

Title: Calibration Of 0 – 1 Inch And 0 – 25mm External Micrometers

Scope

Work Instruction for the internal calibration of 0 – 1 Inch and 0 – 25mm External Micrometers. To be used in the absence of a manufacturers calibration instruction.

Preparation

Calibration must be carried out using Category A Master instruments as required.

Equipment required;-

- 1.1 Imperial Slip Gauges.
- 1.2 Metric Slip Gauges
- 1.3 Optical Flats

Method

- 2.1 All calibration results must be entered on the results sheets (see appendix A).
- 2.2 Note the lab temp / relative humidity and enter on calibration results sheet.
- 2.3 In the column for tests 8 to 17 delete the gauge sizes not applicable.
- 2.4 Carry out tests 1 to 18 using items 1.1, 1.2 and 1.3 as applicable.
- 2.5 Complete the results sheet header and enter Pass / Fail.

Note: Accuracy requirements of BS870 are:

	0 to 1 inch	0 to 25mm
Zero reading	$\pm 0.00005''$	± 0.001 mm
Range of error of traverse of micrometer screw	0.0001"	0.003 mm

Consequently the UUT reading for imperial micrometers should be to 4 or 5 places, and the UUT readings for metric micrometers to 3 or 4 decimal places.

- All records must be kept for audit purposes

References

Appendix A Calibration Results for 0 – 1 Inch or 0 – 25 mm External Micrometer

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Appendix A

Calibration Results for 0 – 1 Inch or 0 – 25 mm External Micrometer

Model Serial No

Date Result

Lab Temp / RH Operator

User Location Certificate No

Accuracies quoted are from the manufacturer's specification or relevant British Standard.

Test 1 Visual Check

Is the micrometer generally in good condition? Pass / Fail

Test 2 Is the condition of the measuring faces satisfactory? Pass / Fail

Test 3 Is the flatness of the measuring faces within 0.00005 inch (imperial) or 0.001 mm (metric)? Pass / Fail

Test 4 Is parallelism of the measuring faces within 0.0001 inch (imperial) or 0.003 mm (metric)? Pass / Fail

Test 5 Does the ratchet operate correctly? Pass / Fail

Test 6 Does the spindle lock operate correctly? Pass / Fail

Test 7 Zero reading
Error at zero on receipt =
Error at zero after re-setting (if required) = Pass / Fail

Calibration

Test No	Gauge Size (mm)	Gauge Size (Inch)	UUT Reading	Result
8	2.5	0.105		Pass / Fail
9	5.1	0.210		Pass / Fail
10	7.7	0.315		Pass / Fail
11	10.3	0.420		Pass / Fail
12	12.9	0.500		Pass / Fail
13	15.0	0.605		Pass / Fail
14	17.6	0.710		Pass / Fail
15	20.2	0.815		Pass / Fail
16	22.8	0.920		Pass / Fail
17	25.0	1.000		Pass / Fail