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

ACCREDITED LABS DBA CAL-CERT COMPANY
120 South Chaparral Court, Suite 110
Anaheim Hills, CA 92808
Brett Bohannon Phone: 208 860 3981

CALIBRATION

Valid To: November 30, 2026 Certificate Number: 4986.02

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 calibrations[1, 8]:

I. Chemical

Parameter/Equipment	Range	CMC[2] (±)	Comments
Conductivity Meters[3]	98.80 µS/cm 9.21 µS/cm	2.3 µS/cm 0.57 µS/cm	CP-024 conductivity standards

II. Construction Material Laboratory Equipment

Parameter/Equipment	Range	CMC[2] (±)	Comments
CBR Mold & Spacer[3] –			
Dimensions	Up to 8 in	650 µin	ASTM D1883
Volume	Up to 184 in^3	0.13 in^3	
Conical Mold & Tamper[3] –			
Dimensions	Up to 3.5 in	650 µin	ASTM C128
Weight	Up to 340 g	0.13 g	

5202 Presidents Court, Suite 220 | Frederick, MD 21703-8515 | Phone: 301 644 3248 | Fax: 240 454 9449 | www.A2LA.org

Parameter/Equipment	Range	CMC[2] (±)	Comments
Compactor Marshall & Proctor[3] –			
Height of Drop	Up to 18 in	0.002 in	ASTM D6926, ASTM D698, ASTM D1557, ASTM D1883
Weight	Up to 10 lbs	0.016 lbs	
Rammer Diameter	Up to 4 in	650 µin	
LA Abrasion Machine[3] –			
Inside Diameter	Up to 28 in	800 µin	ASTM C131, ASTM C535
Inside Length	Up to 20 in	400 µin	
Average Dia. of Charge	Up to 1.85 in	650 µin	
Average Mass of Charge	Up to 455 g	0.13 g	
Rotation Per Minute	Up to 33 rpm	0.08 rpm	
Liquid Limit Device & Groover[3] –			
Dimensions	Up to 150 mm	0.02 mm	ASTM D4318
Weight of Cup & Hanger	Up to 215 g	0.13 g	
Molds Cylinder[3] –			
Height	Up to 12 in	650 µin	ASTM C470
Diameter	Up to 6 in	650 µin	
Molds Marshall[3] –			
Dimensions	Up to 4 in	650 µin	ASTM D6926

Parameter/Equipment	Range	CMC[2, 7] (±)	Comments
Molds Mortar Cubes[3] –			
Dimensions	Up to 2 in	650 µin	ASTM C109
Molds Proctor[3] –			
Volume	Up to 3000 ml	0.01 %	ASTM D698, ASTM D1557
Dimensions	Up to 5.9 in	650 µin	
Graduated Cylinder[3] –			
Volume	Up to 0.1 ft^3	0.01 %	ASTM E542
Slump Cone & Tamping Rod[3] –			
Cone Diameter	Up to 8 in	650 µin	ASTM C143
Cone Height	Up to 12 in	650 µin	
Cone Thickness	Up to 0.12 in	650 µin	
Rod Diameter	Up to 0.63 in	650 µin	
Rod Length	Up to 24 in	Up to 24 in	
Concrete Air Meter (Pressure Method)[3]	Up to 10 of Air in Concrete	0.82 %	ASTM C231

III. Dimensional

Parameter/Equipment	Range	CMC[2, 6, 7] (±)	Comments
Calipers[3] –	Up to 60 in	$0.6R + (16L + 4.1)$ µin	CP-008, gage blocks
Micrometers – External[3]	Up to 48 in	$0.6R + (3L + 10)$ µin	CP-010, gage blocks

