



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017¹

MNP CORPORATION
TECHNICAL AND RESEARCH SERVICES¹
(Corporate Facility)
44225 Utica Road
Utica, MI 48317
Chad Clifford Phone: 586 254 1320

MECHANICAL

Valid To: December 31, 2024

Certificate Number: 0107.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory at the location listed above as well as the two satellite laboratory locations listed below to perform the following types of tests on externally threaded fasteners and cold-headed steel products using the following methods:

<u>Test:</u>	<u>Test Method(s):</u>
Bend Test	GMW 16535, GM6177M (2012 ⁶); SAE J1102, J1102M
Chemical	
Optical Emission (OES) – (C, Si, Mn, P, S, Ni, Cr, Mo, B)	ASTM E415
LECO – Carbon	ASTM E1019
Coating Thickness	
Microscopic	ASTM B487
XRF	ASTM B568
Hardness Rockwell (B, C, 15N, 30N)	ASTM E18; SAE J417; ISO 6508-1
Hydrogen Embrittlement	SAE/USCAR 7; SAE J78, J81, J773, J1237; PS-50023
Sampling Plans	Customer Specs; MNP Control Plans; ASME B18.18; ASTM E1806, F1470
Metallographic Evaluation	ASM Handbook, vol. 9; ASTM F2282

<u>Test:</u>	<u>Test Method(s):</u>
Metallography	
Sample Preparation	ASTM E3, E1806
Decarburization	ASTM E1077, F2328; SAE J419; ISO 898-1
Carburization	SAE J423, J1102/J1102M
Macro Inspection	ASTM E340
Micro Inspection	ASTM E45; SAE J422
Grain Flow	SAE/USCAR 8
Micro Hardness	
Vickers (300g, 500g)	ASTM E384; ISO 6507-1
Part Cleanliness/Contamination	MNP SOP 554
Screw Test	
Drive Test	SAE J81
Ductility (using 10° Block)	SAE J78, J81; ISO 2702
Serration Test	GMW16535, GM6177M (2012 ⁶); SAE J1102, J1102M
Tensile Test	
Axial & Wedge	ASTM A370, E8/8M, F606/F606M; SAE J82
Proof Load	FMVSS209; PF-4730; ISO 898-1
Rod & Wire	ASTM A370
Torque	
Torsional Strength	SAE J78, J81; ISO 898-1; FORD WA970, WX200; GM6194M (2013 ⁶), GMW 14657, GMW 16722
Prevailing Torque	ESS-M11P24-A1, ESS-M11P24-A2 (2013 ⁶)
Visual Inspection	
Discontinuities	ASTM F788; SAE J123 (2012 ⁶), ISO 6157-1, 6157-2, 6157-3

I. Dimensional Testing²:

Parameter/Equipment	Range	CMC ³ (±)	Comments
Angle ⁴	(0 to 360)°	0.35°	Optical comparator/SOP 214
Concentricity ⁴	Up to 1 in Up to 25.4 mm	0.0009 in 0.022 mm	Indicators on direct reading concentricity gage/SOP 167
Diameter ⁴	(0.2 to 1) in (4 to 20) mm	0.0005 in 0.012 mm	Indicators on direct reading SYSTEM 22 thread pitch & functional size comparators/SOP 112, SOP 224

Parameter/Equipment	Range	CMC ³ (±)	Comments
Linear ⁴	Up to 1 in Up to 25.4 mm	0.0001 in 0.003 mm	Digital micrometer/SOP 139
	Up to 12 in Up to 300 mm	0.0013 in 0.018 mm	Digital calipers/SOP 103
	Up to 6 in Up to 150 mm	0.0011 in 0.026 mm	Optical comparator/SOP 214
Penetration Recess Depth ⁴	Up to 1 in (25.4 mm)	0.0005 in 0.012 mm	Recess checker gage/SOP 105
Radius ⁴	Up to 2.5 in Up to 63.5 mm	0.0020 in 0.052 mm	Optical comparator/SOP 214
Wobble Test ⁴	(0 to 15) ^o	0.5 ^o	Wobble gage/SOP 113

II. Mechanical²:

Parameter/Equipment	Range	CMC ³ (±)	Comments
Weight ⁴	42g 120g	0.00029 g	Mettler lab balance/SOP 554

Test:

Test Method:

Fatigue

ISO 3800

Torque

Prevailing Torque/Tension

ASME B18.16M; IFI 101, 100/107; ISO 2320; GMW 14657, GMW 16722, GM6194M; DIN EN ISO 16047; SAE/USCAR 10, 11

Torque/Load

FORD WA970, WX200, WZ100, WZ101, ESS-M11P24-A1, ESS-M11P24-A2 A2 (2013⁶); MNP SOP 525, 526; GMW 25, GMW 3359

I. Dimensional Testing²:

Parameter/Equipment	Range	CMC ³ (±)	Comments
Torque Angle ³	(0 to 360) °	1.3°	Torque transducer with angle encoder/ SOP 525, 526; DIN EN ISO 16047; SAE/USCAR 10, 11; FORD WZ100, WZ101; GMW 25, GMW 3359

II. Mechanical²:

Parameter/Equipment	Range	CMC ³ (±)	Comments
Tension ⁴	Up to 600 kN Up to 13 880 lbs	1.7 kN 390 lbs	Load cell/SOP 526; DIN EN ISO 16047; SAE/USCAR 10, 11; FORD WZ100, WZ101; GMW 25, GMW 3359
Torque ⁴	Up to 4000 Nm Up to 2950 lbs ft	0.31 Nm 0.23 lbs ft	Torque transducer with angle encoder/ SOP 525, 526; DIN EN ISO 16047; SAE/USCAR 10, 11; FORD WZ100, WZ101; GMW 25, GMW 3359

Cadon Plating & Coatings
3715 11th Street
Wyandotte, MI 48192
Joe Newby Phone: 734-288-0843

<u>Test⁷:</u>	<u>Test Method:</u>
Coating Thickness Magnetic	ASTM E376
Coating Weight	ASTM B767
Corrosion Test Salt Fog	ASTM B117; SAE/USCAR 1
Sampling Plans	Customer Specifications, MNP Control Plans; ASME B18.18; ASTM E1806, F1470
Torque Torque/Tension	SAE/USCAR 10, 11; FORD WZ100, WZ101

¹This accreditation covers the specified testing performed at the laboratory locations listed in this scope of accreditation.

²This laboratory does not offer commercial dimensional testing service.

³Calibration 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.

⁴This test is not equivalent to that of a calibration.

⁵The laboratory is only accredited for the test methods listed above. The accredited test methods are used in determining compliance with SAE J429. The inclusion of these material specifications on this Scope does not confer laboratory accreditation to the material specifications.

⁶This laboratory's scope contains withdrawn or superseded methods. As a clarifier, this indicates that the applicable method itself has been withdrawn or is now considered "historical" and not that the laboratory's accreditation for the method has been withdrawn.

⁷Testing performed at on-site inspection stations.



Accredited Laboratory

A2LA has accredited

MNP CORPORATION-TECHNICAL AND RESEARCH SERVICES

Utica, MI

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. 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).



Presented this 30th day of March 2023.

A blue ink signature of Mr. Trace McInturff, written over a horizontal line.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 0107.02
Valid to December 31, 2024

For the types of tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.