

Metrology

ORMC's advanced measurement technologies serve as a unique resource for NIST-traceable calibrations.

Manufacturers whose measurement standards are calibrated with the precision offered by the Oak Ridge Metrology Center (ORMC) produce less scrap, do less rework, cut costs, and compete more effectively in global markets. Established 20 years ago, ORMC serves as a resource to the National Institute of Standards and Technology (NIST) and provides calibration services that are traceable to NIST standards in 25 measurement disciplines. ORMC is also accredited under the National Voluntary Laboratory Accreditation Program (NVLAP) in 8 of those disciplines.

Dimensional Metrology

- Computer-controlled equipment provides excellent data collection and quality control.
- Machines are housed in environmentally controlled rooms and monitored for humidity, temperature, air flow, and pressure to provide the best conditions possible.
- Significant dimensional metrology machines include a temperature calibration system, coordinate measuring machines (CMMs), federal gage block comparators in conjunction with NIST gage block software, and precision measuring machines (PMMs).

Electrical Metrology

Computer-automated systems compare references and establish linearity, achieving uncertainties of 1.5 ppm at 10 V and 10 ppm or better over the range of 0.1–1000 V.



*Grid plate calibrations on
Leitz 866 PMM*



An engineer with Product Certification examines a workpiece on an advanced coordinate measuring machine. QA is receiving new inspection and gauging technologies to help ensure Y-12 products meet customer requirements.

Physical Metrology

- Accredited calibrations from 1 mg to 30 kg traceable to NIST standards
- Calibration of gas and liquid flow devices, surface finish measuring devices, balances and mass standards, vacuum gages, torque and force devices, humidity devices, and pressure devices

Center for Complex Geometric Measurements

In partnership with NIST, the American Society of Mechanical Engineers, the gear industry, and Pennsylvania State University, a Center for Complex Geometric Measurements has been established. This partnership provides the United States with its sole supplier of accredited gear metrology services. The Center for Complex Geometric Measurements provides calibrations of gear involute masters traceable to NIST with a quantified statement of uncertainty less than 36 millionths of an inch (0.9 micron). The center offers high-precision and affordable services, with a six-week turnaround time. The center can develop training courses to assist companies in improving their own calibration processes. This unique national resource also provides calibration services for lead, flank, pin, and other gear masters.

For more information, contact:

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