



World Class Accreditation

The American Association for Laboratory Accreditation

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/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 4th day of February 2011.



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

President & CEO
For the Accreditation Council
Certificate Number 1707.01
Valid to February 28, 2013

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



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

VACUUM TECHNOLOGY, INC.
 1003 Alvin Weinberg Drive
 Oak Ridge, TN 37830
 Rod Taylor Phone: 865 481 3342

CALIBRATION

Valid To: February 28, 2013

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)	5 %	Large leak calibration system
	(1×10 ⁻¹⁰ to 2×10 ⁻³)	5 %	Automated mass spectrometer comparison calibration system
Helium and Hydrogen Only	(1×10 ⁻⁵ to 1×10 ⁻¹)	10 %	Sniffer leak detector
	(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 (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. Calibration and Measurement Capabilities 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.