SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

TENSILE TESTING METALLURGICAL LABORATORY
4520 Willow Parkway
Cleveland, OH 44125
Alex Manuk Phone: 216 641 3290

CHEMICAL

Valid To: May 31, 2027 Certificate Number: 0161.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on aerospace, nuclear, automotive parts, bar, forgings, castings, fasteners, medical implants, heat treated parts, eyebolts, weldments, coatings, paint, billets, stampings, rebar, wire, buckles, shackles, hitches, hooks, chains, cargo rings, clevis, turnbuckles, inserts and tubular products:

Test	Test Method(s)
Spectroscopy	
Optical Emission Spectrochemical Analysis - Argon Path (OES) (Al, As, B, Bi, C, Cd, Co, Cr, Cu, Mg, Mn, Mo, Ni, P, Pb, Sb, Sn, Ti, V, W, Y, Zn)	ASTM E415, E1086, E1251, E1999, E3047
Combustion	
LECO Carbon and Sulfur Analyzer (C, S)	ASTM E1019
LECO Oxygen, Nitrogen, and Hydrogen Analyzer (O, N, H)	ASTM E1019, E1447

Note: Testing performed on the following materials: Aluminum, Carbon and Alloy Steel, Copper Alloys (Brass, Bronze), Titanium, Nickel, Cobalt, Superalloys, Tool Steels, Hadfield Manganese and Stainless Steels.

5202 Presidents Court, Suite 220 | Frederick, MD 21703-8398 | Phone: 301 644 3248 | Fax: 240 454 9449 | www.A2LA.org

Accredited Laboratory

A2LA has accredited

TENSILE TESTING METALLURGICAL LABORATORY

Cleveland, OH

for technical competence in the field of

Chemical 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*).

American Association for Laboratory Accreditation
CORPORATE SEAL 1978
DISTRICT OF COLUMBIA
A2LA

Presented this 29th day of May 2025.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 0161.01
Valid to May 31, 2027

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

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

TENSILE TESTING METALLURGICAL LABORATORY
4520 Willow Parkway
Cleveland, OH 44125
Alex Manuk Phone: 216 641 3290

MECHANICAL

Valid To: May 31, 2027 Certificate Number: 0161.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on aerospace, nuclear, automotive parts, bar, forgings, castings, fasteners, medical implants, heat treated parts, eyebolts, weldments, coatings, coils, plates, paint, billets, stampings, rebar, wire, buckles, shackles hitches, hooks, chains, cargo rings, clevis, turnbuckles, inserts and tubular products[1]:

Test:	**Test Method(s):**
Mechanical:	
Ball Punch Deformation (Olsen, Erichsen)	ASTM E643, ISO 20482
Bend Test	ASTM A370 (Sec. 15), A49, A489, E190, E290; ISO 5173, 7438
Charpy Impact (-320 to 212) °F	ASTM A370 (Sec. 20-29), A923 (Method B), E23; EN 10045-1; ISO 083, 148
Clamp Test	GGG-C-406
Coiling Test	ASTM A370 (Sec. A2.5)
Compression	ASTM E9
Crush Test	ASTM A370 (Sec. A4.8), Tenneco PS 122.9
Flange Test	ASTM A370 (Sec. A2.5)
Flare Test	ASTM A370 (Sec. A2.5.1.4)
Flattening Test, Reverse Flattening	ASTM A370 (Sec. A2.5.1.1)
Fracture Toughness	ASTM E399, ISO 12135
Hardness:	
Brinell (500, 1000, 1500 & 3000) Kg	ASTM E10; ISO 6506, ISO 898-5 (6.1.2)
Rockwell / Superficial Rockwell (HRA, HRBW, HRC, HRD, HREW, HRFW, HRGW, HRHW, HRKW, HR15TW, HR30TW, HR45TW, HR15N, HR30N, HR45N)	ASTM E18, F606/F606M; NASM 1312-6; ISO 6508, ISO 898-5 (6.1.3)
Jominy Hardenability	ASTM A255; SAE J406, ISO 642
Microhardness:	

