SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT CHARLOTTE
1200 Westinghouse Blvd., Suite A
Charlotte, NC 28273
Parth Patel Email: parth.patel@element.com

MECHANICAL

Valid To: December 31, 2026 Certificate Number: 2335.01

In recognition of the successful completion of the A2LA evaluation process accreditation is granted to this laboratory to perform the following tests on metals and metal products:

Test	Test Method(s)
Bend	ASME Sec. IX; ASTM A370, E290; AWS D1.1, D1.5; ISO 5173
Coating Weight	ASTM A90/A90M; Fed-Spec TT-C-490
Corrosion Testing	
Intergranular Corrosion Susceptibility	ASTM A262 (Practice A and E only); ISO 3651-2
Creep Testing	ASTM E139, E292
Stress Rupture	ASTM E139, E292
SEM/ EDS	
Qualitative Analysis	ASTM E1508
Fasteners	
Hardness	ASTM A370, F606/F606M; AIA/NAS NASM 1312-6
Tensile	
Ambient	ASTM A370, B557, E8/E8M; ISO 6892-1
Elevated Temperature (400 to 1800)°F	ASTM E21; ISO 6892-2
Test Specimen Machining/ Grinding	ASTM A370, B557, E8/E8M, E23, E139, E292, F606/F606M; GE P1TF79 (Class B)
Test Specimen Longitudinal/Axial Polish	SOP 25.00

Test	**Test Method(s)**
Hardness/ Microhardness	
Rockwell (A, B, C, F, 15N, 30N, 45N, 15T, 30T)	ASTM E18; ISO 6508-1
Brinell (500, 3000) Kg	ASTM E10
Vickers (100, 200, 300, 500, 1000) gf	ASTM E92, E384
Knoop (100, 200, 300, 500, 1000) gf	ASTM E92, E384
Impact (Charpy / (-320 to 450)ºF)	ASTM A370, E23; ISO 148-1
Metallography/Micrography on Ferrous and Nonferrous Materials	
Alpha Case	GE P3TF19, P3TF32; SOP 50.75
Case Depth	ASTM F2328; SAE J423
Decarburization	ASTM E1077, F835, F912, F2328; SAE J419
Grain Size	ASTM E112, E930, E1181; GE E50TF133
Macroscopic Examination	ASTM A561, A604, E340, E381
Microstructure	SOP 50-35; GE E50TF133; ASM Handbook Vol. 9
Non-metallic Inclusion	ASTM E45 (Methods A, B, and D)
Plating Thickness	ASTM B487, B499, E376
Sample Preparation	ASTM E3, E407
Specimen Heat Treatment	ASM 2750[1]; SOP 60.10
Volume Fraction Determination	ASTM E562, E1245
Magnetic Permeability	ASTM A342; SEV-ENG-96040.1; SOP 55.00
Welder/Weld Procedure Qualification	AWS D1.1, D1.4 (Sections 6 and 7), D1.5 (Sections 1, 5, 6, 7), D1.6, D17.1; AMS-W-6858; ASME Section IX
Failure Analysis	Using the methods listed above on the mechanical scope of accreditation, in accordance with the ASM Handbook Volume 11
Density Testing	ASTM B311

[1] Please note that this is not a test method but rather a heat treatment specification covering the pyrometric requirements for sample and specimen preparation

Accredited Laboratory

A2LA has accredited

ELEMENT CHARLOTTE

Charlotte, NC

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 2nd day of December 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2335.01
Valid to December 31, 2026

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

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT CHARLOTTE
1200 Westinghouse Blvd., Suite A
Charlotte, NC 28273
Parth Patel Email: parth.patel@element.com

CHEMICAL

Valid To: December 31, 2026 Certificate Number: 2335.02

In recognition of the successful completion of the A2LA evaluation process accreditation is granted to this laboratory to perform the following spectroscopy tests on metals and metal products (Aluminum, Cast Iron, Cobalt, Copper, Nickel, Titanium):

Test	**Test Method(s)**
Combustion & Fusion Analysis[1] Hydrogen (Titanium only)/ Oxygen, Nitrogen, and Hydrogen by Inert Gas Fusion	ASTM E1447, E2792, E1019, E1941, E1409; SOP 14000
Carbon/Sulfur Analysis by Combustion[1]	ASTM E1019; SOP 13.00
Optical Emission Spectroscopy (OES) [1, 2] (Al, B, C, Co, Cr, Cu, Fe, Mg, Mn, Mo, Nb, Ni, P, Pb, S, Si, Sn, Sr, Ta, Ti, V, W, Zn, Zr)	ASTM E415, E1086, E1251, E2994, E1999, E3047; SOP 12.00, SOP 14000

[1] *This laboratory performs field testing activities for these tests.*

[2] *The laboratory is accredited for the test methods listed above. The accredited test methods are used in determining compliance with the material specifications listed below; however, the inclusion of these material specifications on this Scope does not confer laboratory accreditation to the material specifications. Inclusion of these material specifications on this Scope also does not confer accreditation for every method embedded within the specification. Only the methods listed above on this Scope are accredited.*

Test	Material Specification
Optical Emission Spectroscopy (OES) (Al, B, C, Co, Cr, Cu, Fe, Mg, Mn, Mo, Nb, Ni, P, Pb, S, Si, Sn, Sr, Ta, Ti, V, W, Zn, Zr)	API 5LD

Accredited Laboratory

A2LA has accredited

ELEMENT CHARLOTTE

Charlotte, NC

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*).

Presented this 2nd day of December 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2335.02
Valid to December 31, 2026

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