



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

QUALITY CONTROL SALES AND SERVICES, INC.
 5803 West 73rd Street
 Indianapolis, IN 46278-1743
 David A. Kerr Phone: 317 299 8855

CALIBRATION

Valid To: July 31, 2012

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 calibrations¹:

I. Dimensional

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Gage Blocks – Steel	Up to 4 in (>4 to 20) in	(3.3 + 1L) µin (22 + 1.4L) µin	Gage block comparator Horizontal metroscope
Chromium Carbide, Tungsten Carbide and Ceramic	Up to 4 in	(3.3 + 0.7L) µin	Gage block comparator
Thread Plugs – Pitch Diameter Major Diameter	(80 to 2) TPI Up to 6 in	61 µin (20 + 1.4L) µin	Three wire method, Horizontal metroscope
Pipe Thread Plugs – Pitch Diameter Steps	([1/16 to 27] to [2 1/2 to 8]) TPI Up to 6 in	99 µin (57 + 4.2L) µin	Three wire method Gage blocks
Thread Wires	(80 to 2) TPI	14 µin	Horizontal metroscope

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Parameter/Equipment	Range	CMC ^{2,4} (\pm)	Comments
Indicators – Standard and Dial Bore Gages ³ Special	Up to 1 in Up to 4 in	$(57 + 0.2R) \mu\text{in}$ $(14 + 0.1R) \mu\text{in}$	Indicator calibrator, horizontal metroscope
Calipers ³	Up to 72 in	$(490 + 20L) \mu\text{in}$	Gage blocks
Micrometers – Depth ³ Inside ³ Outside ³ Heads ³ Vee	Up to 12 in (1.5 to 40) in Up to 12 in Up to 2 in Up to 1.5 in	220 μin $(240 + 10L) \mu\text{in}$ $(80 + 17L) \mu\text{in}$ $(80 + 17L) \mu\text{in}$ $(80 + 17L) \mu\text{in}$	Gage blocks Pins and balls
Height Masters	Up to 40 in	$(45 + 2.3L) \mu\text{in}$	Gage blocks
Height Gages ³	Up to 40 in	460 μin	Gage blocks
Granite Surface Plate ³ – Flatness Repeat Reading	Up to 96 in x 120 in Up to 0.0005 in	$(13 + 0.4Di) \mu\text{in} +$ Closure Error 19 μin	HeNe laser Repeat-o-meter
Optical Flats, Measuring Anvils	Up to 6 in	2.6 μin	Monochromatic light and optical flat comparison
Cylindrical Squares, Steel and Granite Squares – Fixed Point	18 in	$(58 + 1.4L) \mu\text{in}$	Master square comparison

Parameter/Equipment	Range	CMC ^{2,4} (±)	Comments
Sine Bars – Dowel Diameter Dowel Parallelism Surface Flatness Dowel Distance Between Centers	Up to 21 in	23 μin 93 μin 92 μin (64 + 3.8L) μin (64 + 3.8L) μin	Horizontal metroscope Gage blocks
Height Resolution Micrometer Heads	Up to 2 in	16 μin	Horizontal metroscope
Length and Diameter of Specialty Gages	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 metroscope, mechanical comparison Surface plate and gage blocks
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 metroscope, mechanical comparison THV calibrator Horizontal metroscope, mechanical comparison
Feeler/Thickness Gages	Up to 4 in Up to 20 in	33 μin (20 + 1.4L) μin	THV calibrator Horizontal metroscope, mechanical comparison
Sphere Diameter	Up to 3 in	(20 + 1.4L) μin	Horizontal metroscope, mechanical comparison

Parameter/Equipment	Range	CMC ^{2,4} (\pm)	Comments
Length Standards	Up to 4 in	33 μ in	THV calibrator
	Up to 20 in	(20 + 1.4L) μ in	Horizontal microscope, mechanical comparison
	Up to 50 in	(57 + 4.2L) μ in	Surface plate and gage blocks
Parallels	Up to 6 in	(57 + 4.2L) μ in	Surface plate and gage blocks
Riser Blocks	Up to 50 in	(57 + 4.2L) μ in	Surface plate and gage blocks
Optical Comparators ³ –			
XY Linears	(0 to 6) in	180 μ in	Glass masters
Magnification	5x to 100x	2400 μ in	Glass masters and gage balls

¹ This laboratory offers commercial and field calibration services.

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. Calibration and Measurement Capabilities 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.



World Class Accreditation

The American Association for Laboratory Accreditation

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 any additional program requirements in the field of calibration. 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 16th day of September 2010.





Peter Meyer

President & CEO
For the Accreditation Council
Certificate Number 1498.01
Valid to July 31, 2012

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