Parameter/Equipment	Range	CMC[2, 6, 7] (±)	Comments
Dial Indicator – Mechanical/Electronic[3]	Up to 6 in	0.6*R* + (*L* + 33) µin	CP-009, gage blocks
Extensometers[3]	Up to 1 in	29 µin/inch	CP-007, linear calibrator
Extensometers (ISO 9513)[3]	Up to 50.8 mm (2 in.)	0.03 %	CP-139, Class .05 linear calibrator
Strain Rate Gages[3]	(0.01 to 1) in/min	0.17 %	CP-143, ASTM E2309, E2658
Depth Gage[3]	Up to 8 in	0.6*R* + (16*L* + 4.1) µin	CP-115, gage blocks
Ring Gage	Up to 6 in	(11*L* + 22) µin	CP-115, comparator with gage blocks
Plug Gages	Up to 4 in	(13*L* + 46) µin	CP-115, gage blocks & comparator
Pin Gages	Up to 4 in	(13*L* + 46) µin	CP-115, super mic, gage blocks
Thread Plug Gages Pitch Diameter	Up to 4 in	98 µin	CP-115, super mic, gage blocks
Micrometer Standards	Up to 6 in (> 6 to 12) in (> 12 to 24) in (> 24 to 36) in	(15*L* + 18) µin	CP-115, height master, riser blocks, gage blocks, & electronic pick-up
Electronic Indicators	0.25 in	0.6*R* + 6 µin	CP-115, gage blocks

Parameter/Equipment	Range	CMC[2, 6, 9] (±)	Comments
Height Gages[3]	Up to 40 in	0.6*R* + (8*L* + 220) µin	CP-115, end standards & electronic pick-up with µ-checker
Rulers[3]	Up to 84 in	(62*L* + 56) µin	CP-115, gage blocks
Tape Measures[3]	Up to 100 ft	0.6*R* + (62*L* + 81) µin	CP-115, standard rule, gage blocks
Riser Blocks	Up to 12 in	(8.4*L* + 150) µin	CP-115, gage blocks & µ-checker
Microscope[3]	X to Y Range: (6 x 4) in 0.0001 in Resolution	1600 µin	CP-115, gage blocks & image reticles
Super Micrometer[3]	Up to 1 in	7 µin	CP-115, gage blocks
Precision Levels	Up to 12 in	0.000 42 in/10 in	CP-115, sine bar, surface plate, gage blocks
Protractor	(0 to 340)°	0.013°	CP-115, angle gage blocks
Displacement Measurement[3] – (Feeler Gages, Film Thickness, Etc.)	Up to 24 in	(15*L* + 18) µin	CP-115

IV. Dimensional Inspection

Parameter/Equipment	Range	CMC[2] (±)	Comments
1 – Dimensional Inspection[3, 4]	Up to 12 in	650 µin	CP-115, ASTM & AASHTO procedures, calipers, rulers, straight edges, & gage blocks

V. Electrical DC/Low Frequency

Parameter/Range	Frequency	CMC[2, 5] (±)	Comments
AC Current – Generate[3]			
(0.029 to 0.329 99) mA	(10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.28 % + 0.18 µA 0.15 % + 0.17 µA 0.15 % + 0.29 µA 0.46 % + 0.17 µA 1.5 % + 0.17 µA	CP-033, multifunction calibrator
(0.33 to 3.2999) mA	(10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.23 % + 0.47 µA 0.12 % + 0.4 µA 0.12 % + 0.4 µA 0.23 % + 0.4 µA 0.69 % + 0.3 µA	
(3.3 to 32.999) mA	(10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.23 % + 4 µA 0.12 % + 3.5 µA 0.11 % + 3.4 µA 0.23 % + 3.5 µA 0.7 % + 3.4 µA	
(33 to 329.99) mA	(10 to 20) Hz (20 to 45) Hz 45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.23 % + 41 µA 0.12 % + 36 µA 0.11 % + 37 µA 0.23 % + 35 µA 0.7 % + 35 µA	
(0.33 to 2.199 99) A	(10 to 20) Hz 45 Hz to 1 kHz (1 to 5) kHz	0.23 % + 350 µA 0.12 % + 350 µA 0.87 % + 350 µA	
(2.2 to 11) A	(45 to 65) Hz (65 to 500) Hz 500 Hz to 1 kHz	0.07 % + 2400 µA 0.12 % + 2400 µA 0.38 % + 2400 µA	
(11 to 550) A:			
Toroidal	(40 to 400) Hz	1.3 % + 120 mA	Fluke 5500A/coil 50 turns
Other Clamps	(40 to 400) Hz	1.5 % + 1 A	

