



Accredited Laboratory

A2LA has accredited

ELEMENT HUNTINGTON BEACH

Huntington Beach, CA

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 30th day of April 2024.

A blue ink signature of Mr. Trace McInturff, written over a horizontal line.

Mr. Trace McInturff, Vice President Accreditation Services
For the Accreditation Council
Certificate Number 93.01
Valid to May 31, 2026

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

ELEMENT HUNTINGTON BEACH
15062 Bolsa Chica Street
Huntington Beach, CA 92649
Jennifer Kent Phone: 714 892 1961

CHEMICAL

Valid To: May 31, 2026

Certificate Number: 0093.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following types of metals tests:

<u>Test(s):</u>	<u>Test Method(s):</u>
Combustion (LECO) Analysis for Carbon & Sulfur	ASTM E1019, ASTM E1941; SOP 7.00 ¹
Fusion Analysis (LECO) for Oxygen, Nitrogen, and Hydrogen	ASTM E1019, ASTM E1409, ASTM E1447, ASTM E2792; SOP 14.00 ¹
Optical Emission Spectrochemical (OES) Analysis (Al, B, Be, Bi, C, Cd, Co, Cr, Cu, Mn, Mo, N, Nb, Nd, Ni, P, Pb, S, Se, Si, Sr, Ta, Ti, V, W, Zn, Zr)	ASTM E227, ASTM E415, ASTM E1086, ASTM E1251, ASTM E2994, ASTM E3047; SOP 2.02 ¹
Portable X-ray Dispersive Analysis (PMI) Semi-Quantitative Analysis	SOP 6.01 ¹
Atomic Absorption (AA) for Trace Elements (Ag, As, Bi, Cd, In, Pb, Sb, Se, Sn, Te, Tl in Ni base alloys)	ASTM E1184, ASTM E1834, ASTM E1852; SOP 10.10 ¹
Inductive Coupled Plasma (ICP) (Ag, Al, As, Au, B, Ba, Be, Bi, Ca, Cd, Cp, Ce, Co, Cr, Cu, Dy, Er, Eu, Fe, Ga, Gd, Ge, Hf, Hg, In, Ir, K, La, Li, Mg, Mn, Mo, Na, Nb, Nd, Ni, Os, P, Pb, Pd, Pr, Pt, Re, Rh, Ru, Sb, Sc, Se, Si, Sm, Sn, Sr, Ta, Tb, Te, Th, Ti, Tl, U, V, W, Y, Yb, Zn, Zr)	ASTM E1479, ASTM E2371, ASTM E2594; SOP 17.00 ¹
X-Ray Fluorescence (XRF) (Ag, Al, Bi, Cb, Co, Cr, Cu, Fe, Hf, Mn, Mo, Nb, Ni, P, Pb, Re, Sb, Si, Sn, Ta, Ti, V, Y, W, Zn, Zr)	ASTM E322, ASTM E539, ASTM E572, ASTM E1085, ASTM E2465

¹ Laboratory developed method.



Accredited Laboratory

A2LA has accredited

ELEMENT HUNTINGTON BEACH

Huntington Beach, CA

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 30th day of April 2024.

A blue ink signature of Mr. Trace McInturff, written over a horizontal line.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 93.02
Valid to May 31, 2026

For the types of 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 HUNTINGTON BEACH
15062 Bolsa Chica Street
Huntington Beach, CA 92649
Jennifer Kent Phone: 714 892 1961

MECHANICAL

Valid To: May 31, 2026

Certificate Number: 0093.02

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 satellite location listed below, to perform the following types of metals tests:

Test(s):

Test Method(s):

Additive Manufacturing Testing

Apparent Density	ASTM B212, ASTM B329
Flow Rate	ASTM B213
Gas Pycnometry	ASTM B923
Particle Size Distribution – Sieve Analysis	ASTM B214
Particle Size Distribution – Light Scattering	ASTM B822; ISO 13320
Tap Density	ASTM B527

