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 national standard

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.

Jason Stine, Vice President

Expiry Date: 22 September 2028

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 Services 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

ISO/IEC 17025 Accreditation Granted: **18 September 2026**

Certificate Number: **ACT-1189** Certificate Expiry Date: **22 September 2028**

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	Comparison to Tensile Testing Machine Up to 1 000 lbf
Tensile Force, Extraction	CUP-T1002	Plastic Fasteners, Screws, Adhesives, 3-D objects within equipment operational range	Comparison to Tensile Testing Machine Up to 1 000 lbf
Tensile, Pull – Breaking Force	CUP-T1004	Plastic Fasteners, Screws, Adhesives, 3-D objects within equipment operational range	Comparison to Tensile Testing Machine Up to 1 000 lbf
Shear Force	CUP-T1003	Plastic Fasteners, Screws, Adhesives, 3-D objects within equipment operational range	Comparison to Tensile Testing Machine Up to 1 000 lbf
Strip Torque, Drive Torque, Torsional Strength	CUP-F.I.P 1000	Screws, Grommets, Bolts	Comparison to Torque Wrench Up to 300 in·lbf

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Mechanical

Specific Tests and/or Properties Measured	Specification, Standard, Method, or Test Technique	Items, Materials or Product Tested	Key Equipment or Technology
Ductility Testing	CUP-F.I.P 1000	Screws & Bolts	Visual Comparison
Drive Test	CUP-F.I.P 1000	Screws & Bolts	Visual Comparison
Pitches UNC (4 to 84)	ASME B1.1.3M:2005	Fasteners	Visual comparison with Screw Pitch Gage
Part Weights	RFM-0025	Plastic Fasteners, Screws, Small parts, 3-D objects	Measurement using 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 + 14*L*) µin	Measurement using Caliper, Length Gage
	Up to 12 in	1 500 µin	Measurement using Height Gage
	Up to 2 in	(170 + 7.9*L*) µin	Measurement using Micrometer
	Up to 6 in	1 200 µin	Measurement using Depth Micrometer
	Up to 2 in	(220 + 4.2*L*) µin	Measurement using Drop Indicator
	Up to 0.003 in	430 µin	Measurement using Test Indicator
	(0.011 to 1) in	630 µin	Measurement using Pin Gages
	Up to 180°	1.3°	Measurement using Protractors
	(0.01 to 2) in	3 700 µin	Measurement using Radius Gages
	Up to 0.5 in	2 900 µin	Measurement using Handheld Microscope (7x)

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1 Dimensional

Parameter	Range	Expanded Uncertainty of Measurement (+/-) [2]	Reference Standard, Method, and/or Equipment
	Up to 1 in	120 µin	Measurement using Laser Micrometer

2 Dimensional

Parameter	Range	Expanded Uncertainty of Measurement (+/-)	Reference Standard, Method, and/or Equipment
Dimensional Measurement 2D	Up to 12 in x 5 in (Diagonal: Up to 13 in) Angle: Up to 360°	320 µin 0.24°	Measurement using Optical Comparator (10x)
	Up to 6 in x 3 in Angle: Up to 360°	400 µin 0.18°	Measurement using Profile Projector (5x, 10x, 20x)

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 <u>Touch Trigger Probe</u> X & Y: Up to 12 in Z: Up to 9.8 in	(220 + 2.8L) µin (230 + 3.0L) µin	Measurement using Video Measuring System – Micro-Vu Vertex 312UC, Vertex 420, Sol 161 Micro-Vu Vertex 312UC with Renishaw Touch Probe
	X: Up to 27 in Y: Up to 39 in Z: Up to 23 in	(120 + 9.1L) µin	Measurement using Coordinate Measuring Machine – Zeiss Contura G2 Scanning
	Measurement Volume: Diameter: Up to 11.81 in Height: Up to 7.87 in	1 300 µin	Measurement using 3D Scanning CMS Machine – Keyence VL-870

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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 + 11*L*) µin	Caliper Master, Gage Blocks Cal-001
Height Gages	Up to 20 in	(590 + 0.37*L*) µin	Gage Blocks Cal-001
Micrometers (ID, OD, Depth)	Up to 12 in	(80 + 6.7*L*) µin	Gage Blocks Cal-002, Cal-017, Cal-020
Drop or Dial Indicators	(0.000 1 to 6) in	(74 + 9.4*L*) 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	(220 + 0.73*L*) µin	Video Measurement System Cal-013
Protractors	Up to 180°	0.78°	Angle Blocks Cal-015
Pin/Plug Gages	(0.01 to 1) in	120 µin	Laser Micrometer Cal-018
Thickness Gages & Other Fixed Gages	Up to 2 in	(220 + 0.73*L*) µin	Digital Indicator Cal-014, Cal-019
	Up to 12 in	(210 + 1.5*L*) µin	Video Measurement System Cal-014, Cal-019
Checking Fixtures/Gages	Up to 30 in	(120 + 4.9*L*) µin	Coordinate Measuring Machine – Zeiss Contura G2 Cal-014
Angle Blocks	Up to 360°	0.007°	Video Measurement System Cal-025
Steel Rules	Up to 36 in	4 300 µin	Microscope Handheld / Master Steel Rule Cal-016

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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.

Jason Stine, Vice President

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