Parameter/Range	Frequency	CMC[2, 5] (±)	Comments
AC Current – Measure[3]			
(0 to 200) µA	(1 to 10) Hz 10 Hz to 10 kHz (10 to 30) kHz (30 to 100) kHz	0.017 % + 46 nA 0.029 % + 26 nA 0.065 % + 25 nA 0.44 % + 24 nA	CP-033, Fluke 8508A
(0.200 to 200) mA	(1 to 10) Hz 10 Hz to 10 kHz (10 to 30) kHz (30 to 100) kHz	0.015 % + 47 nA 0.029 % + 26 nA 0.065 % + 25 nA 0.44 % + 25 nA	
> 200 mA to 2 A	10 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz	0.029 % + 230 µA 0.029 % + 230 µA 0.07 % + 230 µA	
(> 2 to 20) A	10 Hz to 2 kHz (2 to 10) kHz	0.09 % + 2.3 µA 0.29 % + 2.3 mA	
(0 to 2500) A	60 Hz	0.33 % + 110 mA	Current shunt & DMM
AC Voltage – Generate[3]			
(1.0 to 32.99) mV	(10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	0.4 % + 23 µV 0.17 % + 23 µV 0.23 % + 23 µV 0.29 % + 23 µV 0.4 % + 38 µV 1.1 % + 95 µV	CP-033, multifunction calibrator
(33 to 329.999) mV	(10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	0.29 % + 58 µV 0.057 % + 25 µV 0.12 % + 24 µV 0.18 % + 47 µV 0.28 % + 200 µV 0.8 % + 380 µV	
(0.33 to 3.299 99) V	(10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 500) kHz	0.17 % + 360 µV 0.034 % + 67 µV 0.09 % + 100 µV 0.16 % + 360 µV 0.28 % + 1.9 mV 0.58 % + 3.8 mV	

Parameter/Range	Frequency	CMC[2, 5] (±)	Comments
AC Voltage – Generate[3] (cont)			
(3.3 to 32.9999) V	(10 to 45) Hz 45 Hz to 10 kHz (10 to 20) kHz (20 to 50) kHz (50 to 100) kHz	0.17 % + 650 µV 0.046 % + 0.8 mV 0.09 % + 3.1 mV 0.22 % + 5.9 mV 0.28 % + 20 mV	CP-033, multifunction calibrator
(33 to 329.999) V	45 Hz to 1 kHz (1 to 10) kHz (10 to 20) kHz	0.06 % + 1.4 mV 0.09 % + 1.4 mV 0.1 % + 1.1 mV	
(330 to 1020) V	45 Hz to 1 kHz (1 to 5) kHz (5 to 10) kHz	0.06 % + 180 µV 0.23 % + 130 µV 0.23 % + 640 µV	
AC Voltage – Measure[3]			
(0 to 200) mV	(1 to 10) Hz (10 to 40) Hz (40 to 100) Hz 100 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz	0.014 % + 17 µV 0.014 % + 5 µV 0.012 % + 4.6 µV 0.012 % + 2.3 µV 0.012 % + 5 µV 0.04 % + 9.3 µV 0.08 % + 23 µV	CP-033, Fluke 8508A
> 200 mV to 200 V	(1 to 10) Hz (10 to 40) Hz (40 to 100) Hz 100 Hz to 2 kHz (2 to 10) kHz (10 to 30) kHz (30 to 100) kHz (100 to 300) kHz 300 kHz to 1 MHz	0.012 % + 14 µV 0.012 % + 2.3 µV 0.01 % + 2.3 µV 0.007 % + 2.3 µV 0.009 % + 2.3 µV 0.023 % + 4.6 µV 0.06 % + 23 µV 0.35 % + 230 µV 1.2 % + 2.3 mV	
(> 200 to 1050) V	(1 to 10) Hz (10 to 40) Hz 40 Hz to 10 kHz (10 to 30) kHz (30 to 100) kHz	0.012 % + 60 mV 0.012 % + 17 mV 0.009 % + 17 mV 0.023 % + 35 mV 0.058 % + 170 mV	
(> 1 to 20) kV	(20 to 100) Hz	0.05 % + 5 V	Precision HV meter

