



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

RIVERVIEW CALIBRATION SERVICES, LTD
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CALIBRATION

Valid To: July 31, 2025

Certificate Number: 1331.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations and dimensional testing^{1, 6}:

I. Dimensional

Parameter/Equipment	Range	CMC ² (±)	Comments
Micrometers ³ –	(0.105 to 1.00) in:		
	0.001 in Resolution	580 µin	ASME B89.1.13, gage blocks
	0.0001 in Resolution	64 µin	
	0.0005 in Resolution	290 µin	
	0.000 05 in Resolution	40 µin	
	Up to 0.187 25 in:		
	0.001 in Flatness	580 µin	Ball standards
	0.0001 in Flatness	75 µin	
	0.0005 in Flatness	290 µin	
	0.000 05 in Flatness	56 µin	
	Up to 0.250 00 in:		
	0.001 in Flatness	590 µin	Van Keuren ball standards
	0.0001 in Flatness	140 µin	
	0.0005 in Flatness	310 µin	
	0.000 05 in Flatness	130 µin	

Parameter/Equipment	Range	CMC ² (±)	Comments
Calipers ³ – Dial, Vernier, Digital	Up to 6 in: 0.001 in Resolution 0.0001 in Resolution 0.0005 in Resolution Up to 8 in: 0.001 in Resolution 0.0001 in Resolution 0.0005 in Resolution Up to 12 in: 0.001 in Resolution 0.0001 in Resolution 0.0005 in Resolution Up to 18 in: 0.001 in Resolution 0.0001 in Resolution 0.0005 in Resolution Up to 24 in: 0.001 in Resolution 0.0001 in Resolution 0.0005 in Resolution	1300 µin 590 µin 820 µin 1300 µin 600 µin 830 µin 1400 µin 850 µin 1000 µin 1500 µin 990 µin 1200 µin 1800 µin 1400 µin 1600 µin	ASME B89.1.14-2018(2023) Gage blocks
Inside Jaws	1 in & 2 in: 0.001 in Resolution 0.0001 in Resolution 0.0005 in Resolution	300 µin	Ring gages
Gage Blocks ⁴	(0.005 to 1) in (1 to 8) in	90 µin 680 µin	Bench micrometer & calipers
Tapes & Rulers	Up to 24 in	0.29 in	Master ruler

Parameter/Equipment	Range	CMC ² (±)	Comments
Snap Gages & Pedestal Micrometers, Indicators ³ –			
Dial – 0.001 in Resolution	Up to 2 in	580 µin	ASTM D3767 using gage blocks
Digital – 0.0001 in Resolution	Up to 2 in	65 µin	
0.0005 in Resolution	Up to 2 in	290 µin	
50 µin Resolution	Up to 2 in	39 µin	
Foot Pressure –			Direct area & weight determination
Foot Diameter (Procedure A)	(3 to 10) mm	0.020 mm	Caliper
Foot Radius (Procedure A1)	Up to 0.5 in	510 µin	Radius leaf gage
Applied Load	Up to 250 g	9.1 g	Dynamometer
External Mass Loading	(0.2 to 200) g	64 mg	Top load scale
Optical Comparators ³ –			
Linearity	Up to 0.5 in	170 µin	Gage blocks
X & Y Axis & Squareness	Up to 12 in	58 µin	Steel square
Magnification	Up to 5 in (10x, 50x)	0.29 in	Steel rule
Radius	0.5 in	550 µin	Radius leaf gages
Angle	(0 to 360)°	0.20°	Angle leaf gages

II. Dimensional Testing/Calibration¹

Parameter/Equipment	Range	CMC ² (±)	Comments
Measure Length (1D) ^{3, 4, 5} – (Fixture Gages)	Up to 1 in	90 µin	Micrometer
	Up to 8 in	680 µin	Caliper
	Up to 0.5 in	510 µin	Optical comparator, 50x magnification
Inside Diameter	Up to 0.083 in	59 µin	Go/no go gages
Radius	(0.01 to 0.08) in	600 µin	Optical comparator
Angle	(30 to 90)°	0.27°	Angle leaf gages