5202 Presidents Court, Suite 220 | Frederick, MD 21703-8398 | Phone: 301 644 3248 | Fax: 240 454 9449 | www.A2LA.org

Test:	Test Method(s):
Knoop (100, 200, 500) g	ASTM, E384, E92, F606/F606M; NASM 1312-6; ISO 5454
Vickers (300 g, 500 g, 1000 g, 10 Kg)	ASTM E92, E384, F606/F606M; NASM 1312-6; ISO 6507, ISO 898-5 (6.1.1)
Shackles	RR-C-271
Tape Adhesion	ASTM D3359; FED-SPEC-141C
Twist Test	ASTM A938, ISO 7800
Wrap Test	ASTM A370 (A4.7)
Evaluation of the Degree of Blistering of Paints	ASTM D714
Stress Rupture (Up to 1500) °F w/ Smooth, Notch and Combination (Combo) Bars	ASTM E139, E292; ISO 204; NASM 1312-14
Tensile:	
Room Temperature (RT) (Up to 400K for Ultimate Tension, Yield, Elongation, Reduction of Area, Modulus)	ASTM A370 (Sec. 6-14), A770, B557, E8/E8M; DIN 50125; EN 10002 (Withdrawn 2001)[2], 10164; JIS Z2201, Z2241; NASM 1312-8; ISO 6892-1
R Value	ASTM E517; ISO 10113
N Value	ASTM E646; ISO 10275
Elevated Temperature (Up to 1500 °F)	ASTM E21; NASM 1312-18; ISO 6892-2
Fastener:	
Blind Rivets	IFI 114, IFI 135
Discontinuities	ASTM F788, F812; SAE J122, J123 (Cancelled 2012)[2]; ISO 6157
Ductility	SAE J78, J81
Hydrogen Embrittlement / Debrittlement	ASTM F519, F606/F606M; NASM 1312-5
Verification (Stress Durability)	USCAR-5, USCAR-7
Prevailing Torque	IFI 100/107, ASME B18.6.6
Proof (Internal & External Threads)	ASTM A370 (Annex A3), F606; SAE J429, J995; ISO 898-2, -6
Rotational Capacity (RoCap)	AASHTO M164 (Withdrawn 2005)[2]; ASTM A325 (Sec. 10.2), F3125
Tensile:	
Axial Tensile	ASTM A370, ASTM F606/F606M; ISO 898-1; ICC AC437 (Sec. 4-1-4.3 only)
Wedge Tensile	ASTM A370, ASTM F606/F606M; ISO 898-1
Screw Thread Insert	MIL-I-45914A
Shear / Double Shear / Triple Lug Shear	ASTM F606; NASM 1312-13, 1312-20; ICC AC437 (Sec. 4-1-4.3 only), MIL-J-244445(SH)
Torque Tension	ISO 16047
Torque Testing	ASTM F738 (Sec. 10.2.4), F880 (Sec. 12.3),

Test:	Test Method(s):
	F912 (Sec. 11.2); IFI 101; ISO 898-5 (6.3), -7, NASM 1312-31
Torque Test (Locking, Breakaway, Wrench)	MIL-N-25027
Turnbuckle Test	ASTM F1145
Metallographic Evaluation:	
Alpha Case	ASTM E407
Banding / Orientation of Microstructures	ASTM E1268; ASM Handbook (Vol. 9)
Case Depth	SAE J423, J121 (Cancelled 2013)[2]; ISO 18203
Coating	ASTM B201
Depth of Decarburization / Chord Method	ASTM A574, E1077, F2328; SAE J121, J419 SAE ARP 1820, ISO 898-5 (6.2)
Ferrite Rating	AMS 2315
Graphite in Castings / Nodularity	ASTM A247; GM9095P
Grain Size (Comparison Method) / Oxidation Method / McQuaid Ehn)	ASTM E112, E930
Volume Fraction by Systematic Manual Point Count	ASTM E562
Inclusion Rating / Microcleanliness	ASTM E45 (Method A & D), ISO 4967
Metallographic Specimen Preparation	ASTM E3
Macro / Micro Etch	ASTM A561, A604, E340, E381, E407
Photomicrography	ASTM E883
Plating Thickness / Coating Thickness	ASTM B487
Material Property Analysis:	
Coating Weight	ASTM A90, A428, B137; NASM 1312-12
Conductivity, Resistivity	ASTM B193, E1004
Surface Roughness / Surface Finish	ASME B46.1
Adhesion of Metallic Coatings (Bend Test, Burnishing Test, File Test, Grind-Saw. Heat-Quench Test)	ASTM B571 (Methods 3, 4, 7, 8, 9), ISO 2819
Corrosion:	
Corrosion Test	ASTM A923 (Method A & C)
Intergranular Corrosion (IGA)	ASTM A262 (Practice A & E), G28, G48, G110
Salt Spray	ASTM B117; ISO 9227, NASM 1312-1
Humidity	ASTM D1735; NASM 1312-3
Other:	
Failure Analysis (using the test technologies listed above)	ASM Metals Handbook Vol. 11
Heat Treat[3]	SAE-AMS-H6875, AMS 2750

Test:	Test Method(s):
Welder & Braze Evaluation & Qualification – PQR, WPS	ASME Section IX, AWS D1.1, D1.5, API 1104, AWS B2.1, B4.0, D1.1, D1.2, D1.3, D1.4, D1.5, D1.6, D1.7, D15.1, D17.1

[1]Testing performed on the following materials: Aluminum, Carbon and Alloy Steel, Copper Alloys (Brass, Bronze), Titanium, Cobalt, Superalloys, Tool Steels, Nickel Alloys and Stainless Steels.

[2]This 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.

[3]Heat Treatment Performed Only on Samples Prior to Testing. (Heat Treat Capability) including age, anneal, austenitize, bake, heat resistance, normalize, PWHT (Post Weld), stress relieve, quench & temper, 24 hour on nuts.

Accredited Laboratory

A2LA has accredited

TENSILE TESTING METALLURGICAL LABORATORY

Cleveland, OH

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 29th day of May 2025.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 0161.02
Valid to May 31, 2027

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