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
Capacitance – Generate[3]	(0.33 to 0.4999) nF (0.5 to 1.0999) nF (1.1 to 3.2999) nF (3.3 to 10.999) nF (11 to 32.999) nF (33 to 109.99) nF (110 to 329.99) nF (0.33 to 1.0999) µF (1.1 to 3.2999) µF (3.3 to 10.999) µF (11 to 32.999) µF (33 to 109.99) µF (110 to 329.99) µF (330 to 1.1) mF	0.56 % + 12 pF 0.57 % + 12 pF 0.58 % + 12 pF 0.56 % + 15 pF 0.29 % + 120 pF 0.29 % + 120 pF 0.29 % + 350 pF 0.29 % + 1.2 nF 0.4 % + 3.5 nF 0.4 % + 12 nF 0.46 % + 35 nF 0.58 % + 120 nF 0.81 % + 350 nF 1.2 % + 350 nF	CP-033, standard capacitor, decade capacitor Multifunction calibrator
DC Current – Generate[3]	0 to 3.299 99) mA (3.3 to 32.9999) mA (33 to 329.999) mA 330 mA to 2.199 99 A (2.2 to 11) A (11 to 16.5) A (16.5 to 150) A (150 to 500) A	0.013 % + 0.5 µA 0.01 % + 0.2 µA 0.01 % + 3.4 µA 0.03 % + 60 µA 0.05 % + 0.5 mA 0.29 % + 2.3 mA 0.29 % + 17 mA 0.29 % + 58 mA	CP-033, multifunction calibrator Fluke 5500A/coil 50 turns
DC Current – Measure[3]	(0 to 2) mA (> 2 to 20) mA (> 20 to 200) mA > 200 mA to 2 A (> 2 to 20) A (0 to 2500) A	6.5 µA/A + 0.4nA 6.5 µA/A + 4 nA 8 µA/A + 40 nA 170 µA/A + 16 µA 370 µA/A + 600 µA 430 µA/A + 680 µA	CP-033, Fluke 8508A Current shunt & DMM
DC Voltage – Generate[3]	(0 to 329.9999) mV 330 mV to 3.299 999 V (3.3 to 32.999 99) V (33 to 329.9999) V (100 to 1020) V	60 µV/V + 3 µV 50 µV/V + 5 µV 50 µV/V + 50 µV 55 µV/V + 500 µV 55 µV/V + 1.5 mV	CP-033, multifunction calibrator

