

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

METALLURGICAL ENGINEERING SERVICES, INC.

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MECHANICAL

Certificate Number: 3065.01 Valid To: September 30, 2022

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on metals, polymers, fasteners, aerospace components, and coatings:

Test Test Method(s)

I. Mechanical Tests

Metal	lograpi	hy/M	licroscopy
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Metallographic Preparation ASTM E3 Grain Size ASTM E112, E1382 **Inclusion Rating** ASTM E45 Method A Graphite in Cast Iron ASTM A247 **Plating Coating Thickness** ASTM B487, B748

Case Depth **SAE J423**

Macroetching ASTM E340, E381 SEM **ASTM B748, E766**

Hardness/Microhardness

Rockwell (HRBW, HRC, HR15N, HR30N, HR15TW, HR30TW) ASTM E18 Brinell – 3000kg ASTM E10 Microhardness Knoop – 500g, Vickers 500g ASTM E384 Durometer Hardness, Shore A, D, and M **ASTM D2240**

Uniaxial

Tensile ASTM A370, B557, D412, D638, E8 Compression Testing of Metallic Materials at Room Temperature **ASTM E9** Flexural Properties of Reinforced Polymers ASTM D790 Tensile Properties of Polymer Matrix Composite Materials **ASTM D3039** Compressive Properties of Polymer Matrix Composite Materials **ASTM D6641** Using a Combined Loading Compression (CLC) Test Fixture

Flexural Properties of Polymer Matrix Composite Materials **ASTM D7264** ASME Section IX; Pressure Vessels ASME, Section IX AWS B4; Standard Methods for the Mechanical Testing of AWS B4

Welds

(A2LA Cert. No. 3065.01) 9/21/2020

<u>Test Method(s)</u>

I.Mechanical Tests Continued

Corrosion

Salt Spray ASTM B117

Drop Weight Tear Test ASTM E436

Failure Analysis (using the methods listed above and below)

ASM Handbook, Vol. 11

II. Chemical Tests

Portable X-ray Fluorescence (XFR via XL-PMI: Cr, Cu, Fe, Mg, Mo, ASTM E572, E1476

Mn, Nb/Cb, NI, Pb, Sn, V, W, Zn)

OES

Aluminum Alloys (Al, B, Be, Bi, Ca, Cr, Cu, Fe, Ga, Li, Mg, Mn, ASTM E1251

Na, Ni, P, Pb, Sb, Si, Sn, Sr, Ti, V, Zn, Zr)

Steel Alloys (Al, As, B, Bi, C, Ca, Ce, Co, Cr, Fe, La, Mn, Mo, ASTM E415, E1086

Nb, Ni, P, Pb, S, Si, Sn, Ti, V, W, Zn, Zr)

EDS ASTM E1508

FTIR ASTM E1252

Combustion Analysis of Carbon ASTM E1019

Proportion of Phases in Portland Cement Clinker ASTM C1365

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Accredited Laboratory

A2LA has accredited

METALLURGICAL ENGINEERING SERVICES, INC.

Richardson, TX

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).

SEAL 1978 A 2LA

Presented this 21st day of September 2020.

Vice President, Accreditation Services For the Accreditation Council Certificate Number 3065.01 Valid to September 30, 2022