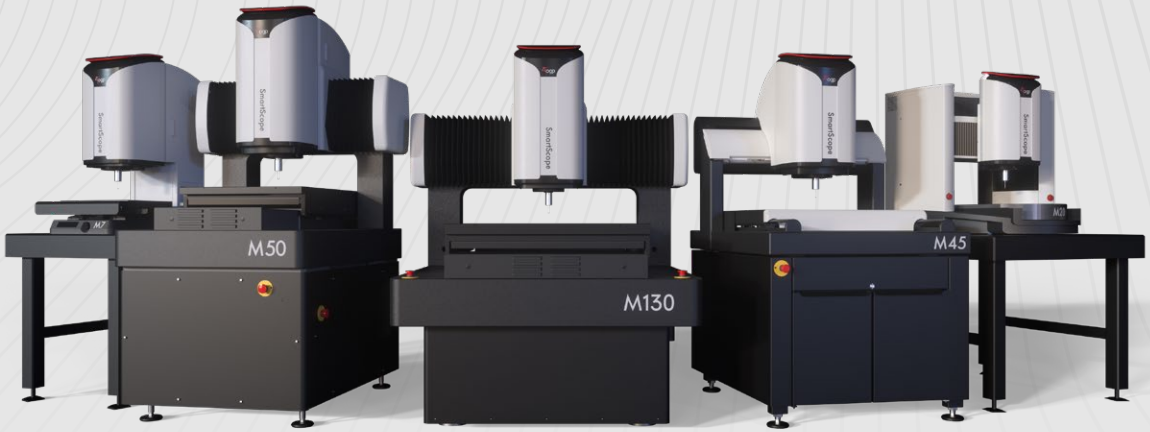
Minimize production costs

Avoid devastating recalls

Keep up with consumer demand

Introduce innovation more readily


1. Aerospace Manufacturing and Design. “Medical Quality: Repeatability, Reproducibility, and Traceability.” May 2019. https://www.aerospacemanufacturinganddesign.com/article/medical-quality-repeatability-reproducibility-traceability/.
2. 24x7 Magazine. Medical device recalls up nearly 14% in 2024. July 2023. https://24x7mag.com/standards/fda-updates/recalls/medical-device-recalls-up-nearly-14-in-2024/
3. IMA Financial Group. Life Sciences Recall Trends and Risk Mitigation Strategies. May 2025. https://imacorp.com/wp-content/uploads/2025/05/Life-Sciences-Recall-Trends-and-Risk-Mitigation-Strategies_Thought-Leadership_052825.pdf
4. Manufacturing Dive. US manufacturing labor shortage could reach 3.8M by 2033, report says. April 2024. https://www.manufacturingdive.com/news/manufacturing-labor-shortage-2033-deloitte-mi-report-2024/713133/




# MEASURE FAST, MANUFACTURE FASTER

Partnering with a metrology leader with more than 75 years of experience gives you the speed and precision to thrive in this fiercely competitive industry. Leverage our deep expertise with our next evolution metrology: Smartscope® M-Series multisensor systems, powered by ZONE3® metrology software offers unquestionable accuracy and unmatched efficiency and versatility.

**585-544-0400**
(8:00 a.m. — 5:00 p.m. EST)

**480-295-3150**
(11:00 a.m. — 8:00 p.m. EST)


Let's discuss how you can achieve your targeted metrics with our solutions.
Call us during business hours, and one of our experts will gladly answer your questions.

**Contact Us ›**

OGP (Optical Gaging Products) is a division of Quality Vision International Inc (QVI®), a world leading manufacturer of precision multisensor metrology systems for industrial Quality Control. Our metrology systems focus on measurement technologies that help manufacturers monitor dimensional compliance to design specifications. First introduced in 1992, the famous OGP SmartScope® product family has become one of the world's most popular and versatile dimensional measurement systems. SmartScope systems are designed and produced at QVI corporate headquarters in Rochester, NY, USA.

ogp **Confidence.** When Results Matter.™

**World Headquarters:**
Rochester, NY, USA
585.544.0400
www.ogpnet.com

**OGP Shanghai Co, Ltd:**
Shanghai, China
86.21.5045.8383/8989
www.smartscope.com.cn

**OGP Messtechnik GmbH:**
Hofheim-Wallau, Germany
49.6122.9968.0
www.ogpmesstechnik.de

**Optical Gaging (S) Pte Ltd:**
Singapore
65.6741.8880
www.smartscope.com.sg