Parameter/Equipment	Range	CMC[2, 5] (±)	Comments
DC Voltage – Measure[3]	(0 to 200) mV > 200 mV to 2 V (> 2 to 20) V (> 20 to 200) V (> 200 to 1000) V (20 to 20 000) V	2.7 µV/V + 100 nV 2.7 µV + 0.4µV 2.7 µV + 4 µV 4 µV + 40 µV 4 µV + 0.5 mV 0.024 % + 39 mV	CP-033, Fluke 8508A Precision HV meter
Resistance – Generate[3]	(0 to 10.99) Ω (11 to 32.999) Ω (33 to 109.999) Ω (110 to 329.999) Ω 330 Ω to 1.099 99 kΩ (1.1 to 3.299 99) kΩ (3.3 to 10.9999) kΩ (11 to 32.9999) kΩ (33 to 109.999) kΩ (110 to 329.999) kΩ 330 kΩ to 1.099 99 MΩ (1.1 to 3.299 99) MΩ (3.3 to 10.9999) MΩ (11 to 32.9999) MΩ (33 to 109.999) MΩ (110 to 330) MΩ	0.014 % + 0.009 Ω 0.14 % + 0.017 Ω 0.01 % + 0.017 Ω 0.01 % + 0.017 Ω 0.01 % + 0.07 Ω 0.004 % + 0.6 Ω 0.009 % + 0.9 Ω 0.01 % + 0.8 Ω 0.013 % + 7 Ω 0.014 % + 7 Ω 0.017 % + 64 Ω 0.009 % + 610 Ω 0.069 % + 730 Ω 0.12 % + 660 Ω 0.58 % + 6.4 kΩ 0.58 % + 20 kΩ	CP-033, multifunction calibrator
Resistance – Measure[3]	(0 to 2) Ω (> 2 to 20) Ω (> 20 to 200) Ω > 200 Ω to 2 kΩ (> 2 to 20) kΩ (> 20 to 200) kΩ > 200 kΩ to 2 MΩ (> 2 to 20) MΩ (> 20 to 200) MΩ > 200 MΩ to 2 GΩ (> 2 to 20) GΩ	2 µΩ/Ω + 96 µΩ 5 µΩ/Ω + 120 µΩ 6.7 µΩ/Ω + 390 µΩ 6 µΩ/Ω + 790 µΩ 8 µΩ/Ω + 5.8 mΩ 8.1 µΩ/Ω + 58 mΩ 8 µΩ/Ω + 580 mΩ 8.1 µΩ/Ω + 1.2 kΩ 10 µΩ/Ω + 120 Ω 35 µΩ/Ω + 120 kΩ 35 µΩ/Ω + 1.2 MΩ	CP-033, Fluke 8508A

Parameter/Equipment	Range	CMC[2] (±)	Comments
Electrical Simulation of Thermocouples[3] –			
Type B	(600 to 800) °C (800 to 1000) °C (1000 to 1550) °C (1550 to 1800) °C	0.77 °C 0.72 °C 0.70 °C 0.71 °C	CP-013, 5500A multifunction calibrator
Type C	(0 to 150) °C (150 to 650) °C (650 to 1000) °C (1000 to 1800) °C (1800 to 2316) °C	0.32 °C 0.27 °C 0.32 °C 0.50 °C 0.84 °C	
Type E	(-250 to -100) °C (-100 to -25) °C (-25 to 350) °C (350 to 650) °C (650 to 1000) °C	0.50 °C 0.18 °C 0.15 °C 0.17 °C 0.23 °C	
Type J	(-210 to -100) °C (-100 to -30) °C (-30 to 150) °C (150 to 760) °C (760 to 1200) °C	0.28 °C 0.21 °C 0.15 °C 0.19 °C 0.24 °C	
Type K	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 1000) °C (1000 to 1372) °C	0.34 °C 0.19 °C 0.17 °C 0.27 °C 0.41 °C	
Type L	(-200 to -100) °C (-100 to 800) °C (800 to 900) °C	0.43 °C 0.31 °C 0.20 °C	
Type N	(-200 to -100) °C (-100 to -25) °C (-25 to 120) °C (120 to 410) °C (410 to 1300) °C	0.40 °C 0.21 °C 0.20 °C 0.20 °C 0.28 °C	

