SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
& ANSI/NCSL Z540-1-1994

ANÁLISIS POR INSTRUMENTOS Y SOFTWARE PARA CMMS SA DE CV.,
DBA SOPORTE METROLOGY
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CALIBRATION

Valid To: October 31, 2026 Certificate Number: 3006.01

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the organization's compliance with R205 – A2LA's Calibration Program Requirements), accreditation is granted to this laboratory at the location listed above as well as the one satellite laboratory location listed below to perform the following calibrations and dimensional tests[1]:

I. Dimensional

Parameter/Equipment	Range	CMC[2, 4] (±)	Comments
Coordinate Measuring Machines (CMMs)[3, 5] –			ISO 10360-2 ASME B89.4.10360.2:
Length Measurement Error (E_L):	Up to 18 000 mm	(1.1 + 1.2L) µm	Laser interferometer & gage blocks
Probing Performance Test[3]	Up to 1500 mm	(0.27 + 1.3L) µm	Gage blocks
Single-Stylus and Multi-Stylus Probing Error	Sphere Size: 30 mm diameter	0.76 µm	ISO 10360-5:2010 Test sphere
Single-Stylus Form Error (PForm.Sph.1x25:SS:Tact)		1.3 µm	ISO 10360-5:2020 Test sphere
Single-Stylus Size Error (PSize.Sph.1x25:SS:Tact)	Up to 50 mm diameter	0.88 µm	
Multi-Stylus Form Error (PForm.Sph.5x25:Inf:Tact)		1.4 µm	
Multi-Stylus Size Error (PSize.Sph.5x25:Inf:Tact)		0.88 µm	
Location Error (LDia.5x25:Inf:Tact)		0.98 µm	

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Parameter/Equipment	Range	CMC[2, 4] (±)	Comments
Numerically Controlled Machine Tool (CNC)[3] –			
X, Y, Z Axial Positional Deviation (Linear Displacement Accuracy)	Up to 18 000 mm	(1.6 + 0.2*L*) µm	ISO 230-2: Laser interferometer
Volumetric Performance on Body and Face Diagonals (Diagonal Displacement)	Up to 18 000 mm	(2.1 + 0.3*L*) µm	ISO 230-6: Laser interferometer
Articulated Arm Coordinate Measuring Machines[6] –			ASME B89.4.22:
Effective Diameter	Up to 50 mm diameter	2.5 µm	Test sphere
Volumetric Performance	Up to 4000 mm (AACMM Range)	(3.2 + 0.4*L*) µm	Ball bar
Articulated Arm CMM (AACMM):			ISO 10360-12
Probing Size Error (P_{size})	Up to 51 mm	3.8 µm	Test sphere
Probing Form Error (P_{form})	Up to 51 mm	2.4 µm	
Articulated Location Error (L_{dia})	Up to 51 mm	3.6 µm	
Length Measurement Error Unidirectional (E_{uni})	Up to 4000 mm (AACMM Range)	(3.2 + 1.7*L*) µm	Ball bar
Optical 3D Measuring Systems			VDI/VDE 2634-3
Probing Error PF (Form)	Up to 50 mm	2.8 µm	Test sphere
Probing Error Ps (Size)	Up to 50 mm	8.5 µm	Test sphere
Sphere Spacing Error SD	Up to 700 mm	1.3 µm	Ball Cube
Length Measurement Error E	Up to 700 mm	1.5 µm	Ball Cube

II. Dimensional Testing/Calibration[1]

Parameter/Equipment	Range	CMC[2, 4, 9] (±)	Comments
Dimensional Measurements[8]	X, Y, Z:		
Checking Fixtures & Workpieces	Up to (2600, 1500, 1400) mm	(11 + 5.9*L*) µm	ASME Y14.5: CMM used as reference
	Up to (900, 1500, 700) mm	(2.2 + 6*L*) µm	

III. Dimensional Testing[1]

Parameter/Equipment	Range	Comments
3D Measurement[3, 7, 9]	Up to 3700 mm	ASME Y14.5: articulated arm CMM used with tactile probing and/or laser scanning
Distances and 3D Measurements[3, 7, 9]	Up to 80 000 mm	Laser tracker used as reference

SATELLITE FACILITY

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I. Dimensional

Parameter/Equipment	Range	CMC[2, 4] (±)	Comments
Articulated Arm Coordinate Measuring Machines[6] –			ASME B89.4.22:
Effective Diameter	Up to 50 mm diameter	2.3 µm	Test Sphere
Volumetric Performance	Up to 4000 mm (AACMM Range)	(4.0 + 0.33*L*) µm	Ball bar
Articulated Arm CMM (AACMM):			ISO 10360-12
Probing Size Error (P_{size})	Up to 51 mm	5.0 µm	Test sphere
Probing Form Error (P_{form})	Up to 51 mm	2.1 µm	
Articulated Location Error (L_{dia})	Up to 51 mm	3.5 µm	
Length Measurement Error Unidirectional (E_{uni})	Up to 4000 mm (AACMM Range)	(2.9 + 2.4*L*) µm	Ball bar
Articulated Arm Coordinate Measuring Machines (AACMM) with Optical Distance Sensors:			
Articulated Location Value (LDia)	Sphere Size: 10-51 mm diameter	6.6 µm	ISO 10360-8: Test Sphere

