

Vernier Caliper Calibration Procedure

Memorial University Technical Services

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1.0 Standards and Equipment

The following equipment is required:

Granite Plate

Master Gauge Block Set

Calibrated Micrometer of similar range as instrument

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

2.0 Calibration Procedure

“TS-0070 Vernier Caliper Calibration Record Sheet” must be used

Clean the Vernier Caliper’s measuring surfaces, the granite surface, and the gauge blocks to be used

- NOTE: 1. Digital Vernier Calipers only need one scale to be verified*
- 2. Zero the Vernier Caliper 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 Vernier Caliper, 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 $<18^{\circ}\text{C}$ or $>24^{\circ}\text{C}$, see the Division Manager for further instructions.

Step 2:

Test Characteristic: Inspect the inside and Outside Jaws, Depth Gauge and sliding jaw for smooth movement

Test Method: Visual, Touch

Acceptable Limit: No damage, nicks, or burrs. Should have straight and parallel faces with no free play over the whole length

Step 3:

Test Characteristic: Outside Jaws

Test Method: Using gauge blocks, measure and record 5 different lengths

Acceptable Limit: +/- 0.002" or 0.05 mm

Step 4:

Test Characteristic: Inside Jaws

Test Method: Use a calibrated micrometer to measure gauge blocks of appropriate length, lock the micrometer at that length then measure between the micrometer anvils using the inside jaw of the instrument and record the data

Acceptable Limit: +/- 0.002" or 0.05 mm

Step 5:

Test Characteristic: Depth Gauge

Test Method: Make 2 equal stacks of gauge blocks on the granite surface to a height in the mid range of the instrument, measure and record the height with the rod between the two stacks and the flat part of the instrument flush against the top of each of the two stacks

Acceptable Limit: +/- 0.002" or 0.05 mm