



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005
& ANSI/NCSL Z540-1-1994

ANÁLISIS POR INSTRUMENTOS Y SOFTWARE PARA CMMS SA DE CV
 (DBA SOPORTE METROLOGY)
 27 Poniente 507, Interior 103, Colonia Chulavista
 Puebla, Puebla, Mexico 72420
 Leonardo Espinosa Phone: 52 (222) 243 7955

CALIBRATION

Valid To: October 31, 2018

Certificate Number: 3006.01

In recognition of the successful completion of the A2LA evaluation process, 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 tests¹:

I. Dimensional

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Coordinate Measuring Machines (CMMs) ^{3,8} – Length Measurement Error (E _L): Linear & Volumetric	Up to 18 000 mm	(0.10 + 1.1L) µm	Laser interferometer & gage blocks ^{5,6}
	Up to 1500 mm	(0.41 + 1.2L) µm	Gage blocks ^{5,6}
Repeatability (R ₀)	-	1.0 µm	Laser interferometer & gage blocks ^{5,6}
Probing Error	Up to 30 mm	0.73 µm	ISO 10360-5; test sphere
Numerically Controlled Machine Tool (CNC) – Positional Deviation (Linear Displacement Accuracy)	Up to 18 000 mm	(1.6 + 0.2L) µm	Laser interferometer ⁷ XYZ

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Numerically Controlled Machine Tool (CNC) (cont) – Volumetric Performance (By body and face Diagonals)	Up to 18 000 mm	(2.1 + 0.3L) μm	Laser interferometer ⁷ , diagonals
Articulated Arm Coordinate Measuring Machines ⁹ – Effective Diameter Test Spat Test Volumetric Test	(10 to 50) mm Single point articulation performance test Up to 4000 mm	2.6 μm 2.3 μm (6.5 + 0.48L) μm	Reference sphere Conical socket Multi-ball ball bar, master sphere

II. Dimensional Testing/Calibration¹

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Geometric Measurements ¹² – X-Axis Y-Axis Z-Axis X-Axis Y-Axis Z-Axis	1030 mm 1030 mm 800 mm 2600 mm 1500 mm 1400 mm	(1.7 + 0.002L) μm (1.7 + 0.002L) μm (1.7 + 0.002L) μm (0.8 + 0.006L) μm (0.8 + 0.006L) μm (0.8 + 0.006L) μm	CMM CMM

III. Dimensional Testing¹

Parameter/Equipment	Range	Comments
Fixtures and Workpieces ¹¹	Up to 4000 mm Probing Scanning	Articulated arm
3D Coordinates ¹¹	Up to 80000 mm	Laser tracker

SATELLITE FACILITY
 ANÁLISIS POR INSTRUMENTOS Y SOFTWARE PARA CMMS SA DE CV
 (DBA SOPORTE METROLOGY)
 Manzana 8, Lote 6, Micro Parque FINSA Ramos Arizpe
 Saltillo, Coahuila, Mexico 25904
 Leonardo Espinosa Phone: 52 (222) 243 7955

I. Dimensional Testing/Calibration¹

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Geometric Measurements ¹² –			
X-Axis	1390 mm	(1.6 + 0.003L) μm	CMM
Y-Axis	1000 mm	(1.6 + 0.003L) μm	
Z-Axis	1000 mm	(1.6 + 0.003L) 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 and this laboratory meets A2LA *R104 – General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* for these calibrations. 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 for calibration, L is the numerical value of the nominal length of the device measured in meters.
- ⁵ Calibration method utilizing associated section(s) of ISO 10360 for defined parameter.
- ⁶ Calibration method for CMMs utilizing associated sections of ASME B89.4.10360-2 for defined parameter.
- ⁷ Calibration method for CNC utilizing associated sections of ISO 230 for defined parameter.
- ⁸ CMM Calibrations cover these type machines and their various configurations: Bridge, Gantry, Cantilevered, and Duplex columns.
- ⁹ Calibration method for articulating arm CMMs utilizing associated sections of ASME B89.4.22 for defined parameter.
- ¹⁰ In the statement of CMC for dimensional inspection, L is the numerical value of the nominal length of the device measured in millimeters.
- ¹¹ This test is not equivalent to that of a calibration.
- ¹² 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.



Accredited Laboratory

A2LA has accredited

ANALISIS POR INSTRUMENTOS Y SOFTWARE PARA CMM'S SA DE CV

Puebla, Puebla, MEXICO

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSLI 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 8 January 2009*).



Presented this 17th day of November 2016.

A handwritten signature in black ink, written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 3006.01
Valid to October 31, 2018

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