III. Mechanical

Parameter/Equipment	Range	CMC ² (±)	Comments
Force Calibration of Load Cells & Tensile Testers ³ –			
Tension	(0 to 300) lbf	0.035 lbf	ASTM E4 & ISO7500 w/ slotted Class F weights
	(0 to 100) lbf	0.06 lbf	ASTM E4 & ISO7500 w/ LCCA load cells
	(100 to 250) lbf	0.16 lbf	
	(250 to 2000) lbf	1.1 lbf	
Compression	(0 to 100) lbf	0.06 lbf	ASTM E4 & ISO7500 w/ LCCA load cells
	(100 to 2000) lbf	1.1 lbf	
Extensometers	Class C, Up to 2 in Class D & B-2, Up to 18 in	0.0012 in 0.0045 in	ASTM E83, Class 2 gage blocks, steel rule
Cross Head Speed –			
Displacement Time	Up to 20 in (0 to 5) min	0.29 in 1.4 s/hr	Steel rule Stopwatch
Vacuum Gauges ³	(0 to 24) in·Hg	0.40 in·Hg	ASME B40.1.91, vacuum gage

Parameter/Equipment	Range	CMC ^{2,7} (±)	Comments
Pressure ³ – Gauges, Air Calibrations Only	(0 to 15) psig; 0.01 in Resolution	0.29 psi	Direct comparison
	(0 to 30) psig; 0.01 in Resolution	0.29 psi	
	(0 to 60) psig; 0.01 in Resolution	0.29 psi	
	(0 to 200) psig; 0.1 in Resolution	0.31 psi	
Pressure ³ – Gauges, Limit Switches, Chart Recorders	(0 to 30) psig (5 to 300) psig (300 to 600) psig (600 to 1000) psig (1000 to 3000) psig	0.31 psi 0.71 psi 2.4 psi 5.8 psi 23 psi	ASME B40.1.91, precision pressure gages
Mass – Measure ^{3,4} (As Check Standards)	(0 to 210) g	60 mg	Analytical balance
	(0 to 4200) g	64 mg	Top loading scale
	(1 to 100) lb	0.06 lb	Load cells
Scales & Balances ³ –			
Analytical Balances	0.2 mg to 210 g 0.2 mg to 310 g	35 mg 45 mg	ASTM E898, verification using Class F weights
Top Loading Scales	20 g to 3 kg (3 to 6) kg	0.26 g 0.37 g	Class F weights

IV. Plastic Industry: Specific Measurements

Parameter/Equipment	Range	CMC ² (±)	Comments
Verification of Izod or Charpy Notch Depth – Radius Angle Depth	Up to 0.5 in (15 to 45)° (0.001 to 0.5) in	590 µin 0.46° 500 µin	ASTM D256 using: Optical comparator, 50x magnification
Notch Cutter Machine – Radius Angle Cutter Speed Travel Length Travel Time	0.010 in (5 to 45)° (5 to 700) rpm (1 to 7) in 60 s	510 µin 0.032° 3.6 rpm 0.29 in 1.4 s/hr	Radius leaf gages Angle leaf gages Tachometer (photo) Steel rule Stopwatch
Izod, Charpy, or Tensile Impact Tester ³ – Pendulum Arm Straightness – Arm Length Vertical Fall Mass Striker Contact Line Centering Edge Radius – Vise Top Edge Radius	Up to 0.005 in Up to 16 in Up to 24 in (0 to 3000) g (1 to 10) lbf Up to 6 in 0.030 in 0.010 in	120 µin 0.072 in 0.072 in 64 mg 0.06 lbf 670 µin 510 µin 510 µin	ASTM D256, D6110, D1822 & ISO 179, 180 using: Steel rule, feeler gage Top load scale Load cell LCCA 100 lb Caliper Radius leaf gages
Extrusion Plastometer – Melt Flow Index ³ Temperature Uniformity Bore Shaft – Inside Diameter	(100, 190, 225, 250, 265, 300) °C Up to 10 mm	0.11 °C 0.032 mm	ASTM D1238 using: PRT, Hart 1502 Bore gage/setting ring