Mechanical Testing (Static)¹

Bend Test	ASTM A615/A615M, ASTM E290
Charpy V-Notch Impact	ASTM A370, ASTM E23; EN 10045-1; JIS B1051; ISO 148-1
Compression Strength	ASTM E9
Electrical Conductivity	ASTM B193, ASTM E1004; MIL-STD-1537
Elevated Temperature Tensile	ASTM E21; EN 2002-2
Izod Pendulum Impact Resistance	ASTM A370, ASTM E23
Magnetic Permeability Using a Low-Permeability Indicator	ASTM A342/A342M; MIL-I-17214
Modulus (Young's, Tangent, Chord)	ASTM E111
Poisson's Ratio	ASTM E132
Pin-Type Bearing	ASTM E238
Shear Testing of Metals	ASTM B769, ASTM B831
Stress Rupture of Metals and Creep Rupture	ASTM E139, ASTM E292; EN 2002-5

Test(s):

Tension

Cryogenic Tensile

Mechanical Testing (Dynamic)¹

Crack Propagation / Crack Growth

Conducting Force-Controlled Constant- Amplitude Axial Fatigue Tests of Metallic Materials

Linear-Elastic Plane-Strain Fracture Toughness K_{1C} of Metallic Materials

Residual Life Testing

Strain-Controlled Fatigue Testing

Metallurgical Testing¹

Alloy Depletion

Alpha Case

Casting Mold Reaction Layers

Decarburization and Case Depth

Density of Powder Metallurgy

Grain Size

Inclusion Content of Steel

Intergranular Attack/Oxidation (IGA/IGO)

Macroscopic Examination by Etching

Microscopic Examination by Etching

Microstructure

Nitriding

Oxidation / Corrosion

Scanning Electron Microscope (SEM)

Hardness Testing¹

Brinell Hardness (500 Kg & 3000 Kg)

Jominy

Microhardness (10-1000 HV, 10-1000 Knoop)

Rockwell (A, B, C, E, F, 15N, 30N, 45N, 15T, 30T, 45T)

Test Method(s):

ASTM A370, ASTM B557, ASTM E8; EN 2002-1

SOP 94.00²; ISO 6892-3

ASTM E647

ASTM E466; BS 3518-1, BS 3518-3; EN 6072

ASTM B909, ASTM E399

GE C50TF57, GE C50TF12

ASTM E606/E606M

SOP 60.160²GE P3TF19, GE P3TF32; SOP 60.150²SOP 60.60²ARP 1820; ASTM B487, ASTM E1077, ASTM F835, ASTM F2328, ASTM G79; ISO 898-1, ISO 898-5, ISO 4507; SAE J78, SAE J121, SAE J419, SAE J423
ASTM B311

ASTM E112, ASTM E930, ASTM E1181; ISO 643; GE E50TF133

ASTM E45, Parts A & D

SOP 60.80²

AMS 2380, ASTM A604, ASTM E340, ASTM E381; SAE J123, SAE J1061

AMS 2643; ASTM E407

ISO 20160; SOP 60.00²SOP 60.70²SOP 60.50²SOP 68.00², SOP 68.10²

ASTM A370, ASTM E10; ISO 6506-1

ASTM A255

ASTM E384; MIL-STD-1312-6; NASM 1312-6

ASTM A370, ASTM E18, ASTM E140, ASTM F606/F606M; ISO 898-1, ISO 3738-1, ISO 6508-1; MIL-STD-1312-6; NASM 1312-6; SAE J1199

Test(s):

Vickers (1 to 30) kg

Corrosion Testing

Alternate Immersion Stress Corrosion

Copper Sulfate

Exfoliation Corrosion

Humidity Testing

Intergranular Corrosion Susceptibility

Salt Spray (Fog)

Fastener Testing

Axial Tensile Strength

Coating Thickness of Fasteners –
Microscopical Method

Cone Proof of Internally Threaded Fasteners

Double Shear

Drive

Elevated Temperature Tensile

Free Height/Compression/Flattening

Hardness – Rockwell (A, B, C, E, F, 15N, 30N,
45N, 15T, 30T, 45T)

High Cycle Fatigue (HCF)

Humidity Testing

Hydrogen Embrittlement (Stress Durability)

Interlocking Test

Microhardness (10-1000 HV, 10-1000 Knoop)

Proof Load of Full-Size Externally Threaded
Fasteners

Proof Load of Internally Threaded Fasteners

Push-Out Test of Floating Plate Nuts, Gang
Channel Nuts and Anchor Nuts**Test Method(s):**

