

ME250 Laboratory Objectives

Experiment #2 – Part Inspection using Metrology Tools

Goal: Become familiar with inspecting parts per detailed drawings

Learning Objectives

Upon completion of this lab, the student shall be able to:

1. Write a procedure to inspect a part using manual metrology instruments
2. Decode an engineering drawing which has GD&T applied
3. Inspect a part following an inspection procedure using basic metrology instruments

Apparatus

1. Digital Calipers, 6 in.
2. Micrometer, 1 in.
3. Height gauge, 18 in.
4. Dial indicator
5. Electronic indicator with stand
6. Angle plate
7. Surface plate
8. V-block
9. Pin gauge
10. Gauge blocks
11. Drawing of part, geometrically dimensioned

Procedure

- A. Prepare an inspection plan for inspecting the “Widget Block”
 - a. Create a table to record your data and include:
 - i. Nominal dimension
 - ii. Tolerance
 - iii. Your measurement
 - iv. Instrument used
 - b. Inspect only the features marked with an inspection box,
 - c. Describe how you might measure each feature.
- B. Measure the “Widget Block” using the tools listed in the apparatus and record results in the inspection sheet created in section A. Compare your results to the dimensioned drawing (See drawing part number ME250-000)
 - a. Record measurements.
 - b. Does the part meet drawing spec?
 - c. List possible errors in your measurements?

