



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

PRECISION GAGE INC.
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CALIBRATION

Valid To: August 31, 2021

Certificate Number: 5464.01

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
Gage Blocks	Up to 4 in	(1.4 + 1.4L) μin	Mechanical comparator dual probes
	(5 to 20) in	(2.7 + 0.9L) μin	Mechanical comparator
Micrometers ³ –			
Outside	Up to 6 in (24 to 36) in	(30 + 2.3L) μin (40 + 2.2L) μin	Gage blocks
Inside	(1 to 40) in	(57 + 1.9L) μin	Trimos universal measuring machine
Depth	Up to 12 in	(68 + 0.72L) μin	Gage blocks
Intramic	(0.2 to 4.0) in	(28 + 8D) μin	Ring gages
Calipers ³ –			
0.0005 in Graduation	Up to 12 in	(280 + 2.0L) μin	Gage blocks
0.001 in Graduation	(6 to 36) in	(580 + 0.2L) μin	

Parameter/Equipment	Range	CMC ^{2, 4, 5} (±)	Comments
Chamfer Check ³	Up to 3 in diameter	120 μin	ULM and ring gages
Height Gage ³	Up to 36 in	(26 + 2.7L) μin	Gage blocks
Indicators ³	(0.01 to 4) in	(13 + 7.1L) μin	Universal measuring machine
Bore Gages ³	(0.02 x .050) μin	14 μin	Universal measuring machine
Plug Gages – Threaded, 60°			
Pitch Diameter	Up to 4 in	(64 + 0.31D) μin	Universal measuring machine
Major Diameter	Up to 4 in	17 μin	
Threaded NPT	Up to 2 in	66 μin	
Squareness – Measure	Up to 18 in	69 μin	Square master
Electronic Amplifier	Up to 0.2 in	3.5 μin	Universal measuring machine
Thickness Gages (Feeler Type)	Up to 0.1 in	20 μin	Universal measuring machine
Thread Wires	(5 to 80) TPI	3.4 μin	ULM and laser interferometer
Pin Gages	Up to 4 in	(2.9 + 2.7D) μin	ULM and laser interferometer
Ring Gages, Plain	(0.05 to 12) in	(12 + 1.1D) μin	Universal measuring machine
Thread Rings, 60°	Up to 2 in	120 μin	Set plug

Parameter/Equipment	Range	CMC ^{2, 4, 5} (±)	Comments
NPT Rings	Up to 2 in	160 μin	Master plug
Step Gage ³	Up to 12 in	14 μin	Gage blocks and amp w/ gage head
Sine Bar	Up to 10 in	35 μin	Gage blocks and amp w/ gage head
Height Master	Up to 12 in	(6.6 + 2.7L) μin	Gage blocks and amp w/ gage head
Parallels ³	Up to 10 in	48 μin	Gage blocks and amp w/ gage head
Levels ³	Up to 12 in	75 μin	Sine bar
Steel Rules and Tapes	Up to 100 ft	130 μin per 60 in	Laser interferometer
Glass Scale and Reticle	Up to 12 in	(5.7 + 0.7L) μin	Laser interferometer
Length ³ – Measure	Up to 120 in	(1.2 + 0.03L) μin	Laser interferometer
Angle Block	Up to 4 in	15 arc sec	Sine bar
Protractor	Up to 90°	15 arc sec	Sine bar
Granite Surface Plate ³ – Flatness	Up to 96 in	39 μin	Autocollimator
Repeatability	(12 to 96) in	24 μin	Repeat-o-meter
Autocollimator	+/- 500 arc sec	0.60 arc sec	Laser interferometer

II. Mechanical

Parameter/Equipment	Range	CMC ^{2, 5} (±)	Comments
Torque Wrench ³	(15 to 200) oz·in (5 to 50) lb·in (25 to 250) lb·in (100 to 1000) lb·in (25 to 250) lb·ft (10 to 1000) lb·ft	0.44 % of rdg 0.43 % of rdg 0.40 % of rdg 0.36 % of rdg 0.41 % of rdg 0.35 % of rdg	CDI torque system
Torque Transducer	(15 to 200) oz·in (5 to 50) lb·in (25 to 250) lb·in (100 to 1000) lb·in (25 to 250) lb·ft (10 to 1000) lb·ft	0.29 % of rdg 0.34 % of rdg 0.32 % of rdg 0.29 % of rdg 0.33 % of rdg 0.31 % of rdg	Torque arm and mass
Pressure/Vacuum ³ – Measure and Measuring Equipment	(0 to 300) in·H ₂ O (-10 to 15) psi (0 to 300) psi (0 to 1500) psi (0 to 6000) psi (0 to 10 000) psi	0.05 % FS 0.05 % FS 0.05 % FS 0.05 % FS 0.10 % FS 0.13 % FS	Pressure transducer FS is defined as full scale

III. Thermodynamic

Parameter/Equipment	Range	CMC ^{2, 5} (±)	Comments
Temperature – Measure and Measuring Equipment	(-20 to 200) °C	0.045 °C	SPRT/liquid bath

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

² Calibration and Measurement Capability (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, L is the numerical value of the nominal length of the device measured in inches, D is the numerical value of the nominal diameter of the device measured in inches.

⁵ 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.

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



Accredited Laboratory

A2LA has accredited

PRECISION GAGE INC.

Denver, CO

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 2nd day of October 2019.

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

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 5464.01
Valid to August 31, 2021

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