



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

MNP CORPORATION  
 TECHNICAL AND RESEARCH SERVICES<sup>1</sup>  
 (Corporate Facility)  
 44225 Utica Road  
 Utica, MI 48317  
 Chad Clifford Phone: 586 254 1320

MECHANICAL

Valid To: December 31, 2018

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 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; 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

Test:

Test Method(s):

Metallography

Sample Preparation  
Decarburization  
Carburization  
Macro Inspection  
Micro Inspection  
Grain Flow

ASTM E3, E1806  
ASTM E1077, F2328; SAE J419; ISO 898-1  
SAE J423, J1102/J1102M  
ASTM E340  
ASTM E45; SAE J422  
SAE/USCAR 8

Micro Hardness

Vickers (300g, 500g)

ASTM E384; ISO 6507-1

Part Cleanliness/Contamination

MNP SOP 554

Screw Test

Drive Test  
Ductility (using 10° Block)

SAE J81  
SAE J78, J81; ISO 2702

Serration Test

GM16535, GM6177M; SAE J1102, J1102M

Tensile Test

Axial & Wedge  
Proof Load  
Rod & Wire

ASTM A370, E8, F606/F606M; SAE J82, J429  
FMVSS209; PF-4730; ISO 898-1  
ASTM A370

Torque

Torsional Strength  
Prevailing Torque

SAE J78, J81; ISO 898-1; FORD WA970, WX200;  
GM6194M, GMW 14657, GMW 16722  
ESS-M11P24-A1, ESS-M11P24-A2

Visual Inspection

Discontinuities

ASTM F788; SAE J123,  
ISO 6157-1, 6157-2, 6157-3

I. Dimensional Testing<sup>2</sup>:

Parameter/Equipment	Range	CMC <sup>3</sup> (±)	Technique/Method
Angle <sup>4</sup>	(0 to 360)°	0.35°	Optical comparator/SOP 214
Concentricity <sup>4</sup>	Up to 1 in Up to 25.4 mm	0.0009 in 0.022 mm	Indicators on direct reading concentricity gage/SOP 167
Diameter <sup>4</sup>	(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 <sup>3</sup> (±)	Technique/Method
Linear <sup>4</sup>	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 <sup>4</sup>	Up to 1 in (25.4 mm)	0.0005 in 0.012 mm	Recess checker gage/SOP 105
Radius <sup>4</sup>	Up to 2.5 in Up to 63.5 mm	0.0020 in 0.052 mm	Optical comparator/SOP 214
Wobble Test <sup>4</sup>	(0 to 15) <sup>o</sup>	0.5 <sup>o</sup>	Wobble gage/SOP 113

## II. Mechanical<sup>2</sup>:

Parameter/Equipment	Range	CMC <sup>3</sup> (±)	Technique/Method
Weight <sup>4</sup>	42g 120g	0.00029 g	Mettler lab balance/SOP 554

<sup>1</sup> This accreditation covers testing performed at the main laboratory listed above, and the following satellite laboratories listed below

<sup>2</sup> This laboratory does not offer commercial dimensional testing service.

<sup>3</sup> Calibration 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.

<sup>4</sup> This test is not equivalent to that of a calibration.

MNP Engineering Center  
 1524 E. 14 Mile Road  
 Madison Heights, MI 48071  
 Scott Mickelson Phone: 248 307 0572

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; MNP SOP 525, 526; GMW 25, GMW 3359

I. Dimensional Testing<sup>2</sup>:

Parameter/Equipment	Range	CMC <sup>3</sup> (±)	Technique/Method
Torque Angle <sup>3</sup>	(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. Mechanical<sup>2</sup>:

Parameter/Equipment	Range	CMC <sup>3</sup> (±)	Technique/Method
Tension <sup>4</sup>	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 <sup>4</sup>	Up to 4000 Nm Up to 2950 ft lbs	0.31 Nm 0.23 ft lbs	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: 734 282 8100

<u>Test*:</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

\* Testing 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 17025:2005 *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 8 January 2009).



Presented this 2<sup>nd</sup> day of February 2017.

A handwritten signature in black ink, written over a horizontal line.

President & CEO  
For the Accreditation Council  
Certificate Number 0107.02  
Valid to December 31, 2018

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