

Delphi Customer Technology Center Michigan Dimensional Measurement Services Laboratory

The Dimensional Measurement Services Laboratory at the Delphi Customer Technology Center Michigan (CTCM) is a fully-equipped dimensional inspection facility designed to help engineering teams meet current industry certification standards and customer product specification objectives. Delphi's team of highly trained and experienced technicians uses high-tech equipment to provide customers with accurate and precise data for prototype and production component inspection.

Delphi's CTCM Dimensional Measurement Services Laboratory specializes in services for automotive industry component development, but also offers the flexibility to support a wide range of non-automotive product programs. The lab provides highly reliable data and can meet the requirements of customers around the world. Services are conducted to meet program schedules, cost objectives and customer specific documentation for prototype submissions. Delphi ensures complete confidentiality for all test activities.



Operator at Coordinate Measuring Machine in the Dimensional Measurement Services Laboratory at the Delphi Customer Technology Center Michigan

► Capabilities

- **Coordinate Measuring Machine (CMM)**

Provides high speed scanning for form, fit and size, curve and freeform measurements, and reverse engineering. A wide range of component sizes can be accommodated and the equipment can be used for most print dimensions, including geometric dimensional tolerance callouts.

- Table size: 42 in. x 48 in. (1.06 m x 1.22 m).
- Volume limits: 48 in. x 41 in. x 26 in. (1.22 m x 1.04 m x .66 m).

- CMM software operates at CMM or within Delphi's CAD software, enabling direct probe paths to the 3D model. Collected data are analyzed and reported through conventional programs. Delphi's CAD software can accept 3D models from most software packages.

For reverse engineering requirements, Delphi's CMM software can produce 3D models from virtually any existing part.

- **Optical Comparator**

Used for precise visual measurements that cannot be measured physically.

- Offers 10x, 20x, and 50x magnification, fiber-optic illumination for surface measurement.

- **Profilometer Surface Finish Analysis**

Enables precise surface finish analysis on an isolated table. Output of surface finish graphics data available.

- **Hardness Tester**

For analyzing hardness of case-hardened steels, bulk hardness of metals and superficial surface hardness of thin metals.

- **Digital Spring Tension and Compression Tester**
 - Force ranges for equipment: 0 to 8.89 N and 44.48 to 222.4 N. (Can also be measured in lbs.)
 - Outside diameter 20 mm, height 26 mm.

- **Other inspection equipment available:**
 - Standard and digital micrometers for size measurements up to 12 in. (0.304 m).
 - Standard and digital verniers for size measurements (0.67 m).
 - Gage blocks for size measurements up to 101.6 mm, but can be combined for greater length.
 - Digital scale for weight measurements.
 - Standard and digital indicators for size measurements.
 - Travel: up to 3 in. (76.2 mm)
 - English and metric thread gages to obtain thread size and pitch for most requirements.
 - Mechanical and digital force gages for push/pull measurement.
 - Limitations: 10x .005 lb., 5x .005 kg., 50x .05 n.
 - Standard and digital height gages for size measurements.
 - Travel: up to 24 in. (0.61 m).

▶ **The Delphi Advantage**

The Delphi Customer Technology Center Michigan supports hundreds of customers worldwide in the design, development, testing, and validation of their products. It is certified to the ISO/TS 16949 Standard for Automotive Supplier Quality Management Systems. It is part of Delphi's network of state-of-the-art technical centers around the world.

Delphi is a leading global supplier of a broad range of technologies with manufacturing facilities located in more than 30 countries. Our products are engineered to meet the rigorous standards of the automotive industry, but Delphi technologies are also used in many other industries. We leverage our rich heritage and extensive technical knowledge to offer an array of innovative, cost competitive solutions.

▶ **Contact Information**

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