

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

CONSUMERS ENERGY/LABORATORY SERVICES Laboratory Services 135 West Trail Street Jackson, MI 49201 Merideth Armstrong Phone: 517 788 2218 <u>merideth.armstrong@cmsenergy.com</u>

MECHANICAL

Valid To: July 31, 2024

Certificate Number: 1097.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests and analyses on the following materials and components: <u>metals</u> and alloys, steel, cast iron, aluminum, copper, composite materials, automotive components, coatings, fasteners, pipes, hoses, valves, fittings and pressure vessels.

Test:

Test Method:

General Mechanical:

Leeb Hardness Test (Type D) Tensile (Load Range <= 200k lb) Rockwell Hardness Testing (A, BW, C) Rockwell Hardness Testing Superficial (15, 30, 45N & 15, 30, 45T)

Microindentation Hardness Testing (HV 300 g/500 g) Microindentation Hardness Testing (HK 300 g/500 g Brinell Hardness (500 kg, 1500 kg & 3000 kg) Bend

Metallography/Microscopy:

Sample Preparation Microstructure Microetching Scanning Electron Microscopy with EDS Reflected Light Photomicroscopy Field Replica Preparation* Failure Analysis

PMI:

Portable X-Ray Fluorescence* (Bi, Co, Cr, Cu, Fe, Mn, Mo, Nb, Ni, Pb, Sb, Se, Si, Sn, Ti, V, W, Zn, Zr) ASTM A956 ASTM A370, B557, E8/E8M ASTM A370, E18 ASTM A370, E18

ASTM E384/E92 ASTM E384/E92 ASTM A370, E10 API 1104

ASTM E3 ASM Handbook Vol. 9 ASTM E407 ASTM E1508 ASTM E883 ASTM E1351 ASM Handbook Vol. 11 9th Ed, and the test on scopes 1097.02, .04 & 0.5

ASTM E1476 (Sec. 7.1)

*This laboratory performs field testing activities for these tests.

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(A2LA Cert. No. 1097.02) 09/28/2022

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Accredited Laboratory

A2LA has accredited

CONSUMERS ENERGY/LABORATORY SERVICES

Jackson, 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 28th of September 2022.

Vice President, Accreditation Services For the Accreditation Council Certificate Number 1097.02 Valid to July 31, 2024

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