Parameter/Equipment	Range	CMC ² (±)	Comments
Extrusion Plastometer – Melt Flow Index ³ (cont)			
Die – Inside Diameter	2.10 mm	1.5 µm	Go/no go gages
Bore – Outside Diameter	Up to 30 mm	0.0027 mm	Micrometer
Mass – Load Weights	(0 to 10) lb	0.06 lb	Load cell LCCA 100 lb
Gardner Impact Tester ³ –			ASTM D5420 using:
Dimensional – Travel	Up to 48 in, incremental	0.29 in	Steel rule
Diameters	0.65 in max	620 µin	Caliper
Mass	(2, 4, 8) lb tubs	0.06 lb	Load cell LCCA 100 lb
Radius	0.3125 in	510 µin	Radius leaf gage
HDT/Vicat Testers ³ –			ASTM D648, ASTM D1525
Temperature	(0 to 200) °C	1.3 °C	Omega CL-27 “K”
Digital Indicator	Up to 0.001 mm	0.0058 mm	Gage blocks
Mass	(0 to 500) g	64 mg	Top load scale
Ramp Rate (Up to 2 °C)	Up to 45 min	1.4 s/hr	Stopwatch
Moisture Analyzer ³ –			Per manufacturer’s instructions using:
Scale	2 g 5 g 20 g 50 g	1.3 mg 1.8 mg 4.7 mg 12 mg	Class F weight Class F weight Class F weight Class F weight
Temperature Probe	(0 to 200) °C	1.3 °C	Omega CL-27 “J”

Parameter/Equipment	Range	CMC ² (±)	Comments
Capillary Rheometer ³ –			ASTM D3835 using:
Temperature Uniformity	(100, 190, 225, 250, 265, 300) °C	0.11 °C	PRT, Hart 1502
Bore Shaft – Inside Diameter	Up to 10 mm	0.032 mm	Bore gage/setting ring
Other Dimensional Requirements	Up to 30 mm (0.51 to 2.10) mm Up to 8 in	0.002 mm 1.5 µm 680 µin	Micrometer Go/no go gages Caliper

V. Rubber Industry: Specific Measurements

Parameter/Equipment	Range	CMC ² (±)	Comments
Direct Verification of Durometers –			ASTM D2240, ISO 868
Indenter Extension & Shape –			
Diameter	Up to 25 mm	0.013 mm	Optical comparator 50x
Radius	Up to 1 in	600 µin	
Angle	(0 to 90) °	0.27 °	
Extension	Up to 25 mm	0.013 mm	
(Digital) Display	(0 to 100) Duro	0.6 Duro	Gage blocks
Spring Calibration – Force			
Type A (Dial 1.0 res)	(0 to 100) Duro	0.58 Duro	Durometer calibrator
Type A (Digital 0.1 res)	(0 to 100) Duro	0.12 Duro	
Type D (Dial 1.0 res)	(0 to 100) Duro	0.60 Duro	
Type D (Digital 0.1 res)	(0 to 100) Duro	0.13 Duro	