Parameter/Equipment	Range	CMC[2] (±)	Comments
Electrical Simulation of Thermocouples[3] (cont)–			
Type R	(0 to 250) °C (250 to 400) °C (400 to 1000) °C (1000 to 1767) °C	0.85 °C 0.72 °C 0.71 °C 0.75 °C	CP-013, 5500A multifunction calibrator
Type S	(0 to 250) °C (250 to 1000) °C (1000 to 1400) °C (1400 to 1767) °C	0.55 °C 0.35 °C 0.33 °C 0.40 °C	
Type T	(-250 to -150) °C (-150 to 0) °C (0 to 120) °C (120 to 400) °C	0.64 °C 0.25 °C 0.17 °C 0.15 °C	
Electrical Simulation of RTDs[3] –			
Pt 385, 100 Ω	(-200 to 0) °C (0 to 100) °C (100 to 300) °C (300 to 630) °C (630 to 800) °C	0.07 °C 0.09 °C 0.10 °C 0.12 °C 0.25 °C	CP-013, 5500A multifunction calibrator
Pt 3926, 100 Ω	(-200 to 0) °C (0 to 300) °C (300 to 630) °C	0.11 °C 0.14 °C 0.16 °C	
Pt 3916, 100 Ω	(-200 to -190) °C (-190 to 0) °C (0 to 260) °C (260 to 600) °C (600 to 630) °C	0.25 °C 0.05 °C 0.07 °C 0.10 °C 0.23 °C	
Pt 385, 200 Ω	(-200 to 260) °C (260 to 600) °C (600 to 630) °C	0.12 °C 0.13 °C 0.15 °C	

Parameter/Equipment	Range	CMC[2] (±)	Comments
Electrical Simulation of RTDs[3] (cont)			
Pt 385, 500 Ω	(-200 to 260) °C (260 to 400) °C (400 to 630) °C	0.12 °C 0.13 °C 0.15 °C	CP-013, 5500A multifunction calibrator
Pt 385, 1000 Ω	(-200 to 260) °C (260 to 600) °C (600 to 630) °C	0.14 °C 0.15 °C 0.27 °C	
Pt Ni 385, 120 Ω	(-80 to 100) °C (100 to 260) °C	0.13 °C 0.17 °C	

VI. Fluid Quantities

Parameter/Equipment	Range	CMC[2,6] (±)	Comments
Rotational/Cups Viscometers[3]	Up to 3000 cp	0.6 % cp	CP-100, certified viscosity reference standards

VII. Mechanical

Parameter/Equipment	Range	CMC[2] (±)	Comments
Test Machine Alignment[3]	Up to 30 000 lbf Axial Load	1.1 % Bending	CP-096, ASTM E1012 strain recorder & strain gauge bars
Crosshead Speed[3]	Up to 24 inches/min	0.0026 in/min	CP-143 ASTM E2658 dial indicator, stopwatch

Parameter/Equipment	Range	CMC[2, 6, 7, 9] (±)	Comments
Crosshead Position[3]	Up to 4 in (4 to 24) in	0.000 30 in 0.000 90 in	CP-115 ASTM E2309 dial indicator height gage
Load Rate[3]	Up to 50 000 lbf/min	0.24 %	CP-143, ASTM E2309, ASTM E2658
Mass	5 kg 2 kg 1 kg 100 g 50 g 30 g 20 g 10 g 5 g 3 g 2 g 1 g 500 mg 300 mg 200 mg 100 mg 50 mg 30 mg 20 mg 10 mg 50 lb	58 mg 58 mg 1.6 mg 0.15 mg 0.07 mg 0.04 mg 0.03 mg 0.031 mg 0.023 mg 0.022 mg 0.02 mg 0.021 mg 0.013 mg 0.008 mg 0.008 mg 0.01 mg 0.021 mg 0.013 mg 0.01 mg 0.015 mg 140 mg	CP-019, analytical balance
Mass – Direct Measure[3]	Up to 34 kg	2 g	CP-019, precision balance
Precision Balances[3]	Up to 500 g 501 g to 35 kg	$0.6R + 0.000\ 14$ % $0.6R + 0.01$ %	CP-002, ultra class weights
Platform Scales[3]	Up to 50 lb (51 to 500) lb (501 to 5000) lb	$0.6R + 0.01$ %	CP-002, Class F weights

