



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017<sup>1</sup>

ELEMENT MATERIALS TECHNOLOGY HOUSTON LLC  
 14805 Yorktown Plaza Drive  
 Houston, TX 77040  
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MECHANICAL

Valid To: December 31, 2020

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 <sup>1</sup> ASTM E322 <sup>1</sup> , ASTM E522 <sup>1</sup> , ASTM E1245 <sup>1</sup>
Corrosion Intergranular Attack Pitting Crevice Hydrogen-Induced Cracking Sulfide Stress Cracking Slow Strain Rate Salt Spray <sup>1</sup>	ASTM A262, ASTM G28; ASTM A923 <sup>1</sup> , ASTM G48 <sup>1</sup> ASTM G48 ASTM G48 NACE TM0284 NACE TM0177, TM0316 NACE TM0198 ASTM B117 <sup>1</sup> : BS EN ISO 9227 <sup>1</sup>
Failure Analysis	ASM Handbook, Volume 11
Hardness Brinell (1500 <sup>2</sup> , 3000 lbs) Rockwell (A <sup>2</sup> , B, C and 15N)  Knoop (100 g, 500 g) Vickers (100 g, 500 g, 5 kg, 10 kg)	ASTM A370, ASTM E10, ISO 6506 <sup>2</sup> ASTM A370, E18; AWS B4.0 (Clause 8); BS EN ISO 6508 <sup>2</sup> ISO 15156-1, 898-1 ASTM E92, ASTM E384 ASTM E92, ASTM E384; ISO 15614-1, 15156-1, ISO 6507 <sup>1</sup>
Magnetic Permeability	ASTM 557A342, A342M; MIL-I-17214
Metallographic Examination Preparation of Metallographic Specimens Alpha Case Carburization/Decarburization (Hardness, Optical) Coating Thickness (Cross Sectioning) Coating Weight	ASTM E3; BS EN 3114-001 <sup>2</sup>  SOP MET-40.24; GE P3TF19, P3TF32 ASTM E1077, ASTM F2328, ASTM F2328M; ISO 898-1; SAE J121 ASTM B487 ASTM A90/A90M

Test:	Test Method(s):
Metallographic Examination (Continued) Macroetch  Microetch Grain Size Banding / Microstructure Inclusion Content Volume Fraction Microstructure of Graphite in Iron Casting	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 <sup>2</sup> , API 1104 <sup>2</sup> , EN 287 <sup>2</sup> , 288 <sup>2</sup> , 1321 <sup>2</sup> ASTM E407, ASTM E3, BS EN 3114-001 <sup>2</sup> 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 <sup>1</sup> , ABS Rules <sup>2</sup> , DNV Rules <sup>2</sup>
Fillet Weld Break Test <sup>2</sup>	ASME IX <sup>2</sup> , AWS D1.1/D1.1M <sup>2</sup> , ISO 9606-1 <sup>2</sup>
Compression	ASTM E9
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 <sup>2</sup>	ASTM A53/A53M <sup>2</sup> , ASTM A530/A530M <sup>2</sup> , ASTM A999/A999M <sup>2</sup> , API 5L <sup>2</sup> , ASME SA530 <sup>2</sup>
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

Test:	Test Method(s):
Tensile Machined (Round & Flat)  Fastener (Wedge / Axial)	API 1104; ASME IX; ASTM A370, ASTM B557; EN-2002; 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 <sup>2</sup> , ABS Rules <sup>2</sup> , BS 4515 <sup>2</sup> , DNV Rules <sup>2</sup> , EN ISO 6892-1 <sup>2</sup> ASTM A370, F606/F606M; ISO 898-1
<b>Non-Metallics</b>	
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

<sup>1,2</sup> This laboratory is also accredited to perform this test at the following Element Houston field laboratory:

Element Materials Technology Houston - Regal Row  
 9925 Regal Row  
 Houston, TX 77040  
 A2LA Certificate No. 1283.01

<sup>1</sup> This laboratory also meets the requirements of ISO/IEC 17025:2005.





## *Accredited Laboratory*

A2LA has accredited

# **ELEMENT MATERIALS TECHNOLOGY HOUSTON LLC**

*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 22<sup>nd</sup> day of January 2019.

A blue ink signature of the Senior Director of Accreditation Services.

Senior Director, Accreditation Services  
For the Accreditation Council  
Certificate Number 1480.05  
Valid to December 31, 2020

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