



CERTIFICATE OF ACCREDITATION

ANSI-ASQ National Accreditation Board

500 Montgomery Street, Suite 625, Alexandria, VA 22314, 877-344-3044

This is to certify that

Hexagon Universal Calibration Services

48443 Alpha Drive, Suite 100

Wixom, MI 48393

has been assessed by ANAB
and meets the requirements of international standard

ISO/IEC 17025:2005

and national standard

ANSI/NCSL Z540-1-1994

while demonstrating technical competence in the field of

CALIBRATION

Refer to the accompanying Scope of Accreditation for information regarding the types of calibrations to which this accreditation applies.

AC-1167

Certificate Number


ANAB Approval

Certificate Valid: 6/8/2017-6/11/2019
Version No. 007 Issued: 6/8/2017



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. 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).



**SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005 AND
ANSI/NCSL Z540-1-1994 (R2002)**

Hexagon Universal Calibration Services

48443 Alpha Drive, Suite 100
Wixom, MI 48393
Mike DeLashmutt
248-449-9508

CALIBRATION

Valid to: **June 11, 2019**

Certificate Number: **AC-1167**

Length – Dimensional Metrology


Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-) ²	Reference Standard, Method and/or Equipment
Linear Displacement Accuracy ¹ (CMM)	(0 to 130) ft	(45 + 3.2L) μin	Laser
Linear Accuracy ¹ (Boring Mills, Lathes, Machining Centers, Layout Machines)	(0 to 130) ft	(75 + 3.1L) μin	Laser
Linear Displacement Accuracy (CMM) ¹	(0 to 48) in	(80 + 3.2L) μin	Step gage and Probe
Linear Accuracy ¹ (Boring Mills, Lathes, Machining Centers, Layout Machines)	(0 to 48) in	(290 + 0.36L) μin	Step gage and an Indicator
Straightness and Squareness ¹ (CMMs, Boring Mills, Lathes, Machining Centers, Layout Machines)	(0 to 10) ft (3 to 50) ft	(18 + 1 % of the measured error in + 0.5F) μin (100 + 2.5 % of the measured error + 0.05F) μin	Laser
Straightness and Squareness ¹ (CMMs, Boring Mills, Lathes, Machining Centers, Layout Machines)	Straightness (0 to 48) in Squareness (0 to 36) in	(58 + 4L) μin	Master Square and an Indicator

Length – Dimensional Metrology

Parameter / Equipment	Range	Expanded Uncertainty of Measurement (+/-) ²	Reference Standard, Method and/or Equipment
Angle ¹	10 degrees	(0.2 + 0.2 % of the max measured error in arc seconds + 0.05 <i>M</i>) Arc Seconds	Laser
	200 Arc Seconds	(0.21 + 0.5 % of the max. measured error) Arc seconds	Electronic Level
Flatness ¹	Up to 36 in To 20 x 30 ft	30.4 μin 166.7 μin	Electronic Levels
Volumetric Performance ¹ (CMM)	Up to 42 in	(100 + 13 <i>L</i>) μin	Ball Bar; ANSI/ASME B89.4.1
Repeatability ¹	(0 to 2) in	43 μin	Master Sphere
Circular Interpolation ¹ Boring Mills, Machining Centers	(50 to 600) mm	(2.9 + 0.02 <i>X</i> + 0.4 % <i>V</i>) μm	Renishaw dynamic ball bar
Rotational Positioning ¹ Boring Mills, Machining Centers, Rotary Tables	360 °	(1.7 + 0.2 % of the measured error) Arc seconds	Renishaw RX10 and Laser
Electronic Level Calibration	± 1 000 Arc seconds	1.3 Arc seconds	5 in Sine Plate and 5-piece gage block set

Calibration and Measurement Capability (CMC) is expressed in terms of the measurement parameter, measurement range, expanded uncertainty of measurement and reference standard, method, and/or equipment. The expanded uncertainty of measurement is expressed as the standard uncertainty of the measurement multiplied by a coverage factor of 2 (*k*=2), corresponding to a confidence level of approximately 95%.

- Notes:
1. On-site calibration service is available for this parameter, since on-site conditions are typically more variable than those in the laboratory, larger measurement uncertainties are expected on-site than what is reported on the accredited scope.
 2. *F* = Distance the optics traveled during the test in feet, *M* = Distance optics travel during test in meters, *L* = Length in inches, *V* = Measured radial variation in microns, *X* = Length in millimeters.
 3. This scope is formatted as part of a single document including Certificate of Accreditation No. AC-1167.



Vice President