



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

TRI-STATE INSTRUMENT SERVICE, INC.
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CALIBRATION

Valid To: June 30, 2028

Certificate Number: 1622.01

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the organization's compliance with R205 – A2LA's Calibration Program Requirements), accreditation is granted to this laboratory to perform the following dimensional calibrations^{1, 6}:

I. Dimensional

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Bench Micrometers ³	Up to 4 in	20 µin	Gage blocks
Bench Micrometers Less Than 20 µin Res ³	Up to 4 in	(6 + 0.5L) µin	Gage blocks
Bore Gages – Internal Diameter (Hole Test – 3 Point)	Up to 0.1 in travel (0.0625 to 8) in	35 µin (35 + 2D) µin	Micrometer heads & custom fixture Ring gages
Dial Indicator – Calibrator & Micrometer Heads	Up to 1 in Up to 2 in	5.4 µin (10) µin	Heidenhain CT-2501 Heidenhain CT-6001
Calipers – Dial & Digital ³	(0.01 to 12) in (12 to 48) in	330 µin (330 + 6.0L) µin	Gage blocks Mic standards
Chamfer Check ³	(0.02 to 2) in	500 µin	Special ring gages

Parameter/Equipment	Range	CMC ^{2, 4} ($\pm$)	Comments
Height Gages – High Resolution LH-600 Type	Up to 24 in (24 to 40) in 24 in w/ ≤ 0.001 in resolution Up to 39 in < 0.0001 in resolution	(130 + 2.5L) μ in (170 + 2.5L) μ in (25 + 2.0L) μ in (13 + 1.0L) μ in	Webber bar & high- resolution height gage
Height Masters, Digi-Checks, Hite-Indicator	Up to 24 in	(14 + 2.0L) μ in	Webber bar & high- resolution height gage
Indicators ³ – Dial & Digital Test	< 0.1 in (0.1 to 1) in (1 to 2) in (2 to 4) in (0.001, 0.0005, 0.0001) in (0.01, 0.005, 0.001) mm	5 μ in 10 μ in 24 μ in (40 + 17L) μ in 10 μ in 0.0003 mm	Heidenhain Micrometer heads & custom fixture
Micrometers – Outside – Spindle Only ³ Depth ³ Inside Thread V-Anvil	Up to 40 in (41 to 60) in Up to 12 in (0.25 to 24) in Up to 2 in (0.09 to 4) in	(33 + 2.0L) μ in (75 + 2.0L) μ in (150 + 8.0L) μ in (150 + 1.5L) μ in 75 μ in 100 μ in	Gage blocks & micrometer standards Gage blocks CMM or LH-600 Thread plugs CMM & pin gages
Calibration Masters – Mikemaster Outside Diameter Kalmaster Depth Master	Up to 3 in (0.5 to 12) in Up to 12 in Up to 12 in	15 μ in (20 + 3.2D) μ in (25 + 1.5L) μ in (25 + 1.5L) μ in	THV ULM LH-600 & Webber bar LH-600 & Webber bar

Parameter/Equipment	Range	CMC ^{2,4} ($\pm$)	Comments
Levels – Electronic Levels	Up to 15 in length Up to 100 arcsec	100 μ in/ft 1.3 arcsec	Special level checker
Standards – Micrometer Thread Micrometer	Up to 24 in (> 24 to 60) in Up to 4 in	(15 + 5L) μ in (40 + 2.5L) μ in (40 + 3L) μ in	ULM LH-600 & Webber bar ULM
Squares –	Up to 30 in	(120 + 15L) μ in	CMM
Sine Bars, Up to 10 in – Angle Parallelism Flatness	Up to 45°	0.000 85° 25 μ in 25 μ in	CMM
Surface Finish	Up to 1000 Ra μ in patch	2.3 μ in Ra	Reference master
Surface Finish Testers – Ra Parameter Linearity Repeatability	Up to 400 Ra Up to 400 Ra Actual	2.5 μ in Ra 2.5 μ in Ra 0.6 resolution	Reference master
Optical Comparators ³ – Magnification Linear Travel Squareness	Up to 100 X Up to 12 in (12 to 20) in X to Y Axis	0.01 % magnification 240 μ in 320 μ in 100 μ in	Glass scales, length standards, angle blocks, squares

