



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ALPHA TECHNOLOGIES SERVICES, LLC  
 6279 Hudson Crossing Suite 200  
 Hudson, OH 44236  
 Bob White Phone: 330 848 7237

CALIBRATION

Valid To: May 31, 2025

Certificate Number: 2017.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory at the location listed above as well as the satellite laboratory location listed below to perform the following calibrations<sup>1,8</sup>:

I. Dimensional

Parameter/Equipment	Range	CMC <sup>2,4</sup> (±)	Comments
Indicators <sup>3</sup> – Analog Digital	Up to 40 mm Up to 40 mm	(0.0051 + 0.6R) mm (0.0035 + 0.6R) mm	ASTM D3767 with gage blocks
Bore Diameter <sup>3</sup>	Up to 12.7 mm	0.0039 mm	ASTM D5099, D1238, D3835 with borescope & master ring
Orifice <sup>3</sup> – Bore Diameter Length	(0.254 to 3.175) mm Up to 50.8 mm	0.0016 mm 0.0029 mm	ASTM D1238, D3835, D5099 with pin gage & micrometer
Piston Tip <sup>3</sup> – Outside Diameter Linear Length	Up to 12.7 mm Up to 19 mm	0.0016 mm 0.0016 mm	ASTM D1238, D3835 with micrometers

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Thickness Gauge	Up to 3 mm	0.0016 mm	Certified gage blocks
Length Standards <sup>3,5</sup>	Up to 50 mm	0.03 mm	Indicator with stand
Outside Diameter <sup>3,6</sup>	(0.1 to 25) mm	0.0059 mm	ASTM D3767 with micrometer
Angle <sup>3</sup>	(0 to 60)°	0.0025°	Rotary encoder measuring device

## II. Mechanical

Parameter/Equipment	Range	CMC <sup>2,4</sup> (±)	Comments
Torque – Static	(0 to 50) lbf·in (50 to 130) lbf·in	0.088 lbf·in 0.088 lbf·in	Dead weights & torque arm
Dynamic <sup>3</sup>	(0 to 50) lbf·in (50 to 130) lbf·in	0.16 lbf·in 0.17 lbf·in	Torque standard
Torque Wrenches	Up to 200 lbf·in	0.51 lbf·in	Torque wrench tester
Mass	(0.1 to 10) g (> 10 to 220) g (> 220 to 500) g (> 500 to 1000) g (> 1 to 20) kg	0.0020 g 0.025 g 0.12 g 0.12 g 0.18 g	ASTM D1238, single substitution
Density Specific Gravity	(1.04 to 2.0) g/cm <sup>3</sup> (1.04 to 2.0)	0.002 g/cm <sup>3</sup> 0.002	Precision balance in air & in water
Density/Specific Gravity Testers <sup>3</sup>	(1.04 to 2.0) (1.04 to 2.0)	0.002 + 0.6R 0.002 + 0.6R	ASTM D792

Parameter/Equipment	Range	CMC <sup>2, 4, 9</sup> ( $\pm$ )	Comments
Force & Materials Testing Machines <sup>3</sup> –			
Force – Tension & Compression Transducers	(0 to 22) lbf	0.11 % + 0.6R	ASTM E4 using deadweights
	(0 to 50) lbf	0.11 % + 0.6R	ASTM E4 using load cells
	(51 to 500) lbf	0.11 % + 0.6R	
	(500 to 5000) lbf	0.11 % + 0.6R	
Extensometer	(0 to 400) mm	0.45 mm	ASTM E83, calibrated bar
Gage Length	(0 to 100) mm	0.024 mm	ASTM E83 using caliper
Crosshead Dwell Time	(0 to 10) min	0.23 s	Digital stopwatch
Crosshead Distance	(0 to 400) mm	0.07 mm	Digital position kit
Crosshead Rate	(0.03 to 600) mm/min	0.051 %	Digital speed/position kit
Scales & Balances <sup>3</sup>	(0.1 to 10) g (> 10 to 220) g (> 220 to 500) g (> 500 to 1000) g (> 1 to 20) kg	(0.14 + 0.6R) g (0.15 + 0.6R) g (0.52 + 0.6R) g (1.0 + 0.6R) g (5.0 + 0.6R) g	Standard masses

#### IV. Thermodynamics

Parameter/Equipment	Range	CMC <sup>2, 7</sup> ( $\pm$ )	Comments
Temperature –			
Temperature Measure <sup>3</sup>	(55 to 0) °C (0 to 250) °C	0.28 °C 0.088 °C	ASTM D1646, D2084, D5289, D6204, D6601 with temperature probe & meter

Parameter/Equipment	Range	CMC <sup>2,7</sup> (±)	Comments
Temperature – (cont)			
Temperature Meters	(0 to 200) °C	0.061 °C	ITS 90, oil bath with SPRT & digital readout
Barrel Temperature <sup>3</sup>	(15 to 425) °C	0.081 °C	ASTM D1238, D3835, with Hart digital PRT

V. Time & Frequency

Parameter/Equipment	Range	CMC <sup>2,7</sup> (±)	Comments
Dwell Time	(0 to 24) hours	0.23 s	ASTM D1646, D2084, D5289, D6204, D6601 with digital stopwatch

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CALIBRATION

I. Mechanical

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Torque – Dynamic <sup>3</sup>	(0 to 50) lbf·in (50 to 130) lbf·in	0.16 lbf·in 0.17 lbf·in	Torque standard
Torque Wrenches	Up to 200 lbf·in	1.5 lbf·in	Torque wrench tester

<sup>1</sup> This laboratory offers commercial calibration and dimensional testing services and field calibration and dimensional testing services where noted.

<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. 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,  $R$  is the numerical value of the resolution of the device.

<sup>5</sup> This laboratory meets R205 – *Specific Requirements: Calibration Laboratory Accreditation Program* for the types of dimensional tests listed above and is considered equivalent to that of a calibration certificate.

<sup>6</sup> This test is not equivalent to a calibration.

<sup>7</sup> 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.

<sup>8</sup> This scope meets A2LA's *P112 Flexible Scope Policy*.

<sup>9</sup> In the statement of CMC, percentages are percentages of reading, unless otherwise indicated.



# Accredited Laboratory

A2LA has accredited

## ALPHA TECHNOLOGIES SERVICES, LLC

*Hudson, OH*

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 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 18<sup>th</sup> day of May 2023.

A blue ink signature of Mr. Trace McInturff.

Mr. Trace McInturff, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 2017.01  
Valid to May 31, 2025

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