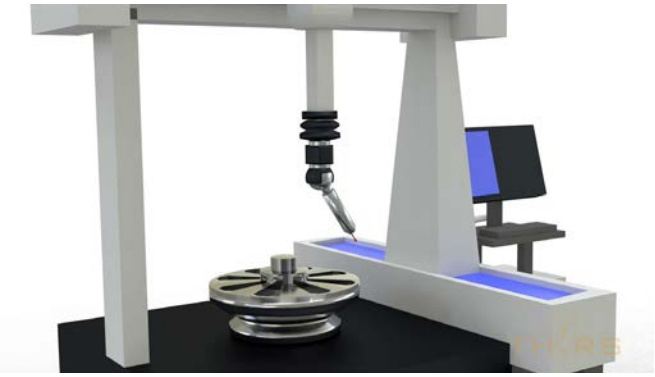
COORDINATE MEASURING MACHINE (CMM) BASICS

eLearning courses designed to increase productivity and profits



Learning made Simple, Visual, and Interactive

Inspection is a key factor for a part's success. A Coordinate Measuring Machine (CMM), being fully automated, enhances the inspection methodology by enabling quick and precise measurements. The THORS Coordinate Measuring Machine (CMM) Basics course illustrates the indispensable role of the CMM in the measurement world. Packed with graphics, the course will leave the learner with a valuable learning experience about the types of CMMs and the components of a CMM, as well as the measurement and reporting process of a CMM.

Credit Hours **2**

Learning Objectives

- Recognize the advantages of using CMMs in coordinate metrology.
- Distinguish the types of CMMs and their applications.
- Identify the role of each CMM component in measurement.
- Understand the measurement process of a CMM and factors affecting the results.
- Examine the measurement analysis methodologies to evaluate the measured data.
- Learn the various forms of reporting data.

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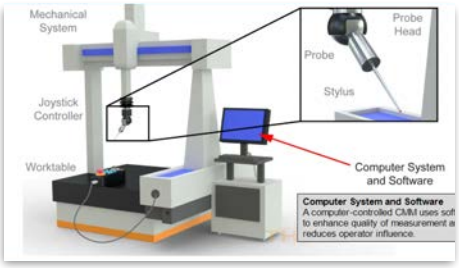
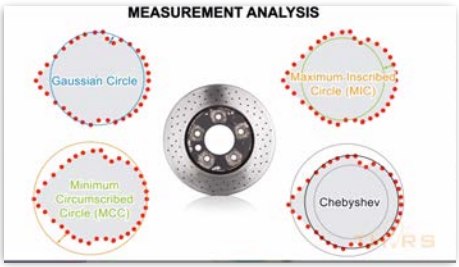
I. CMM Types and Components

- **CMM Types**
  - o Bridge Type Machine
  - o Horizontal Arm Machine
  - o Gantry Type Machine
  - o Column Type Mahine
- **CMM Components**
  - o Probe Head
    - - Fixed Probe Head
    - - Articulated Probe Head
- **CMM Components**
  - o Probe
    - - Contact Probe
    - - Noncontact Probe
    - - Hybrid Probe
  - o Stylus
    - - Stylus Construction
    - - Stylus Combination
    - - Stylus Shapes
    - - Stylus Tip Materials
    - - Stylus Contact Direction
  - o Software
  - o Accessories
    - - Fixture
    - - Rotary Table
    - - Air Cushion

II. Measurement Process

- **Alignment**
  - o 3-2-1 Alignment
  - o Best Fit Alignment
  - o RPS Alignment
- **Styli Calibration**
- **Fixturing Strategy**
- **Probing**
- **Measurement Uncertainty**
  - o Measurement Uncertainty Importance
  - o Measurement Uncertainty Causes
  - o Measurement Uncertainty Reduction Methods
- **Stylus Compensation**
- **Measurement Considerations**
  - o Thermal Infuence
  - o Other Influences
- **Measurement Analysis**
- **Reporting Data**





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