• In-Process Gage Calibration
• Reverse Engineering
• Dimensional Inspection
• CMM Programming & Training
In-Process Gage Calibration

With our full range of portable and non-portable metrology equipment, we can calibrate small or large gages at our facility or yours.

In-Process Gages

Fixtures

Molds / Dies

Additional Capabilities

- Angle Gages
- Calipers (24”-72”)
- Long length rods (24”-72”)
- Overlays
- PI Tapes
- Radius Gages
- Sieves
- Steel Rules
- Tape Measures
- Versa Gages (24”-72”)

Onsite > At Customer Facility

Offsite > At Transcat Lab

Non-contact > Using Equipment such as White Light Scanner

Contact > Using Equipment such as Coordinate Measuring Machine (CMM)
Reverse Engineering

Reverse Engineering is a process that is used to create 3D CAD models directly from physical parts with little or no additional design documentation. Whether reverse engineering a part to create a solid model, scanning and comparing a part to a 3D model, or scanning in-process gages onsite, our lab has the tools. Our diverse capabilities and experienced technicians allow us to provide dimensional measurements for a wide array of applications.

- Molds/Dies
- Parts
- Gages/Fixtures
- Clay Model/Wind Tunnel Work

**steps**

**1.** Scan Knee Implant and Convert to STL Model – Performed in ATOS System

**2.** Convert STL Model Into Point Cloud – Performed in Rapid Form

**3.** Convert Point Cloud to Surface Model – IGES or STP Format

**4.** Convert Surface Model to Solid Model – STP Format

TRANSCAT.com 866.663.5153
Dimensional Inspection

Our advanced 3D Metrology tools allow us to inspect and analyze the dimensions of any piece. The inspected piece can then be compared to its original CAD design to determine any imperfections. Part or gage size are never a problem, as our non-portable equipment handles items as small as 1/16th of an inch and as large as 7 feet and our portable white light optical scanning system has no size limitations.

- Annual Inspections
- Capability Studies
- First Article Production Part Approval Process (PPAP)
- Free Form Part Inspections
- Process Validations
- Supplier Dimensional Accountability
- Validate Molds
- Wear Studies

Inspection is based on blue print or CAD model. Supported CAD: STP or IGES.

A variety of standardized reports are available. Featured report is full color representation of scanned part vs. CAD model with tolerance data points.

CMM Programming & Training

Transcat offers an assortment of CMM programming and training options at either our facility or yours. Programs are customizable to your needs.

- Brown & Sharpe: PC-DMIS
- Mitutoyo: Geo-Measure 3000, 4000 & 6000, MCOSMOS
- Medtronic: QC5000, QC4000, and QC3300
- Origin Check Mate part programs outputted to the DMIS format

Software
We employ a complete range of scanning technologies, giving us the ability to handle most measurement tasks. Many systems are portable to allow our customers the flexibility of on-site services and we constantly add the industry’s latest technological advances to our line-up.

Coordinate Measuring Machines

CMMs (Coordinate Measuring Machines) are designed to measure single to hundreds of parts or gages when complex or high accuracy 3D measurements are required. With CMMs that can measure items with volumes up to 7 feet, we can calibrate, inspect or reverse engineer most products.

Used for >>>
- Dimensional Inspections
- In-Process Gage Calibrations
- Reverse Engineering

To ensure that we’re able to handle your project quickly and accurately, we are equipped with a variety of CMMs.

- Linear Accuracy: .00005” or .0002 mm
- Measuring Volume: 72” x 46” x 44” or 1800 mm x 1150 mm x 1100 mm

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White Light Optical Scanning System

ATOS II is a flexible high-end 3D optical digitizing system that is based on the principle of triangulation. The ATOS projects fringe patterns onto the object to be scanned, while at the same time two cameras observe the scanning process. 3D coordinates of each pixel generated for the cameras are calculated with high precision. From this data a polygon mesh of the object's surface is created. 3D digitizing with the mobile ATOS system works for all object sizes and complexities.

Specifications (with Photogrammetry):
- Accuracy (within 1’ cube): .0008” or .02 mm
- Accuracy (within 5’ cube): .001” or .025 mm
- Accuracy (10’ cube or larger): .002” or .05 mm
- Measuring Volume: Unlimited

Specifications:
- Accuracy: .0001” or .003 mm
- Measuring Volume: 18” x 18” x 6” or 458 mm x 458 mm x 153 mm

Vision Systems

A single sensor can’t do everything. Different part features lend themselves to measurement by different sensors. Video excels at measuring edges, lasers efficiently characterize surface profiles, touch probe is best for hard-to-reach places, and micro-probes are great for tiny or delicate features. With a multisensor metrology system, you can use the best sensor for each situation.

Used for:
- Reverse Engineering
- In-Process Gage Calibrations
- Non-Contact Inspection
- Fit & Function Analysis
- Rapid Prototyping
- Digital Mock-up
- Mold Validation
- Wear Studies

Specifications (with Photogrammetry):
- Accuracy (within 1’ cube): .0008” or .02 mm
- Accuracy (within 5’ cube): .001” or .025 mm
- Accuracy (10’ cube or larger): .002” or .05 mm
- Measuring Volume: Unlimited

Used for:
- Non-contact Reverse Engineering
- Contact/Non-contact Inspection
- Contact/Non-contact Calibrations
Transcat’s 3D Metrology team has the technology, knowledge and expertise to handle projects from a wide array of industries. Some of the largest automotive, aerospace, industrial, and medical companies in the U.S. have made us their choice for 3D Inspections, Calibrations and Reverse Engineering. Call us to discuss how Transcat can help you with your 3D Metrology requirements.
Transcat provides best-in-class 3D Metrology solutions and precision equipment for Dimensional Inspections, Reverse Engineering and In-Process Gage Calibrations. Our reliable and innovative metrology solutions cover the full range of measurement volumes required by aerospace, automotive, industrial machinery, medical, sporting and tooling customers, in both portable and non-portable configurations and with contact and non-contact technologies.

Transcat’s team of metrology professionals has over 90 years of combined 3D Metrology experience. With industry expertise in aerospace, automotive, tooling and medical implant manufacturing, Transcat understands your business and the requirements that you face every day. We pride ourselves in quality, accuracy, and on-time completion of all projects.

In addition to Transcat’s 3D Metrology capabilities, we have 11 Calibration Centers of Excellence across North America and Puerto Rico as well as a Full-Service Repair Center.

TRANSCAT’s extensive calibration capabilities cover a broad scope of test and measurement instrumentation including:

- Calibrators
- Temperature
- Electrical
- Mass
- Humidity
- Pressure
- Physical/Dimensional
- Electronic