Parameter/Equipment	Range	CMC ^{2, 4} ($\pm$)	Comments
Video Measurement ³			
X, Y Axis	Up to 20 in	$(130 + 2L[95T]) \mu\text{in}$	Glass scales
Z Axis	Up to 8.0 in	$(82 + 2L[95T]) \mu\text{in}$	Gage blocks
Major Diameter –			
Pin Gages	(0.011 to 1) in	10 μin	THV
Reversible Wires	Up to 1 in	7 μin	THV
Plain Plugs	Up to 2 in (2 to 12) in	$(7 + 1D) \mu\text{in}$ $(7 + 1.5D) \mu\text{in}$	THV ULM
XX – Tolerance Plug	Up to 2 in	5 μin	THV
Inside Diameter – Ring Gages	(0.04 to 4) in (4 to 12) in	$(7 + 0.5D) \mu\text{in}$ $(7 + 1.5D) \mu\text{in}$	Diamet, P&W internal ULM
Rules –			
Steel	Up to 48 in (> 48 to 120) in	$(120 + 2L) \mu\text{in}$ $(200 + 2L) \mu\text{in}$	CMM & video system
Glass	Up to 24 in	$(20 + 2L) \mu\text{in}$	
Thread Gages –			
Standard Work & Set Plugs – Pitch Diameter	Up to 4 in Above (6 to 8) in	$(45 + 2D) \mu\text{in}$ $(60 + 2D) \mu\text{in}$	Custom bench micrometer, thread wires
Adjustable Ring Gages	(0.04 to 8) in	130 μin	Set plugs
Adjustable & Solid Ring Gage – Pitch Diameter	(0.5 to 8) in	$(60 + 1D) \mu\text{in}$	2 Point P.D. ULM
Surface Plates ³ –			
Flatness Grade AA, A, & B	(10 to 108) in Diagonal	$(29 + 1D) \mu\text{in}$	Electronic level system
Repeatability	Up to 0.0025 in	20 μin	Repeat-o-meter

Parameter/Equipment	Range	CMC ^{2, 4} (±)	Comments
Spheres & Precision Balls	Up to 4 in	(5 + 1D) μin	THV/ULM
Optical Parallels – Parallelism Length – Thickness	Up to 1 in Thick	5 μin	Heidenhain
Flatness – Parallels	Up to 4 in Diameter	5 μin	Three optical flat method Comparison to master
Optical Flats	Up to 4 in Diameter	5 μin	
Length – Between Two Planes; Step Length	(0.01 to 1.5) in	20 μin	Heidenhain
Plain Tapered Plugs – External Diameter			
0.75 TPF	(0.01 to 4) in	49 μin	Custom bench micrometer & rolls
All Tapers	(0.01 to 8) in	25 μin	Standard measuring machine, gage block & rolls
Plain Tapered Rings – Internal Diameter			
0.75 TPF	(0.04 to 4) in	71 μin	CMM
All Tapers	(0.04 to 8) in	81 μin	
External Tapered Thread Plug			
Pitch Diameter	(0.047 to 4) in	72 μin	Custom bench micrometer
Major Diameter	(0.1 to 4) in	44 μin	
Internal Tapered Thread Plug			
Pitch Diameter	(0.06 to 4) in	91 μin	Tapered master plug & Heidenhain (stand-off method)

Parameter/Equipment	Range	CMC ^{2, 4} ($\pm$)	Comments
Master Thread Wire Inch Metric	Up to 0.25 in Up to 6.0 mm	4.2 μ in 0.11 μ m	ULM & rolls
Thread Wires Inch Metric	(4 to 120) TPI (0.2 to 10) Pitch	5.2 μ in 0.13 μ m	Master wire & THV
Gage Block	Up to 4 in Above (4 to 20) in	(2.4 + 0.5L) μ in (3.0 + 1.0L) μ in	CT-6001 Heidenhain w/ master gage blocks
Geometry ⁵ – Length: 1D 2D 3D Angles Diameter/Radius Straightness	 Up to 28 in 20 in x 38 in 20 in x 28 in x 16 in Up to 360° Up to 12 in Up to 50 in	 (30 + 4L) μ in (40 + 4L) μ in (40 + 4L) μ in 15 sec (40 + 4L) μ in 50 μ in per 12 in	Various measuring devices including but not limited to: Video, CMM, height gage, gage blocks, ULM, THV, optical comparators, masters, etc.
Radius Gages	Up to 2 in	150 μ in	Optical/video comparator

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. 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 in inches; D is the nominal diameter in inches; T is the temperature deviation from 68 °F expressed in |inches| (82 +2L {0.95} T) μin; Example: 2.0 in @ 70 °F = (82 μin + 7.6 μin) or 89.6 μin.

⁵ For Geometry measurements the best CMC may vary depending upon the type of measuring equipment utilized.

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



Accredited Laboratory

A2LA has accredited

TRI-STATE INSTRUMENT SERVICE, INC.

Ft. Wayne, 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 28th day of July 2026.

A blue ink signature of Mr. Trace McInturff, written in a cursive style.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1622.01
Valid to June 30, 2028

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