



SCOPE OF ACCREDITATION TO ISO 17025:2017

TRIDIMENSIONAL MONTERREY Y SERVICIOS S. DE R.L. DE C.V.
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CALIBRATION

Valid To: February 28, 2025

Certificate Number: 3974.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations^{1, 8}:

I. Dimensional

Parameter/Equipment	Range	CMC ² (±)	Comments
Coordinate Measuring Machine (CMM) ^{3, 5} – Length Measurement Error (EL): Volumetric & Linear Probing Error	Up to 500 mm (> 500 to 1000) mm Up to 1700 mm 19.05 mm	1.9 µm 3.5 µm 5.7 µm 0.75 µm	ISO 10360-2 Gauge blocks steel grade 0, gauge blocks steel grade 1, step gage & step fixture Test sphere
Surface Texture Roughness & Micro Profile – Ra: Rz:	0.205 µm 2.97 µm 1.643 µm	0.059 µm 0.061 µm 0.092 µm	ISO 3274 Roughness standard

Parameter/Equipment	Range	CMC ² (±)	Comments
Micrometers ⁵ – Outside Micrometer	Up to 25 mm (> 25 to 50) mm (> 50 to 75) mm (> 152.5 to 175) mm (> 175 to 200) mm (> 200 to 250) mm (> 250 to 300) mm (> 300 to 400) mm (> 400 to 500) mm (> 500 to 600) mm	0.77 µm 0.81 µm 0.88 µm 1.2 µm 1.3 µm 1.5 µm 1.8 µm 2.3 µm 2.7 µm 3.3 µm	Gage blocks ceramic grade 0, gauge blocks steel grade 0
Length Indicators Dial, Analog & Digital	Up to 20 mm (> 20 to 50) mm	1.1 µm 1.2 µm	Gage blocks ceramic grade 0
Calipers – Vernier, Dial & Digital	Up to 20 mm (> 20 to 50) mm (> 50 to 80) mm (> 80 to 100) mm (> 100 to 125) mm (> 125 to 150) mm (> 150 to 175) mm (> 175 to 200) mm (> 200 to 250) mm (> 250 to 300) mm	7.8 µm 7.9 µm 8.0 µm 8.0 µm 8.5 µm 8.6 µm 8.7 µm 8.7 µm 8.9 µm 10 µm	Gage blocks ceramic Grade 0 Gauge blocks steel Grade 0 Step gage & step fixture
Height Gages	Up to 600 mm	9.8 µm	Step gage & surface plate
Pin & Plug Gages	Up to 25 mm Up to 26.5 mm Up to 75 mm	1.4 µm 1.7 µm 1.7 µm	Micrometer, vision CMM

Parameter/Equipment	Range	CMC ² (±)	Comments
Articulated Arm Coordinate Measuring Machine (AACMM) ⁵ –			ASME B89.4.22
Effective Diameter Test	Test Sphere Diameter: 19.05 mm	3.5 µm	Master sphere
Volumetric Performance	Up to 1500 mm (AACMM Radius)	36 µm	Gage blocks, step gage
Vision Systems, Optical Comparators & Measuring Microscopes ³ –			
X & Y Displacement	Up to 300 mm	2.9 µm	Glass ruler
Diameter	(0.050 to 25) mm	0.0019 mm	Glass scale
Angle	Up to 360°	2'43''	Glass scale

II. Dimensional Testing & Calibration⁶

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
3D Length Measurement –			
Contact Fixture Gages (3D) ⁵	(640 × 600 × 500) mm (640 × 1200 × 500) mm (400 × 400 × 300) mm	3.7 µm 5.5 µm 3.1 µm	CMM Vision CMM
2D Length Measurement –			
Vision Fixture Gages (2D) ⁵	(400 × 400) mm	3.0 µm	Vision CMM
One Dimensional ⁵ – Length	Up to 25 mm	1.8 µm	Micrometers

III. Dimensional Testing⁷

Parameter/Equipment	Range	Technique/ Method
Workpiece Measurement – Contact 1D 2D 3D 1D 2D 3D	Up to 640 mm (640 × 1500) mm (640 × 1500 × 500) mm Up to 400 mm (400 × 400) mm (400 × 400 × 300) mm	CMM Vision CMM
Workpiece Measurement – Vision 1D 2D 3D	Up to 400 mm (400 × 400) mm (640 × 1500 × 500) mm	Vision CMM CMM
Workpiece Measurement ³ – Contact & Scan 1D 2D 3D	Up to 3000 mm	Articulated arm coordinate measuring machine.
Surface Finish – Ra: Rz:	(0.205 to 2.97) μm (1.643) μm	Roughness tester

¹ This laboratory offers commercial calibration service and field calibration services.

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 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.
- ⁵ 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.
- ⁶ This laboratory offers commercial dimensional testing service only.
- ⁷ This test is not equivalent to that of a calibration.
- ⁸ This scope meets A2LA's *P112 Flexible Scope Policy*.



Accredited Laboratory

A2LA has accredited

TRIDIMENSIONAL MONTERREY Y SERVICIOS

S. DE R.L. DE C.V.

Monterrey, MÉXICO

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 10th day of January 2023.

A blue ink signature of Mr. Trace McInturff.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3974.02
Valid to February 28, 2025

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