ASTM E92

ASTM G38, ASTM G44, ASTM G47,
ASTM G49

ASTM A380; MIL-STD-753 (Method 102)

ASTM G34

AMS-QQ-P-35; ASTM D2247; MIL-STD-753,
MIL-STD-810

ASTM A262, Practices A and E

ASTM B117; ISO 9227; MIL-STD-810

ASTM A370, ASTM F606/F606M; ISO 898-1,
ISO 6892; JIS B1051; MIL-STD-1312-8;
NASM 1312-8; SAE J82, SAE J429; SAE J1054

MIL-STD-1312-12; NASM 1312-12

ASTM A962/A962M, ASTM F606/F606M,
ASTM F812/F812M; IFI 533; SAE J122ASME 18.8.2, ASTM B565; MIL-STD-1312-13;
NASM 1312-13

ASME B18.6.3; SAE J81, SAE J933

MIL-STD-1312-18; NAS3350; NASM 1312-18,
NASM 25027

FF-W-84, FF-W-100; ASME B18.21.1

ASTM A370, ASTM E18, ASTM F606/F606M;
ISO 898-1, ISO 3738-1; MIL-STD-1312-6;
NASM 1312-6; SAE J1199

MIL-STD-1312-11; NAM 1312-111; NASM

1312 11
MIL-STD-1312-3; NASM 1312-3AMS-QQ-P-416; ASTM F519,
ASTM F606/F606M;
SAE J81; MIL-STD-1312-5; NASM 1312-5

FF-W-84

ASTM E384; MIL-STD-1312-6; NASM 1312-6

ASTM A370, ASTM F606/F606M; ISO 898-1;
JIS B1051; MIL-STD-1312-8; NASM 1312-8;
SAE J429, SAE J1216ASTM A370, ASTM F606/F606M; BPS-N-70;
ISO 898-2, ISO 898-6; JIS B1052, JIS B1056;
SAE J995, SAE J1216

NASM 25027

Test(s):

Recess Strength Test in Both Installation and Removal Directions

Reusability Test of Self-Locking Internally Threaded Fasteners

Salt Spray (Fog)

Single Shear

Stress Rupture of Fasteners

Surface Discontinuities of Externally Threaded Fasteners

Surface Discontinuities of Internally Threaded Fasteners

Torque

Torsional Strength Test of Thread Rolling and Self Drilling Tapping Screws

Total Extension at Fracture of Externally Threaded Fasteners

Twist Test of Lock Washers

Wedge Tensile Strength of Full-Size Threaded Fasteners

Wrench Torque Test of Externally Wrenched Nuts of Spline, Hexagon and Double Hexagon Wrenching Configuration

Yield Strength of Full-Size Threaded Fasteners

Coating Testing

Abrasion Resistance

Adhesion

Coating Thickness – Microscopic Method

Coating Weight

Porosity

Specimen Preparation¹

Heat Treat

Low Stress Grinding and Polishing²

Test Method(s):

MIL-STD-1312-25; NASM 1312-25

AS7250, AS7251, AS7252, AS7253; BPS-N70; MIL-STD-1312-31; NAS 3350; NASM 1312-31, NASM 25027

MIL-STD-1312-1; NASM 1312-1

ASTM F606/F606M; MIL-STD-1312-20; NASM 1312-20

MIL-STD-1312-10; NASM 1312-10

ASTM A490, ASTM F788/F788M; ISO 6157-1, ISO 6157-3; SAE J123, SAE J1061

ASTM F812/F812M; SAE J122

MIL-DTL-18240

ASME B18.6.3; SAE J78, SAE J81, SAE J933

ASTM F606/F606M; ISO 3506; JIS B1054

ASME B18.21.1; FF-W-84

ASTM A370, ASTM F606/F606M; ISO 898-1, ISO 6892; JIS B1051; MIL-STD-1312-8, MIL-STD-1312-18; NASM 1312-8, NASM 1312-18; SAE J82, SAE J429

MIL-STD-1312-31; NASM 1312-31, NASM 25027

ASTM F606/F606M; ISO 898-1; JIS B1051; JIS B1054; MIL-STD-1312-8; NASM 1312-8; SAE J429

ASTM D4060

ASTM B571 (*excluding Draw, File, Impact, Peel, and Push methods*); ASTM D3359; FED-STD-141; MIL-C-83488; SAE J207