Parameter/Equipment	Range	CMC ^{2, 7} (±)	Comments
Rubber Hardness Block Standardization – (Durometer), Measure	(0 to 100) Shore A	1.3 Duro	XA dial durometer & level loader
Conveloader Verification ³ – Length Rate of Loading Mass	Up to 33 mm (0 to 5) min (0 to 3) kg	0.092 mm 1.4 s/hr 58 mg	Per manufacturer's specifications using: Gage blocks Stopwatch Top load scale
Shore Lever Loader – Mass ³ “A” Weight Assembly “D” Weight Assembly	(0 to 650) g 4020 g max	64 mg 0.06 lb	Per manufacturer's specifications using: Top load scale Load cell LCCA 100 lb
Shore Duro-Calibrators ³ – Beam, Measure Fulcrum to Center Mass Knife Edge, Angle Dimensional, Measure 1D Squareness External Weight A Scale External Weight D Scale Applied Force – Type A Scale Type D Scale	Up to 14 in (0 to 90)° Up to 8 in Up to 12 in Up to 3000 g (3000 to 4540) g (0.100 to 822) gf (0.100 to 4540) gf	0.013 in 0.032° 680 µin 0.29 in 64 mg 0.06 lbf 0.19 gf 0.56 gf	Per manufacturer's specifications using: Optical comparator Leaf gage Caliper Steel square Top load scale Load cell Top load scale Class F weights
ASTM Cutting Dies – Length Radius Angle	Up to 6 in Up to 2 in 15' to 90°	680 µin 510 µin 0.27°	Caliper Radius leaf gages Angle leaf gages
Compression Tester – Dial Indicator Load Cell	0.001 in resolution (0 to 100) lbf	580 µin 0.06 lbf	ASTM D1056 Mitutoyo gage blocks Load cell LCCA 100 lb

VI. Thermodynamics

Parameter/Equipment	Range	CMC ^{2,7} ($\pm$)	Comments
Relative Humidity ³ – Measure	(30 to 75) % RH	3.2 % RH	Thermohygrometer
Temperature ³ – Measure			
Room Temperature	21 °C or 73 °F	0.17 °C	PRT, Hart 1502A
Low Temperature	(-40 to 40) °C	1.3 °C	Type “T” thermocouple
Direct T/C Compare	(100, 190, 225, 250, 265, 300) °C	0.11 °C	ASTM E220-13a PRT, Hart 1502A
Lab Press Temp	(0 to 176) °C	1.5 °C	GP probe type K
Salt Spray & Corrosion	(0 to 150) °C	1.3 °C	Shielded probe type J
Flame Test	(600 to 800) °C	1.4 °C	Type “K” copper slug
Muffle Ash	(200 to 900) °C	1.3 °C	Type “K” ceramic beaded
Electrical Simulation	(-40 to 2500) °C	0.67 °C	Type “J, K, T” data cable
Forced Air Ovens ³ –			
Temp Uniformity	(100 to 250) °C	1.3 °C	ASTM E145 & ISO188 modified 9-point oven temperature uniformity verification, Omega CL 27, Type “J” thermocouples
Chamber Dimensions	Up to 24 in	0.29 in	Steel rule
Air Flow	(250 to 500) ft/min	25 ft/min	Omega
Recovery	(1 to 5) min	1.4 s/hr	Stopwatch

VII. Time & Frequency

Parameter/Equipment	Range	CMC ^{2,7} ($\pm$)	Comments
Time – Measure ³	(1 to 5) min	1.4 s/hr	Stopwatch

Parameter/Equipment	Range	CMC ^{2, 7} ($\pm$)	Comments
Speed – Measure ³ , Contact (wheel) & Non-Contact (photo) (Tachometers, RPM Meters)	(5 to 600) rpm	2.2 rpm	Tachometer

¹ This laboratory offers commercial dimensional testing/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 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 Inspections are performed on customer check standards such as dimensional gages, gage blocks (as check standards), pin gage sets, feeler gage sets, rulers, scales, etc. The customer uses the check standards for intermediate checks on pedestal micrometers, hand micrometers, calipers, and fixtures such as heat deflection units, abraders, and Izod notching machines.

⁵ 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.

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

⁷ 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

RIVERVIEW CALIBRATION SERVICES, LTD.

Belpre, 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 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 20th day of July 2023.

A blue ink signature of Mr. Trace McInturff, written over a horizontal line.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1331.01
Valid to July 31, 2025
Revised December 21, 2023

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