SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ACCUREASY METROLOGIA ABSOLUTA S. DE R.L. DE C.V.
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CALIBRATION

Valid To: May 31, 2025 Certificate Number: 6092.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations[1, 6]:

I. Dimensional

Parameter/Equipment	Range	CMC[2, 4] (±)	Comments
Vernier, Dial and Digital Calipers[3] –	Up to 1000 mm	(11 + 0.0086*L*) µm	Method: direct comparison Gage blocks, caliper checker, ring gages.
Vernier, Dial and Digital Depth Gauges –	Up to 750 mm	(12 + 0.0064*L*) µm	Method: direct comparison Gage blocks, surface plate
Vernier, Dial and Digital Height Gauges – Linearity			Method: direct comparison
Measuring[3]	Up to 1000 mm	(12 + 0.0045*L*) µm	Gage blocks, caliper checker
Face Scriber Parallelism	Up to 30 mm	1.3 µm	Surface plate
Beam Squareness	Up to 500 mm	5.8 µm	Master square
Base Flatness	Up to 200 mm	1.3 µm	Indicator

Parameter/Equipment	Range	CMC[2, 4] (±)	Comments
Height Gauges[3]	Up to 700 mm	(0.44 + 0.0027*L*) µm	Method: direct comparison Gage blocks, surface plate
Outside Micrometers[3]	Up to 500 mm	(1.1 + 0.0068*L*) µm	Method: direct comparison Gage blocks, optical flats
Depth Micrometers[3]	Up to 300 mm	(1.7 + 0.0057*L*) µm	Method: direct comparison Gage blocks
Length Indicators (Thickness, Digital, Dial, Test, Lever) – External Measure[3]	Up to 100 mm	(1.1 + 0.034*L*) µm	Method: direct comparison Gage blocks
Length Indicators (Digital, Dial, Test, Lever) – Internal Measure[3]	Up to 100 mm	(4.8 + 0.027*L*) µm	Method: direct comparison Gage blocks
Steel Feeler Gauges[3]	Up to 3 mm	0.5 µm	Method: direct comparison High accuracy micrometer
Master Discs or Cylindrical Plug Gages Class: Y, DIN2, Z, ZZ or Unmarked[3]	Up to 5 mm (>5 to 25) mm	0.5 µm 0.6 µm	Method: direct comparison High accuracy micrometer
Radius Gages	Up to 50.8 mm	4.5 µm	Method: direct comparison Vision system
Rules – Steel Aluminum	 Up to 300 mm Up to 300 mm	 7.5 µm 13 µm	Method: direct comparison Vision system

Parameter/Equipment	Range	CMC[2, 4, 5] (±)	Comments
Glass Standard Scales	Up to 300 mm	(1.5 + 0.0077*L*) µm	Method: direct comparison Vision system
Vision Systems[3] Linear Axis Angle	 X: Up to 300 mm Y: Up to 300 mm Z: Up to 150 mm Up to 330°	 (0.79 + 0.0065*L*) µm (0.79 + 0.0065*L*) µm 2.7 µm 2.1’ (0.035°)	Method: direct comparison Glass scales Gage blocks Angle reticle
Profile Projectors, Optical Comparators[3] Linear Axis Angle Magnification	 X: Up to 300 mm Y: Up to 300 mm Up to 360° 5X to 20X	 (1.6 + 0.0097*L*) µm (1.6 + 0.0097*L*) µm 2.4’ (0.04°) 0.02 %	Method: direct comparison Glass scales Angle reticle
Microscopes[3] Linear Axis Angle Magnification	 X: Up to 300 mm Y: Up to 300 mm Up to 360° Up to 4000X	 (0.68 + 0.0081*L*) µm (0.68 + 0.0081*L*) µm 2.4’ (0.04°) 0.08 %	Method: direct comparison Glass scales Angle reticle
Coating Thickness Gages (Ferrous Metals and Non-Ferrous Metals)[3]	Up to 0.1 mm (>0.1 to 1.5) mm	0.70 µm 1.9 µm	Method: direct comparison Plastic shims
Ultrasonic Thickness Gage[3]	Up to 25.4 mm	14 µm	Method: direct comparison Step gage

Parameter/Equipment	Range	CMC[2, 4] (±)	Comments
CMM[3] –			Method: direct comparison
Length Measurement Error (E_L) and R_0	Up to 1500 mm	(0.37 + 0.0032*L*) µm	ISO 10360-2; section 6.3, 6.4 and 6.5 - gage blocks
Single and Multiple Stylus Contacting Probing Error (Discrete Point Measuring Mode)	20 mm	0.28 µm	ISO 10360-5; section 6.3 and 6.5 - test sphere
Dial Indicators & Dial Test Indicators	Up to 2.032 mm (>2.032 to 50) mm	0.48 µm (0.59 + 0.012*L*) µm	Method: direct comparison Automated dial indicator testing machine
Granite Surface Plates			Method: direct comparison
Overall Flatness	Up to 4090 mm of the diagonal length	(0.49 + 0.0031*DL*) µm	Digital precision level *DL* = diagonal length
Digital Protractors, Clinometers	Up to 60° (60 to 90) ° in four directions	1.5’ (0.025°) 2.7’ (0.045°)	Method: indirect comparison Surface plate, angle blocks, sine plate, gage blocks
Digital Universal Protractor, Universal Bevel Protractors, Goniometers, Inclinometers, Digital Angle Meters, Protractors	Up to 90° in four directions (0 to 360)°	3.0’ (0.050°)	Method: direct comparison Angle blocks, surface plate