ASTM B487

MIL-A-8625

AMS 2460

SOP 63.00²

GE P1TF79

Test(s):

**Weld & Braze Testing, Procedure Qualification
and Performance Qualification**

Bend¹

Test Method(s):

API 1104, API 5L, API 650; ASTM A488,
ASTM E190; AWS B2.1, AWS B4.0,
AWS D1.1, AWS D1.2, AWS D1.3, AWS D1.5,
AWS D1.6, AWS D1.9, AWS D14.1,
AWS D15.1, AWS D17.1, AWS D18.1;
ASME BPVC SEC IX, ASME B31.1,
ASME B31.3; CGA C-3; ISO 5173, ISO 9606,
ISO 15614; JIS-B-8625;
NAVSEA S9074-AQ-GIB-010/248

Hardness

API 5L, API 5CT, API 650;
ASME BPVC SEC IX;
AWS D15.2; ISO 1514, ISO 9015, ISO 15156;
JIS-B-8625; NAVSEA S9074-AQ-GIB-010/248

Post-Weld Heat Treat¹

ASME BPVC SEC II-DIV 1, ASME BPVC SEC
VIII-DIV 1, ASME BPVC SEC IX,
ASME B31.1, ASME B31.3; AWS D1.1,
AWS D1.5; JIS-B-8625

Tension Test

AMS 2680, AMS 2694; API 1104, API 5L,
API 5CT, API 650; ASME BPVC SEC IX,
ASME B31.1, ASME B31.3, ASTM A488;
AWS B2.1, AWS B2.2, AWS B4.0, AWS D1.1,
AWS D1.2, AWS D1.4, AWS D1.5, AWS D1.6,
AWS D1.9, AWS D14.1, AWS D15.1,
AWS D17.1, AWS D18.1; CGA C-3;
ISO 4136, ISO 15614; JIS-B-8625;
NAVSEA S9074-AW-GIB-010/248

Weld Macro

API 1104, API 5L, API 650;
ASME BPVC SEC IX; ASTM A488,
ASTM E190; AWS B2.1, AWS B4.0,
AWS D1.1, AWS D1.2, AWS D1.3, AWS D1.5,
AWS D1.6, AWS D1.9, AWS D14.1,
AWS D15.1, AWS D15.2, AWS D17.1,
AWS D18.1; GCA C-3; ISO 15614, ISO 17639;
JIS-B-8625; NAVSEA S9074-AW-GIB-010/248

Weld Visual

AMS 2680; ASME BPVC SEC IX,
ASME BPVC SEC III-DIV 1,
ASME BPVC SEC VIII-DIV 1,
ASME BPVC SEC V, ASME B31.1,
ASME B31.3; ISO 15614, ISO 9606;
NAVSEA S9074-AQ-GIB-010/248;
AWWA D 100; API 1104, API 650, API 620;
AWS D17.1, AWS D17.2, AWS B2.1,
AWS D1.1, AWS D1.2, AWS D1.4, AWS D1.5,
AWS D1.6, AWS D1.9, AWS D14.1,
AWS D14.3, AWS D15.1, AWS D18.1

Test(s):

Non-Destructive Testing

Magnetic Particle Inspection
(Wet Fluorescent)

Penetrant (Water Washable Fluorescent)

Test Method(s):

ASTM E1444; MIL-STD-1949, MIL-STD-271

ASTM E1417; MIL-STD-271, MIL-STD-6866

15678 Graham St.,
Huntington Beach, CA 92649

Test(s):

Post-Weld Heat Treat

Heat Treat

Low Stress Grinding

Jominy (*Conditioning only*)

Electrical Conductivity

Test Method(s):

ASME BPVC SEC II-DIV 1,
ASME BPVC SEC VIII-DIV 1, ASME BPVC SEC IX,
ASME B31.1, ASME B31.3; AWS D1.1, AWS D1.5;
JIS-B-8625

SOP 63.00²

GE P1TF79

ASTM A255

ASTM B193, ASTM E1004; MIL-STD-1537

¹ Specimens machined or heat treated at the satellite address listed below and tested at the address listed above.

² Laboratory developed method.