Parameter/Equipment	Range	CMC[2, 4] (±)	Comments
Optical 3D Measuring Systems			VDI/VDE 2634-3
Probing Error PF (Form)	Up to 50 mm	2.2 µm	Test sphere
Probing Error Ps (Size)	Up to 50 mm	5.5 µm	Test sphere
Sphere Spacing Error SD	Up to 700 mm	1.3 µm	Ball Cube
Length Measurement Error E	Up to 700 mm	1.5 µm	Ball Cube
Optical 3D Coordinate Measuring Systems			ISO 10360-13
Probing Form Error			
Probing Form Dispersion Error 100% (Single View) ($P_{Form.Sph.All:SMV.SV:O3D}$)	Sphere Size: 40 mm diameter	2.3 µm	Ball Cube
Probing Form Dispersion Error 100% (Multiple View) ($P_{Form.Sph.All:SMV.MV:O3D}$)	Sphere Size: 40 mm diameter	3.4 µm	Ball Cube
Probing Form Dispersion Error 95% (Single View) ($_{PForm.Sph.95\%:SMV.SV:O3D}$)	Sphere Size: 40 mm diameter	2.1 µm	Ball Cube
Probing Form Dispersion Error 95% (Multiple View) ($_{PForm.Sph.95\%:SMV.MV:O3D}$)	Sphere Size: 40 mm diameter	3.1 µm	Ball Cube
Probing Size Error			
Probing Size Error 100% (Multiple View) ($P_{Size.Sph.All:SMV.MV:O3D}$)	Sphere Size: 40 mm diameter	2.5 µm	Ball Cube
Probing Size Error 95% (Multiple View) ($P_{Size.Sph.95\%:SMV.MV:O3D}$)	Sphere Size: 40 mm diameter	2.1 µm	Ball Cube

Parameter/Equipment	Range	CMC[2, 4] (±)	Comments
Optical 3D Coordinate Measuring Systems cont.			
Distortion Error			
Distortion Error in Sensor Measurement Volume (Single View) ($D_{CC.SMV.SV:O3D}$)	Up to 700 mm	1.6 µm	Ball Cube
Distortion Error in Sensor Measurement Volume (Multiple View) ($D_{CC.SMV.MV:O3D}$)	Up to 700 mm	1.6 µm	Ball Cube
Distortion Error			
Flat-Form Distortion Error 100% (Single View) ($D_{Form.Pla.All:SMV.SV:O3D}$)	Up to 900 mm	6.4 µm	Test Plane
Flat-Form Distortion Error 100% (Multiple View) ($D_{Form.Pla.All:SMV.MV:O3D}$)	Up to 900 mm	7.3 µm	Test Plane
Flat-Form Distortion Error 95% (Single View) ($D_{Form.Pla.95\%:SMV.SV:O3D}$)	Up to 900 mm	6.3 µm	Test Plane
Flat-Form Distortion Error 95% (Multiple View) ($D_{Form.Pla.95\%:SMV.MV:O3D}$)	Up to 900 mm	7.2 µm	Test Plane
Volumetric Length Measurement Error			
Bi-directional Length Measurement Error in Concatenated Measurement Volume in Multiple View. ($E_{Vol:CMV.MV:O3D}$)	Up to 3000 mm	(1.4 + 7L) µm	Ball Bar

II. Dimensional Testing/Calibration[1]

Parameter/Equipment	Range	CMC[2, 4, 9] (±)	Comments
Dimensional Measurements[8] –	X, Y, Z:		ASME Y14.5: CMM used as reference
Checking Fixtures and Workpieces	Up to (1000, 750, 800) mm	(9.5 + 4.8*L*) µm	
	Up to (1200, 2000, 1000) mm	(3.2 + 3.6*L*) µm	
	Up to (900, 1500, 700) mm	(2.1 + 6.8*L*) µm	

[1] This laboratory offers commercial calibration/dimensional testing service and field calibration service 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 uncertainty for calibration, *L* is the numerical value of the nominal length of the device measured in meters.

[5] CMM calibrations cover various configurations.

[6] Calibration method for articulating arm CMMs per ASME B89.4.22 includes the following tests: Effective Diameter Performance, SPAT, and Volumetric Performance.

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

[8] 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.

[9] 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.

Accredited Laboratory

A2LA has accredited

ANALISIS POR INSTRUMENTOS Y SOFTWARE PARA CMM'S SA DE CV., DBA SOPORTE METROLOGY

Puebla, 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 the requirements of ANSI/NCSL Z540-1-1994 and 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 30th day of September 2024.

Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3006.01
Valid to October 31, 2026
Revised January 15, 2026

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