



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

PRECISION SOLUTIONS, LLC.
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CALIBRATION

Valid To: August 31, 2023

Certificate Number: 3840.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations^{1, 5}:

I. Dimensional

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Surface Plates ³ –			
Flatness	(17 to 72) in diagonal (12 to 60) in diagonal (>60 to 120) in diagonal	(72 + 0.21DL) μin (21 + 0.8DL) μin (40 + 0.48DL) μin	Planekator Federal level system
Repeatability	0.002 in	40 μin	Repeat-O-Meter, dial indicator
Optical Comparators ³ –			
Linearity	(0.2 to 12) in	(160 + 0.71L) μin	Glass master
Magnification	10X, 20X, 31.25X, 50X, 62.5X, 100X, 125X, 250X	1700 μin	Glass master & glass measuring scale
Angle	(0 to 360)°	0.10°	Glass master
Calipers ³	(0.1 to 40) in	(280 + 3.6L) μin	Gage blocks

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Micrometers ³	(0.1 to 40) in	(59 + 6.5L) μin	Gage blocks
Depth Micrometers ³	(0.1 to 12) in	(130 + 2.8L) μin	Gage blocks
Indicators ³	(0.000 05 to 0.2) in (0.2 to 1) in (1 to 4) in	15 μin 33 μin 74 μin	Gage blocks
Height Gages ³	(0.1 to 48) in	(49 + 6.9L) μin	Gage blocks

II. Mechanical

Parameter/Equipment	Range	CMC ^{2,6} (±)	Comments
Scales & Balances ³	(1 to 500) mg	0.012 mg	ASTM E617 Class 1 weights
	(1 to 5) g	0.04 mg	
	10 g	0.058 mg	
	20 g	0.086 mg	
	(30 to 200) g	0.0003 % of test load	ASTM E617 Class 2 weights
	(200 to 1000) g	0.0003 % of test load	
	(1 to 6) kg	0.0003 % of test load	
	(6 to 15) kg	0.0003 % of test load	ASTM E617 Class 6 weights
	(10 to 30) kg	0.0006 % of test load	
	(40 to 90) kg	0.0006 % of test load	NIST HB 105-1 Class F weights
	(100 to 6000) kg	0.012 % of test load	
	(0.001 to 2) lb	0.000 24 lb	
	(2 to 120 000) lb	0.012 % of test load	
Force – Measuring Equipment ³			NIST HB 105-1 Class F weights
Tension & Compression	(0.1 to 200) lbf (200 to 5000) lbf	0.024 % of test load	

Parameter/Equipment	Range	CMC ^{2, 6} (±)	Comments	
Force – Measuring Equipment ³			Interface 9840 indicator	
	Tension	(20 to 300) lbf	0.11 lbf	With Morehouse 1000 lbf loadcell
		(300 to 1000) lbf	0.19 lbf	
	Compression	(200 to 5000) lbf	1.0 lbf	With Morehouse 5000 lbf loadcell
		(2000 to 10 000) lbf	6.4 lbf	With Interface 50 000 lbf loadcell
		(10 000 to 50 000) lbf	6.9 lbf	
(20 to 300) lbf		0.078 lbf	With Morehouse 1000 lbf loadcell	
	(300 to 1000) lbf	0.17 lbf		
(200 to 5000) lbf	0.89 lbf	With Morehouse 5000 lbf loadcell		
	(2000 to 10 000) lbf	7.5 lbf	With Interface 50 000 lbf loadcell	
(10 000 to 50 000) lbf	8.0 lbf			

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

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. CMC's 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 Calibration and Measurement Capability Uncertainty (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 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 inches. In the statement of CMC, DL is the numerical value of the diagonal length of the device measured in inches.

⁵ This scope meets A2LA's P112 *Flexible Scope Policy*.

⁶ 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

PRECISION SOLUTIONS, LLC.

Quakertown, PA

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 28th day of July 2021.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3840.01
Valid to August 31, 2023
Revised January 23, 2023

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