



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

**Quality Engineering Service of the Chippewa
Valley, Inc.**

**345 Frenette Drive, Suite 1
Chippewa Falls, WI 54729**

Fulfills the requirements of

ISO/IEC 17025:2017

and

ANSI/NCSL Z540-1-1994 (R2002)

In the fields of

**TESTING, DIMENSIONAL MEASUREMENT
and CALIBRATION**

This certificate is valid only when accompanied by a current scope of accreditation document.
The current scope of accreditation can be verified at www.anab.org.

R. Douglas Leonard Jr., VP, PILR SBU

Expiry Date: 22 September 2022
Certificate Number: ACT-1189



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
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 17025:2017 AND
ANSI/NCSL Z540-1-1994 (R2002)**

Quality Engineering Service of the Chippewa Valley, Inc.

345 Frenette Drive, Suite 1
Chippewa Falls, WI 54729
Timothy A. Tozer
715-861-7723

TESTING, DIMENSIONAL MEASUREMENT AND CALIBRATION

Valid to: **September 22, 2022**

Certificate Number: **ACT-1189**

TESTING

Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Compression force, Insertion	CUP-T1001	Plastic Fasteners, Screws, Adhesives, 3-D objects within equipment operational range	Tensile Testing Machine Up to 1 000 lbs.
Tensile Force, Extraction	CUP-T1002	Plastic Fasteners, Screws, Adhesives, 3-D objects within equipment operational range	Tensile Testing Machine Up to 1 000 lbs.
Tensile, Breaks	CUP-T1004	Plastic Fasteners, Screws, Adhesives, 3-D objects within equipment operational range	Tensile Testing Machine Up to 1 000 lbs.
Shear, Breaks, Adhesion Strength	CUP-T1003 CUP-D1002	Plastic Fasteners, Screws, Adhesives, 3-D objects within equipment operational range	Tensile Testing Machine Up to 1 000 lbs.
Strip Torque, Drive Torque, Torsional Strength	CUP-F.I.P 1000	Screws, Grommets, Bolts	Torque Wrench Up to 300 in-lbs.
Ductility Testing	CUP-F.I.P 1000	Screws & Bolts	Visual
Drive Test	CUP-F.I.P 1000	Screws & Bolts	Visual
Part Weights	RFM-0025	Plastic Fasteners, Screws, Small parts, 3-D objects	Balance Up to 310 g

DIMENSIONAL MEASUREMENT

1 Dimensional

Parameter	Range	Expanded Uncertainty of Measurement (+/-) ²	Reference Standard, Method, and/or Equipment
Dimensional Measurement 1D	Up to 60 in	$(1\ 400 + 14L)\ \mu\text{in}$	Caliper, Length Gage
	Up to 12 in	1 500 μin	Height Gage
	Up to 2 in	$(170 + 7.9L)\ \mu\text{in}$	Micrometer
	Up to 6 in	1 200 μin	Depth Micrometer
	Up to 2 in	$(220 + 4.2L)\ \mu\text{in}$	Drop Indicator
	Up to 0.003 in	430 μin	Test Indicator
	(0.011 to 1.000) in	630 μin	Pin Gages
	Up to 180 °	1.3°	Protractors
	(0.01 to 2.00) in	3 700 μin	Radius Gages
	Up to 0.5 in Angular: 90 °	2 900 μin 1.6 °	Handheld Microscope (7x)
	Up to 1 in	120 μin	Laser Micrometer
Dimensional Visual Comparison	Pitches UNC (4 to 84)	Nearest 2 teeth per Inch	Screw Pitch Gage

2 Dimensional

Parameter	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Dimensional Measurement 2D	Up to 14 in Dia. &	320 μin	Optical Comparator (10x)
	Angular: 360 °	0.24 °	
	Up to 10 in x 6 in	400 μin	Profile Projector (5x, 10x, 20x)
Angular: 360 °	0.18 °		

3 Dimensional

Parameter	Range	Expanded Uncertainty of Measurement (+/-) ²	Reference Standard, Method, and/or Equipment
Dimensional Measurement 3D	<u>Vision</u> X & Y = Up to 12 in Z = Up to 9.8 in	(200 + 3.5L) μin	Video Measuring System – Vertex 312, Vertex 420, Sol 161
	<u>Touch Trigger Probe</u> X & Y = Up to 12 in Z = Up to 9.8 in	(210 + 3.3L) μin	Vertex 312 Renishaw Touch Probe
	X & Y = Up to 40 in Z = Up to 24 in	(120 + 9.1L) μin	Coordinate Measuring Machine – Zeiss Contura G2 Scanning

CALIBRATION

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) ²	Reference Standard, Method, and/or Equipment
Calipers, Length Gages	Up to 60 in	(580 + 11L) μin	Caliper Calibration Set Gage Blocks Cal-001
Height Gages	Up to 20 in	(580 + 0.37L) μin	Gage Blocks Cal-001
Micrometers (ID, OD, Depth)	Up to 12 in	(80 + 6.7L) μin	Gage Blocks Cal-002, Cal-017, Cal-020
Drop or Dial Indicators	(0.000 1 to 6) in	(74 + 9.4L) μin	Gage Blocks Cal-003
Test Indicators	(0.000 1 to 0.1) in	180 μin	Gage Blocks Cal-004
Radius Gages	Up to 10 in	(200 + 1.5L) μin	Video Measurement System Cal-013
Protractors	Up to 180 °	0.78°	Angle Blocks Cal-015
Pin Gages	(0.01 to 1) in	30 μin	Laser Micrometer Cal-018

Length – Dimensional Metrology

Parameter/Equipment	Range	Expanded Uncertainty of Measurement (+/-) ²	Reference Standard, Method, and/or Equipment
Thickness Gages & Other Fixed Gages Report of Values Only	Up to 2 in	(220 + 4.2L) μin	Digital Indicator Cal-014, Cal-019
	Up to 12 in	(200 + 1.5L) μin	Video Measurement System Cal-014, Cal-019
	Up to 40 in Angular: 360 °	(120 + 4.9L) μin 0.065°	Coordinate Measuring Machine – Zeiss Contura G2 Cal-012, Cal-014
Steel Rules	Up to 36 in	4 300 μin	Microscope Handheld / Master Steel Rule Cal-016

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. L = Length in inches.
3. This scope is formatted as part of a single document including Certificate of Accreditation No. ACT-1189.



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