



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT HOUSTON - YORKTOWN
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MECHANICAL

Valid To: December 31, 2022

Certificate Number: 1480.05

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on fasteners, metals, alloys, and non-metallics:

Test:	Test Method(s):
Chemical Combustion Analysis (H, C, N, O, S) Optical Emission Spectroscopy (Al, B, Be, Bi, C, Cd, Co, Cr, Cu, Fe, Mn, Mo, N, Nb, Ni, P, Pb, S, Sb, Si, Ta, Ti, V, W, Zn, Zr)	ASTM E1019, ASTM E1409, ASTM E1447; SOP MET-30.03 ASTM E415, ASTM E1086, ASTM E1251, ASTM E1999, ASTM E3047; SOP MET-30.01 ASTM A751 ASTM E322, ASTM E522, ASTM E1245
Corrosion Intergranular Attack Pitting Crevice Hydrogen-Induced Cracking Sulfide Stress Cracking Slow Strain Rate Salt Spray Immersion Testing Stress Corrosion Cracking Hydrogen Embrittlement Evaluation	ASTM A262, ASTM G28; ASTM A923, ASTM G48 ASTM G48 ASTM G48 NACE TM0284 NACE TM0177, TM0316 NACE TM0198 ASTM B117: BS EN ISO 9227, ASTM G85; ISO 12944-6, ISO 12944-9, Norsok M501 ASTM G31, NACE TM0169 ASTM G44, ASTM G47, ASTM G49 ASTM F519
Failure Analysis	ASM Handbook, Volume 11
Hardness Brinell (1500, 3000 lbs) Rockwell (A, B, C and 15N) Knoop (100 g, 500 g) Vickers (100 g, 500 g, 5 kg, 10 kg, 30kg)	ASTM A370, ASTM E10, ISO 6506 ASTM A370, E18; AWS B4.0 (Clause 8); BS EN ISO 6508 ISO 15156-1, 898-1 ASTM E92, ASTM E384 ASTM E92, ASTM E384; ISO 15614-1, 15156-1, ISO 6507
Magnetic Permeability	ASTM 557A342, ASTM A342/A342M; MIL-I-17214

Test:	Test Method(s):
Metallographic Examination Preparation of Metallographic Specimens Alpha Case Carburization/Decarburization (Hardness, Optical) Coating Thickness (Cross Sectioning) Coating Weight Macroetch Microetch Grain Size Banding / Microstructure Inclusion Content Volume Fraction Microstructure of Graphite in Iron Casting	ASTM E3; BS EN 3114-001 SOP MET-40.24; GE P3TF19, P3TF32 ASTM E1077, ASTM F2328, ASTM F2328M; ISO 898-1; SAE J121 ASTM B487 ASTM A90/A90M ASME IX; ASTM A604, ASTM E340, ASTM E381; AWS D1.2/D1.2M (Clause 3), D1.5M/D1.5 (Clause 5), D1.6/D1.6M (Clause 4), D14.1/D14.1M (Clause 9); ISO 15614-1, AWS D1.1/D1.1M, API 1104, EN 287, 288, 1321 ASTM E407, ASTM E3, BS EN 3114-001 ASTM E112, ASTM E930, ASTM E1181 ASTM E1268; ASM Metals Handbook, Vol. 9 ASTM E45, Methods A & D ASTM E562 ASTM A247
Detrimental Intermetallic Phase Determination in Duplex Stainless Steel	ASTM A923
SEM Electron Microscopy	ASM Handbook, Vol. II
Energy Dispersive Spectroscopy (Semi-quantitative)	ASTM E1508
Bend	API 1104; ASME IX; ASTM A370; ISO 15614-1; AWS B4.0 (Clause 6), D1.1 (Clause 4), D1.2 (Clause 3), D1.5 (Clause 5), D1.6 (Clause 4), ISO 5173, ABS Rules, DNV Rules
Fillet Weld Break Test	ASME IX, AWS D1.1/D1.1/M, ISO 9606-1
Compression Compression at Evaluated Temperature	ASTM E9 ASTM E209
Cyclic Straining	DNV-OS-F101
Drop Weight Testing	ASTM E208
Flattening	ASTM A370
Fracture Toughness	API 1104; ASTM E399, ASTM E1290, ASTM E1820; BS 7448 Pts 1, 2, & 4, BS 8571; DNV-OS-F101 (SENB Geometry Jcritical), DNV-RP-F108 (SENT Geometry Jcritical & JRcurve - multi-specimen); ISO 12135, ISO 12737, ISO 15653
Nick-Break	API 1104
Ring Flattening	ASTM A53/A53M, ASTM A530/A530M, ASTM A999/A999M, API 5L, ASME SA530



Test:	Test Method(s):
Impact (Charpy) – Metals (R.T to -320°F)	API 1104; ASME VIII, IX, B31.3; ASTM A370, E23; AWS B4.0 (Clause 7), D1.1 (Clause 4), D1.5 (Clause 5); ISO 148-1
Proof Load (Internal/External Threads)	ASTM A370, F606/F606M; ISO 898-1
Tensile Machined (Round & Flat) Fastener (Wedge / Axial)	API 1104; ASME IX; ASTM A370, ASTM B557; EN-2002-1; ASTM E8/E8M, E21 (Up to 400°F), F606/F606M; AWS B4.0 (Clause 5), D1.1, D1.2 (Clause 3), D1.5 (Clause 5), D1.6 (Clause 4); ISO 15614-1, 898-1; ASTM A770/A770M, ABS Rules, BS 4515, DNV Rules, EN ISO 6892-1 ASTM A370, F606/F606M; ISO 898-1
Low Stress Grinding Low Stress Grinding and Polishing	GE P1TF79 GE P1TF79
Non-Metallics	
Tensile Rubber Plastic Fiberglass (Room Temperature)	ASTM D412 ASTM D638 ASTM D3039/D3039M
Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials	ASTM D790
Izod Pendulum Impact Resistance of Plastics	ASTM D256
Hardness Shore A Barcol	ASTM D2240 ASTM D2583
Coatings	
Condensation Adhesion Visual Assessment Water Immersion Cathodic Disbondment UV Accelerated weathering Coating thickness	ISO 6270-1, ISO 12944-6 ISO 4624, ISO 2409, ASTM D4541, ISO 12944-6, ISO 12944-9, Norsok M501 ISO 4628-2, ISO 4628-3, ISO 4628-4, ISO 4628-5, ISO 4628-6, ISO 12944-6, ISO 12944-9, Norsok M501 ISO 2812-2, ISO 12944-6, ISO 12944-9, Norsok M501, ISO 21809-1, ISO 21809-2, ISO 21809-3, CSA Z245.20 series 18 ISO 15711, ISO 21809-1, ISO 21809-2, ISO 21809-3, ISO 12944-9, Norsok M501 ISO 16474-3, ASTM G154, ISO 12944-6, ISO 12944-9, Norsok M501 ISO 2808, ASTM G154



Accredited Laboratory

A2LA has accredited

ELEMENT HOUSTON - YORKTOWN

Houston, 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).



Presented this 19th day of January 2021.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1480.05
Valid to December 31, 2022

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