



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

FURNACE REBUILDERS INCORPORATED
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Denver, NC 28037
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CALIBRATION

Valid To: February 28, 2027

Certificate Number: 4107.01

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 calibrations^{1,4}:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC ^{2,6} (±)	Comments
DC Voltage – Measure ³	(-13 to 80) mV	0.12 mV	PIECAL 322 thermocouple calibrator with NIST traceable cold junction thermistor
	(0.0 to 100) mV (0.1 to 10) V	0.18 mV 0.12 V	PIECAL 235 voltage analyzer
	(-10 to 75 000) mV	0.8 mV	Fluke 7526A precision calibrator
	(0.0 to 10.0000) V	0.16 mV	

Parameter/Equipment	Range	CMC ^{2, 6} (±)	Comments
DC Voltage – Generate ³	(-13 to 80) mV	0.14 mV	PIECAL 322 thermocouple calibrator with NIST traceable cold junction thermistor
		0.13 mV	PIECAL 235 voltage analyzer
	(-10 to 75 000) mV	0.8 mV	Fluke 7526A precision calibrator
	(0.0 to 10.0000) V	0.16 mV	
Electrical Calibration of mV Thermocouple Sources– Measure and Generate			
Type J	(-200 to 500) °C (500 to 1200) °C	0.92 °C 0.73 °C	PIECAL 322 thermocouple calibrator with NIST traceable cold junction thermistor
Type K	(-200 to 1050) °C (1050 to 1371) °C	1.5 °C 1.2 °C	PIECAL 322 thermocouple calibrator with NIST traceable cold junction thermistor
Type T	(-200 to 0.0) °C (0.0 to 400) °C	1.70 °C 0.50 °C	PIECAL 322 thermocouple calibrator with NIST traceable cold junction thermistor
Type E	(-200 to 850) °C (850 to 1000) °C	1.2 °C 0.70 °C	PIECAL 322 thermocouple calibrator with NIST traceable cold junction thermistor
Type R	(0.0 to 500) °C (500 to 1750) °C	4.2 °C 3.5 °C	Fluke 725 multifunction temperature calibrator
Type S	(0.0 to 500) °C (500 to 1750) °C	4.2 °C 3.6 °C	Fluke 725 multifunction temperature calibrator
Type B	(800 to 1000) °C (1000 to 1800) °C	4.1 °C 3.5 °C	Fluke 725 multifunction temperature calibrator

Parameter/Equipment	Range	CMC ² (±)	Comments
Electrical Calibration of mV Thermocouple Sources– Measure and Generate (cont)			
Type N	(0.0 to 400) °C	3.5 °C	Fluke 725 multifunction temperature calibrator
Type B	(600 to 800) °C (800 to 1550) °C	1.2 °C 0.86 °C	Fluke 7526A precision calibrator
Type E	(0.0 to 600) °C (600 to 1000) °C	0.39 °C 0.53 °C	Fluke 7526A precision calibrator
Type J	(-100 to 800) °C (800 to 1200) °C	0.66 °C 0.57 °C	Fluke 7526A precision calibrator
Type K	(-100 to 500) °C (800 to 1372) °C	0.83 °C 0.91 °C	Fluke 7526A precision calibrator
Type N	(-100 to 800) °C (800 to 1300) °C	0.99 °C 0.66 °C	Fluke 7526A precision calibrator
Type R	(0 to 1600) °C (1600 to 1767) °C	1.50 °C 0.99 °C	Fluke 7526A precision calibrator
Type S	(0 to 1600) °C (1600 to 1767) °C	1.40 °C 1.1 °C	Fluke 7526A precision calibrator
Type T	(-100.0 to 200) °C (200 to 400) °C	0.59 °C 0.41 °C	Fluke 7526A precision calibrator

II. Thermodynamics

Parameter/Equipment	Range	CMC ^{2, 5} (±)	Comments
Furnaces and Ovens – Uniformity Survey ³	(0.0 to 1050) °C	3.3 °C	AMS 2750 uniformity survey, digital survey recorder Type K T.C.
Temperature – Measure ³	(-200 to 0.0) °C (0.0 to 1370) °C	1.5 °C 1.2 °C	AMS 2750 system accuracy test, thermocouple calibrator with reference T.C. wire.

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 of nearly ideal measuring equipment. CMC's 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 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 This scope meets A2LA's *P112 Flexible Scope Policy*.

⁵ 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.

⁶ 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. CMCs are expressed as either a specific value that covers the full range or as a percentage or fraction of the reading plus a fixed floor specification.



Accredited Laboratory

A2LA has accredited

FURNACE REBUILDERS INCORPORATED

Denver, NC

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 7th day of January 2025.

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 4107.01
Valid to February 28, 2027

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