



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005  
& ANSI/NCSL Z540-1-1994

PROTEMP MECHANICAL, INC.  
3350 Scott Blvd, Bldg. #3  
Santa Clara, CA 95054  
Martin L. Reich Phone: 408 244 9821

CALIBRATION

Valid To: August 31, 2016

Certificate Number: 2058.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations<sup>1</sup>:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
DC Voltage <sup>3</sup> – Generate	Up to 15 V (15 to 100) V	14 mV 6.0 mV	Fluke 741B Agilent 34401A + power supply and shunt
DC Voltage <sup>3</sup> – Measure	Up to 110 mV 110 mV to 1.1 V (1.1 to 11) V (11 to 110) V	67 µV 0.67 mV 6.7 mV 92 mV	Fluke 741B
DC Current <sup>3</sup> – Generate	(2 to 22) mA	8.7 µA	Fluke 741B
DC Current <sup>3</sup> – Measure	(1 to 30) mA	12 µA	Fluke 741B
Resistance <sup>3</sup> – Generate	(0 to 11) Ω (11 to 110) Ω (0.11 to 1.1) kΩ	32 mΩ 82 mΩ 1.1 Ω	Fluke 741B
Resistance <sup>3</sup> – Measure	(0 to 11) Ω (11 to 110) Ω (0.11 to 1.1) kΩ	84 mΩ 0.16 Ω 1.6 Ω	Fluke 741B

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Electrical Calibration of Thermocouple Indicators, mV Simulation <sup>3</sup> –  Type B Type E Type J Type K Type R Type S Type T	(800 to 1820) °C (-200 to 1000) °C (-100 to 1200) °C (-100 to 1372) °C (0 to 1768) °C (0 to 1768) °C (-200 to 400) °C	1.1 °C 0.62 °C 0.57 °C 0.62 °C 1.3 °C 0.45 °C 0.69 °C	Fluke 741B
Electrical Calibration of RTD Indicators <sup>3</sup> –  Pt 385, 100 Ω, 200 Ω, 500 Ω, 1000 Ω  Pt 3926, 100 Ω Pt 3916, 100 Ω	(-200 to 400) °C  (-200 to 630) °C (-190 to 360) °C	0.74 °C  0.74 °C 0.74 °C	Fluke 741B

## II. Mechanical

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Pressure <sup>3</sup> – Measure	(0 to 100) psia	0.029 psia	Fluke 700PA6 w/ Fluke 741B

## III. Thermodynamics

Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Relative Humidity <sup>3</sup> – Measuring Equipment	(10 to < 90) % RH (90 to 100) % RH	1.6 % RH 2.2 % RH	Vaisala HMP 77B

*Peter Abney*

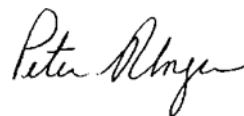
Parameter/Equipment	Range	CMC <sup>2</sup> (±)	Comments
Relative Humidity <sup>3</sup> – Measuring Equipment (cont)			
Fixed Points	10 % RH 35 % RH 50 % RH 80 % RH 95 % RH	0.4 % RH 0.66 % RH 1.1 % RH 1.5 % RH 1.5 % RH	ASTM E104, salt solutions
Temperature – Measure <sup>3,4</sup>			
For Uniformity of Ovens, Freezers, Furnaces, and Environmental Test Chambers	(-100 to 350) °C (350 to 750) °C	1.2 °C 4.3 °C	ASTM E145, Fluke Hydra 2635A data logger
Chamber/Oven Single Point Measure	(-200 to 400) °C  (400 to 600) °C (600 to 1000) °C	0.19 °C  3.2 °C 5.3 °C	Hart 5627/5623A PRT with Hart 1522A readout  Thermocouple or RTDs with indicator
RTD Calibration <sup>3</sup>	(-75 to 200) °C	0.62 °C	Environmental chamber / oven with Hart PRT 5623A / 5627
Thermocouple Calibration <sup>3</sup> –			
Type J Type K Type T	(-75 to 200) °C	0.51 °C	Environmental chamber / oven with Hart PRT 5623A / 5627

<sup>1</sup> This laboratory offers commercial calibration service and field calibration service.

<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.

*Peter Abney*

- <sup>3</sup> Field calibration service is available for this calibration and this laboratory meets A2LA R104 – *General Requirements: Accreditation of Field Testing and Field Calibration Laboratories* 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.
- <sup>4</sup> This laboratory offers only field calibration service for this parameter at the higher temperatures (Higher temperatures are those temperatures which are greater than or equal to -40 °C).





American Association for Laboratory Accreditation

# Accredited Laboratory

A2LA has accredited

## PROTEMP MECHANICAL, INC.

*Santa Clara, CA*

for technical competence in the field of

### Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and any additional program requirements in the field of calibration. 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 8 January 2009*).

Presented this 5<sup>th</sup> day of September 2014.



A handwritten signature in black ink, reading "Peter Abney".

President & CEO  
For the Accreditation Council  
Certificate Number 2058.01  
Valid to August 31, 2016

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