Parameter/Equipment	Range	CMC[2, 4] (±)	Comments
Micrometer Standards for setting of outside micrometers	25 mm (25.4 to 700) mm	0.38 µm (0.60 + 0.0040*L*) µm	Method: direct comparison High accuracy micrometer, height gauge, gage blocks, surface plate

II. Dimensional Testing/Calibration[8]

Parameter/Equipment	Range	CMC[2, 4, 7] (±)	Comments
Length – Measure[3, 9]			Method: direct measurement
1D	Up to 2500 mm	(29 + 0.0041*L*) µm	Articulated measuring arm
2D	(2500 X 2500) mm	(29 + 0.0041*L*) µm	
3D	(2500 X 2500 X 2500) mm	(29 + 0.0041*L*) µm	
Angle	Up to 360°	0.04°	
Length – Measure[9]			Method: direct measurement
1D	Up to 300 mm	(1.5 + 0.0096*L*) µm	Vision system
2D	(300 X 200) mm	(1.5 + 0.0096*L*) µm	
Angle	Up to 360°	0.04°	
Length – Measure[9]			Method: direct measurement
1D	Up to 700 mm	(1.4 + 0.0078L) µm	Height gauge, gage blocks, surface plate

Parameter/Equipment	Range	CMC[2, 4, 7] (±)	Comments
Length – Measure[9] 1D	 Up to 25 mm	 0.40 µm	Method: direct measurement High accuracy micrometer

III. Dimensional Testing[10]

Parameter	Range	Technique / Method
Workpiece Measurement[3, 10] – 1D 2D 3D Angle	 Up to 2500 mm (2500 X 2500) mm (2500 X 2500 X 2500) mm Up to 360°	Articulated measuring arm
Workpiece Measurement[10] – 1D 2D Angle	 Up to 300 mm (300 X 200) mm Up to 360°	Vision system
Workpiece Measurement[10] – 1D	 Up to 700 mm	Height gauge, gage blocks, surface plate
Workpiece Measurement[10] – 1D	 Up to 25 mm	High accuracy micrometer

III. Mechanical

Parameter/Equipment	Range	CMC[2] (±)	Comments
Rockwell Hardness Testers[3]	HRBW: Low Medium High HRC: Low Medium High HR30N: Low Medium High HR45N: Low Medium High HR30TW: Low Medium High	 1.1 HRBW 1.0 HRBW 0.52 HRBW 0.48 HRC 0.38 HRC 0.38 HRC 0.48 HR30N 0.72 HR30N 0.52 HR30N 0.50 HR45N 0.56 HR45N 0.49 HR45N 0.66 HR30TW 0.65 HR30TW 0.73 HR30TW	Method: indirect verification per ISO 6508-2 Hardness test blocks
Brinell Hardness Testers[3]	HBW 5/750: Low Medium High HBW 10/3000: Low Medium High	 3.1 HBW 5/750 7.8 HBW 5/750 12 HBW 5/750 1.7 HBW 10/3000 4.0 HBW 10/3000 8.4 HBW 10/3000	Method: indirect verification per ISO 6506-2 Hardness test blocks

[1] This laboratory offers commercial calibration and field calibration services, where noted.

[2] Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of k = 2. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

[3] Field calibration service is available for this calibration. Please note the actual measurement uncertainties achievable on a customer's site can normally be expected to be larger than the CMC found on the A2LA Scope. Allowance must be made for aspects such as the environment at the place of calibration and for other possible adverse effects such as those caused by transportation of the calibration equipment. The usual allowance for the actual uncertainty introduced by the item being calibrated, (e.g., resolution) must also be considered and this, on its own, could result in the actual measurement uncertainty achievable on a customer's site being larger than the CMC.

[4] In the statement of CMC, *L* is the numerical value of the nominal length of the device measured in millimeters.

[5] In the statement of CMC, percentages are percentage of reading, unless otherwise indicated.

[6] This scope meets A2LA's *P112 Flexible Scope Policy*.

[7] The type of instrument or material being calibrated is defined by the parameter. This indicates the laboratory is capable of calibrating instruments that measure or generate the values in the ranges indicated for the listed measurement parameter.

[8] This laboratory offers commercial dimensional testing/calibration service.

[9] This laboratory meets R205 – Specific Requirements: Calibration Laboratory Accreditation Program for the types of dimensional tests listed above and is considered equivalent to that of a calibration.

[10] This test is not equivalent to that of a calibration.

Accredited Laboratory

A2LA has accredited

ACCUREASY METROLOGIA ABSOLUTA S. DE R.L. DE C.V.

Querétaro, MEXICO

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This laboratory also meets R205 – Specific Requirements: Calibration Laboratory Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

Presented this 3d day of April 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 6092.01
Valid to May 31, 2025

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.