Parameter/Equipment	Range	CMC[2] (±)	Comments
Indirect Verification of Micro Hardness – Knoop[3]	(100 to 600) HK (> 600 to 1100) HK	25 HK 19 HK	CP-004, blocks
Indirect Verification of Micro Hardness – Vickers[3]	(100 to 600) HV (> 600 to 1100) HV	25 HV 19 HV	CP-004, blocks
Indirect Verification of Brinell Hardness Testers[3]	HBW (126 to 758)	7.5 HBW	CP-014 Brinell hardness blocks
Indirect Validation of Rockwell Hardness Testers[3]	HRC: Low Medium High HRA: Low Medium High HRBW: Low Medium High HR15N: Low Medium High HR30N: Low Medium High HR45N: Low Medium High	 0.54 HRC 0.48 HRC 0.48 HRC 0.26 HRA 0.24 HRA 0.20 HRA 0.36 HRBW 0.37 HRBW 0.44 HRBW 0.47 HR15N 0.29 HR15N 0.30 HR15N 0.46 HR30N 0.44 HR30N 0.32 HR30N 0.50 HR45N 0.23 HR45N 0.24 HR45N	CP-004, indirect method (ASTM E18) standard hardness test blocks

Parameter/Equipment	Range	CMC[2, 7, 9] (±)	Comments
Indirect Validation of Rockwell Hardness Testers[3] (cont)	HR15T: Low Medium High HR30T: Low Medium High HR45T: Low Medium High	 0.46 HR15T 0.40 HR15T 0.38 HR15T 0.58 HR30T 0.39 HR30T 0.40 HR30T 0.64 HR45T 0.64 HR45T 0.46 HR45T	
Durometer – Type A, B, O[3] Type C, D, DO[3]	 Up to 100 Points (56.08 to 820.87) g Up to 100 Points Up to 4.53 kg	 4.7 grams 26 grams	 CP-017, electronic balance
Durometer – Indenter Calibration[3]	(0.096 to 0.100) in	0.000 32 in	CP-017, gage blocks
Force – Compression[3] Measure & Measuring Equipment	Up to 2000 lbf (2000 to 10 000) lbf (10 000 to 50 000) lbf (50 000 to 100 000) lbf (100 000 to 600 000) lbf (600 000 to 1 000 000) lbf	0.19 % 0.19 % 0.19 % 0.19 % 0.2 % 0.45 %	CP-001, gram force gages, dead weights ASTM E4 method using load cells & dead weights
Force – Tension[3] Measure & Measuring Equipment	Up to 200 000 lbf	0.2 %	CP-001, ASTM E4 method using load cells & dead weights

Parameter/Equipment	Range	CMC[2, 7, 9] (±)	Comments
Force Measure & Measuring Equipment (ISO 7500-1) – Compression[3]	Up to 3000) lbf (3000 to 30 000) lbf (30 000 to 120 000) lbf	0.09 % 0.11 % 0.11 %	CP-140, Class .05 load cells
Force Measure & Measuring Equipment (ISO 7500-1) – Tension[3]	Up to 3000) lbf (3000 to 30 000) lbf (30 000 to 120 000) lbf	0.12 % 0.07 % 0.07 %	CP-140, Class .05 load cells
Force Stress Rupture (ISO 7500-2) – Tension[3]	Up to 3000) lbf (3000 to 30 000) lbf (30 000 to 120 000) lbf	0.12 % 0.07 % 0.07 %	CP-141, Class .05 load cells
Torque – Measure[3]	(0 to 50) lbf·in (> 50 to 750) lbf·in (25 to 250) lbf·ft (> 250 to 1000) lbf·ft	0.55 % 0.55 % 0.56 % 0.59 %	CP-006, torque transducer
Pressure[3] – Hydraulic Pneumatic	 (0.59 to 10 000) psi Up to 200 in·H2O Up to 2000 in·H2O	 0.016 % 0.037 % 0.013 %	 CP-003, hydraulic dead weight tester Pneumatic digital pressure indicator using digital pressure gauge
Vacuum – Measure[3]	Up to 30 in·Hg	0.03 %	CP-003, vacuum gage, digital gage
Volume –Measurement Equipment[3]	Up to 0.01 ft² (0.01 to 0.05) ft² (0.05 to 1.2) ft²	0.09 % 0.027 % 0.014 %	CP-038 thermometer, balance

