



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

QUALITY CONTROL SALES AND SERVICES, INC.
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CALIBRATION

Valid To: July 31, 2022

Certificate Number: 1498.01

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
Gage Blocks – Steel	Up to 4 in (>4 to 20) in	(2.8 + 0.9L) µin (22 + 1.4L) µin	Gage block comparator Horizontal ULM
Chromium Carbide, Tungsten Carbide and Ceramic	Up to 4 in	(2.5 + 0.7L) µin	Gage block comparator
Thread Plugs – Pitch Diameter	(80 to 2) TPI	61 µin	Three wire method
Major Diameter	Up to 6 in	(20 + 1.4L) µin	Horizontal ULM
Pipe Thread Plugs – Pitch Diameter	([¹ / ₁₆ to 27] to [2 ¹ / ₂ to 8]) TPI	99 µin	Three wire method
Steps	Up to 6 in	(57 + 4.2L) µin	Gage blocks, horizontal ULM

Parameter/Equipment	Range	CMC ^{2,4} (\pm)	Comments
Thread Wires	(80 to 2) TPI	14 μ in	Horizontal ULM
Indicators – Standard and Dial Bore Gages ³ Electronic Indicators	Up to 4 in Up to 3 in	(41 + 0.6R) μ in (14 + 0.6R) μ in	Indicator calibrator Horizontal ULM
Calipers ³	Up to 72 in	(490 + 20L) μ in	Gage blocks
Micrometers – Depth ³ Inside ³ Outside ³ Heads ³ Vee	Up to 12 in (1.5 to 40) in Up to 36 in Up to 2 in Up to 1.5 in	220 μ in (240 + 10L) μ in (80 + 17L) μ in (80 + 17L) μ in (80 + 17L) μ in	Gage blocks Pins and balls
Height Masters and Caliper Checkers	Up to 40 in	(45 + 2.3L) μ in	Gage blocks
Height Gages ³	Up to 40 in	460 μ in	Gage blocks
Granite Surface Plate ³ – Flatness Repeat Reading	Up to 96 in x 120 in Up to 0.0005 in	(13 + 0.4Di) μ in + Closure Error 19 μ in	HeNe laser Repeat-o-meter
Optical Flats, Measuring Anvils	Up to 6 in	2.6 μ in	Monochromatic light and optical flat comparison

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Cylindrical Squares, Steel and Granite Squares – Fixed Point	18 in	(58 + 1.4L) μin	Master square comparison
Sine Bars – Parallelism Flatness Dowel Distance	Up to 21 in	93 μin 92 μin (64 + 3.8L) μin	Gage blocks Electronic amplifier
High Resolution Micrometer Heads	Up to 2 in	16 μin	Horizontal ULM
Cylindrical Gages – Outside Diameter Outside Diameter Inside Diameter (Plain Ring Gages)	Up to 20 in Up to 4 in (0.04 to 1.2) in (>1.2 to 9) in	(20 + 1.4L) μin 33 μin 36 μin (31 + 4.7D) μin	Horizontal ULM, mechanical comparison THV calibrator Horizontal ULM, mechanical comparison
Feeler/Thickness Gages	Up to 4 in Up to 20 in	33 μin (20 + 1.4L) μin	THV calibrator Horizontal ULM, mechanical comparison
Sphere Diameter	Up to 3 in	(20 + 1.4L) μin	Horizontal ULM, mechanical comparison
Length Standards	Up to 4 in Up to 20 in Up to 50 in	33 μin (20 + 1.4L) μin (57 + 4.2L) μin	THV calibrator Horizontal ULM, mechanical comparison Surface plate and gage blocks



Parameter/Equipment	Range	CMC ^{2, 4} (\pm)	Comments
Parallels	Up to 6 in	$(57 + 4.2L) \mu\text{in}$	Surface plate and gage blocks
Riser Blocks	Up to 50 in	$(57 + 4.2L) \mu\text{in}$	Surface plate and gage blocks
Optical Comparators ³ – XY Linears	Up to 6 in	180 μin	Glass masters
Magnification	10x to 100x	870 μin	Glass masters and gage balls

¹ This laboratory offers commercial 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 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 nominal length of the device in inches; D is the diameter of the device in inches; Di is the diagonal length of the device in inches; R is resolution of the device in inches.

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





Accredited Laboratory

A2LA has accredited

QUALITY CONTROL SALES AND SERVICES, INC.

Indianapolis, IN

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 19th day of October 2020.

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

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1498.01
Valid to July 31, 2022

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



*Joint ISO-ILAC-IAF
Communique on the
Management Systems Requirements of ISO/IEC 17025,
General Requirements for the competence of testing and
calibration laboratories*

*A laboratory's fulfillment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid test results and calibrations. The **management system requirements** in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.*

A handwritten signature in black ink, appearing to read "K. Madri".

ISO Acting Secretary General

A handwritten signature in black ink, appearing to read "Mehdi Elalougi & Nilsson".

ILAC Chair

A handwritten signature in black ink, appearing to be in Chinese characters.

IAF Chair