

PROCEDURE FOR CALIBRATING, STANDARDIZING OR CHECKING EQUIPMENT

Revised 08/08, 5/11

PROCEDURE #81

Equipment Standardized:

CALIPERS

Purpose:

To provide instructions for standardizing calipers used to check laboratory equipment to ensure accurate and repeatable readings.

Inspection Equipment Required:

Certified calibration block set traceable to NIST standards.

Tolerance:

Check the tolerance of each caliper to determine if the caliper's accuracy is within ± 0.001 " (0.025 mm) up to 6" and ± 0.002 " (0.050 mm) on up to 20" and the repeatability is within ± 0.001 " (0.025 mm) up to 6" and ± 0.002 " (0.050 mm) on up to 20".

Procedure:

1. Clean the caliper and make sure that when shut, no gaps appear and the caliper goes to a zero reading. If gaps appear or the caliper does not repeat to the zero reading, the caliper must be repaired or replaced.
2. The caliper should be clean with no sticking, skipping or binding occurring during operation over the full travel range.
3. The caliper will be checked against a set of known blocks and their values.
4. The caliper is measured against a set of six or more known block values (sizes).
5. Measured values obtained from the caliper are recorded to the nearest 0.001" (0.025 mm) for three separate measurements from each block to check accuracy and repeatability.
6. The average measured value is calculated and recorded to the nearest 0.001" (0.025 mm).
7. The measured values repeatability is checked. All values must be within 0.001" (0.025 mm) up to 6" and within 0.002" (0.050 mm) on up to 20".
8. The average measured value is checked against the block value to verify the accuracy. The average value must be within 0.001" (0.025 mm) up to 6" and within 0.002" (0.050 mm) on up to 20".
9. Record if the caliper need repair, replacement, or if no action is required because the caliper meets the accuracy and repeatability tolerances.