VIII. Thermodynamics

Parameter/Equipment	Range	CMC[2, 9] (±)	Comments
Humidity – Measure[3]	(20 to 75) % RH (75 to 95) % RH	1.5 % RH 1.9 % RH	CP-012, digital hygrometer thermometer
Thermal Ovens, Freezers, Environmental Chambers, Autoclaves, Water Baths, & Sealers[3]	(-100 to 0) °C (0 to 100) °C (100 to 200) °C (200 to 400) °C (400 to 600) °C	0.3 °C 0.11 °C 0.14 °C 0.16 °C 0.17 °C	CP-011, thermocouple/RTD meters
Thermometers[3]	(-40 to 0) °C (0 to 100) °C (100 to 200) °C (200 to 400) °C (400 to 600) °C	0.062 °C 0.028 °C 0.043 °C 0.050 °C 0.066 °C	CP-012, thermocouple/RTD meters
IR Thermometers/ Pyrometers[3]	(50 to 500) °C	5.3 °C	CP-012, black body, PRT, reference pyrometer λ = (8 to 14) µm, where ε = 0.95

IX. Time & Frequency

Parameter/Equipment	Range	CMC[2, 9] (±)	Comments
Frequency – Measure[3]	0.33 ns to 10 s	520 ns	Universal counter
Frequency – Measurement Equipment[3]	0.01 Hz to 600 MHz	29 µHz/Hz + 17 mHz	Multifunction calibrator, scope calibrator
Time Verification[3]	Up to 10 Hr	0.06 s/d	Stopwatch
Stopwatches, Timers[3]	24 Hr	34 ms	Vibrograf TM-4500

Parameter/Equipment	Range	CMC[2, 9] (±)	Comments
RPM[3]– Measure	Up to 7200 RPM (7200 to 72 000) RPM (72 000 to 99 999) RPM	0.0028 % + 0.07 RPM 0.001 % + 0.2 RPM 0.0003 % to 1 RPM	Fluke 5500A, HP 53132A

[1] This laboratory offers commercial calibration service and field calibration service.

[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] Dimensional Inspection covers sieves, liquid limit device, grooving tool, followers, plunger, metal specimens, Kelly ball, LA abrasion, Marshall and proctor hammers, platens, expansion racks, slump cones, tampers, 123 blocks, and sample splitters.

[5] The stated measured values are determined using the indicated instrument (see Comments). This capability is suitable for the calibration of the devices intended to measure or generate the measured value in the ranges indicated. CMC's are expressed as either a specific value that covers the full range or as a percent or fraction of the reading plus a fixed floor specification.

[6] In the statement of CMC, R is the resolution of the unit under test, *cp* is centipoise, and L is the numerical value of the nominal length of the device measured in inches.

[7] In the statement of CMC, percentages are percentages of reading unless otherwise noted.

[8] This scope meets A2LA's *P112 Flexible Scope Policy.*

[9] 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.

Accredited Laboratory

A2LA has accredited

ACCREDITED LABS DBA CAL-CERT COMPANY

Anaheim Hills, CA

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 7th day of January 2025.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 4986.02
Valid to November 30, 2026
Revised August 18, 2026

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