

# Depth Dial Indicator Calibration Procedure

Memorial University Technical Services

Document No.: TS-0063

Revision: 3

## 1.0 Standards and Equipment

The following equipment is required:

Granite Plate  
Dial Indicator Stand  
Master Gauge Block Set

*NOTE: Standards and equipment used must have a valid calibration certificate*

## 2.0 Calibration Procedure

*“TS-0083 Dial Indicator Calibration Record Sheet” must be used*

*Clean the Dial Indicator’s measuring surfaces and stand, the granite plate, and the gauge blocks to be used*

- NOTE:*
- 1. Ensure the dial indicator and stand are very securely attached*
  - 2. Zero the Dial Indicator at the start and adjust as required by the manufacturers’ specifications. If you cannot zero it then mark it as a fail*
  - 3. When testing the Dial Indicator, one of the points must be near the lower limit that the instrument can measure, another somewhere in the middle, and the third near the upper limit*
  - 4. Use a conversion factor of 25.40 mm/in to convert gauge block lengths to Metric from Imperial*

### Step 1:

Measure the ambient temperature and record it. If the temperature is <18°C or >24°C, see the Division Manager for further instructions.

Step 2:

Test Characteristic: Range of motion, Stylus, Dial, and all Screws

Test Method: Visual, Touch

Acceptable Limit: No damage to critical parts, smooth movement, all screws tight

Step 3:

Test Characteristic: Dial Repeatability

Test Method: Position the instrument using the stand so that it rests just above the granite surface and is perpendicular to it. Make sure the stand is very secure. Insert an appropriately sized gauge block (that will push the stylus to near the midpoint of its travel) underneath the stylus (set the dial to zero if you wish). Remove and replace the gauge block to ensure repeatability of the dial

Acceptable Limit: +/- 0.001" or 0.025 mm

Step 4:

Test Characteristic: Measuring Scale

Test Method: Replace the gauge block with 3 others that are progressively smaller, and 3 others that are progressively larger. The combination of the blocks should test the entire range of the instrument

Acceptable Limit: +/- 0.001" or 0.025 mm

For Example:

Gauge Block	Measured Value
.500	0
.125	-.375
.250	-.250
.375	-.125
.625	.125
.750	.250
.875	.375

**Step 5:**

Test Characteristic: Attachment Measuring Scale

Test Method: Change out the end fittings and repeat step 4 for one middle, high, and low value.

Acceptable Limit: +/- 0.001" or 0.025 mm

For Example:

Gauge Block	Measured Value
.500	0
.125	-.375
.250	-.250
.375	-.125
.625	.125
.750	.250
.875	.375

**Step 6:**

Test Characteristic: Attachment Rods

Test Method: For each attachment rod, repeat step 4.

Acceptable Limit: +/- 0.001" or 0.025 mm

For Example:

Gauge Block	Measured Value
.500	0
.125	-.375
.250	-.250
.375	-.125
.625	.125
.750	.250
.875	.375