



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

VACUUM TECHNOLOGY, INC.
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Oak Ridge, TN 37830
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CALIBRATION

Valid To: February 28, 2019

Certificate Number: 1707.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations¹:

I. Fluid Quantities

Parameter/Equipment	Range (atm·cm ³ /s)	CMC ^{2,3} (±)	Comments
Gas Flow Rate – All Gases	(1×10 ⁻⁹ to 3×10 ⁻⁵)	4.5 %	Primary calibration system
	(1×10 ⁻⁶ to 100)	4.3 %	Large leak calibration system
	(1×10 ⁻¹⁰ to 2×10 ⁻³)	5 %	Automated mass spectrometer comparison calibration system
	(1×10 ⁻⁵ to 1×10 ⁻¹)	10 %	Sniffer leak detector
Helium and Hydrogen Only	(1×10 ⁻¹⁰ to 1×10 ⁻³)	12 %	Manual mass spectrometer comparison calibration system
Nitrogen Only	(1×10 ⁻⁹ to 3×10 ⁻⁵)	3.5 %	Primary calibration system

Parameter/Equipment	Range	CMC ^{2,3} (±)	Comments
Vacuum Gauges – All Gases	1×10 ⁻³ torr to 3000 psig	2.5 %	VGMS w/ capacitance manometer static comparison
	(1×10 ⁻⁷ to 1×10 ⁻³) torr	5 %	VGMS w/ spinning rotor gauge dynamic comparison
Volume – Nitrogen	10 cc to 25 L	2.5 %	Large leak calibration system with gas expansion method

¹ This laboratory offers commercial 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 In the statement of CMC, percentages are to be read as percent of reading unless otherwise noted.



Accredited Laboratory

A2LA has accredited

VACUUM TECHNOLOGY, INC.

Oak Ridge, TN

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/NCSLI 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 8 January 2009).



Presented this 20th day of December 2016.

A handwritten signature in black ink, written over a horizontal line.

President and CEO
For the Accreditation Council
Certificate Number 1707.01
Valid to February 28, 2019

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