



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

QUALITY CONTROL SALES AND SERVICES, INC.  
5803 West 73<sup>rd</sup> Street  
Indianapolis, IN 46278-1743  
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CALIBRATION

Valid To: July 31, 2020

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<sup>1</sup>:

I. Dimensional

Parameter/Equipment	Range	CMC <sup>2,4</sup> (±)	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
Thread Wires	(80 to 2) TPI	14 μin	Horizontal ULM

Parameter/Equipment	Range	CMC <sup>2,4</sup> ( $\pm$ )	Comments
Indicators – Standard and Dial Bore Gages <sup>3</sup> Electronic Indicators	Up to 4 in Up to 3 in	(41 + 0.6R) $\mu$ in (14 + 0.6R) $\mu$ in	Indicator calibrator Horizontal ULM
Calipers <sup>3</sup>	Up to 72 in	(490 + 20L) $\mu$ in	Gage blocks
Micrometers – Depth <sup>3</sup> Inside <sup>3</sup> Outside <sup>3</sup> Heads <sup>3</sup> Vee	Up to 12 in (1.5 to 40) in Up to 36 in Up to 2 in Up to 1.5 in	220 $\mu$ in (240 + 10L) $\mu$ in (80 + 17L) $\mu$ in (80 + 17L) $\mu$ in (80 + 17L) $\mu$ in	Gage blocks   Pins and balls
Height Masters and Caliper Checkers	Up to 40 in	(45 + 2.3L) $\mu$ in	Gage blocks
Height Gages <sup>3</sup>	Up to 40 in	460 $\mu$ in	Gage blocks
Granite Surface Plate <sup>3</sup> – Flatness Repeat Reading	Up to 96 in x 120 in Up to 0.0005 in	(13 + 0.4Di) $\mu$ in + Closure Error 19 $\mu$ in	HeNe laser Repeat-o-meter
Optical Flats, Measuring Anvils	Up to 6 in	2.6 $\mu$ in	Monochromatic light and optical flat comparison
Cylindrical Squares, Steel and Granite Squares – Fixed Point	18 in	(58 + 1.4L) $\mu$ in	Master square comparison

Parameter/Equipment	Range	CMC <sup>2, 4</sup> (±)	Comments
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 <sup>2, 4</sup> ( $\pm$ )	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 <sup>3</sup> – XY Linears Magnification	Up to 6 in 10x to 100x	180 $\mu\text{in}$ 380 $\mu\text{in}$	Glass masters Glass masters and gage balls

<sup>1</sup> This laboratory offers commercial and field calibration services.

<sup>2</sup> 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.

<sup>3</sup> 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.

<sup>4</sup> 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.



## *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 17025:2005 *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 10<sup>th</sup> day of October 2018.

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

President and CEO  
For the Accreditation Council  
Certificate Number 1498.01  
Valid to July 31, 2020

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