SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

CASCADE MECHANICAL SERVICES
86 Guided Court, Unit C
Etobicoke, Ontario M9V 5H1
Canada
Michelle Mohammed Phone: 416 678 1874

CALIBRATION

Valid To: August 31, 2020 Certificate Number: 2146.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations[1, 6]:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC[2] (±)	Comments
Electrical Simulation of Thermocouple Indicating Systems[3] –			
Type T	(-200 to 400) ºC	1.2 ºC	QSI-003: multi-function calibrator
Type J	(-210 to 1200) ºC	1.5 ºC	
Type K	(-190 to 1371) ºC	1.7 ºC	
Electrical Simulation of RTD Indicating Systems[3]	(-195 to 815) ºC	0.59 ºC	QSI-003: multi-function calibrator

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II. Thermodynamics

Parameter/Equipment	Range	CMC[2, 4] (±)	Comments
Temperature Chambers/Ovens[3, 5] – System Accuracy	(0 to 90) ºC	0.49 ºC	QSI-001: Vaisala HM70 w/ HMP-77 probe;
	(-80 to 200) ºC	2.1 ºC	Multifunction calibrator w/ type T thermocouple
	(-80 to 200) ºC	1.6 ºC	Multifunction calibrator w/ RTD probe
	(200 to 1150) ºC	3.4 ºC	Multifunction calibrator w/ type K thermocouple
Relative Humidity – Chambers[3, 5] – System Accuracy	(10 to 95) % RH at Up to 40 ºC	(1.5 + 0.0093xRdg) % RH	QSI-004: Vaisala HM-70 w/ HMP-humidity probe
	(10 to 95) % RH at (40 to 85) ºC	(2.0 + 0.018xRdg) % RH	

[1] This laboratory offers commercial 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 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.

[4] In the statement of CMC, Rdg stands for reading in % RH.

[5] Air temperature and/or humidity are measured in an empty working-volume (chamber), except for customer fixtures and cable.

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

Accredited Laboratory

A2LA has accredited

CASCADE MECHANICAL SERVICES

Etobicoke, Ontario, CANADA

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 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 November 2018.

President and CEO
For the Accreditation Council
Certificate Number 2146.01
Valid to August 31, 2020

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