



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT MATERIALS TECHNOLOGY AUBURN HILLS
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MECHANICAL

Valid To: September 30, 2024

Certificate Number: 1123.11

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests using the parameters and methods listed below on the following products and materials: abrasives; automotive components; coatings; glass and glass products; textiles; instrument clusters; and circuit boards.

Test Type	Test Parameters	Test Methods/Standard
High/Low/Cyclic Temperature without Humidity ¹	(-70 to 300) °C	Including but not limited to the following: EPS-24126248; EPS-24138553; FCA CS.00056 sections 5.3.1, 5.3.2, 5.3.3, 5.3.4; Ford CEPT:00:00-E-412 sections 5.1, 5.2, 5.3, 5.4, 5.5, 5.17; GMW 3172 ² sections 9.4.1-9.4.3; GMW 3191 section 4.4; USCAR-2 section 5.6.3; MIL-STD-810(G,H) methods 501, 502; MIL-STD-202(G,H) method 108; JDQ 53.3; ISO 16750-4; Hyundai/KIA ES95400-10; IEC 60068-2-14
Temperature Capability with Humidity ¹	(-50 to 150) °C (30% to 95%) RH	Including but not limited to the following: EPS-24126248; EPS-24138553; FCA CS.00056 sections 5.3.6, 5.3.7; Ford CEPT:00:00-E-412 sections 5.8, 5.20;

Test Type	Test Parameters	Test Methods/Standard
		GMW 3172 ² sections 9.4.5, 9.4.6; GMW 3191 sections 4.4.3, 4.4.4; USCAR-2 sections 5.6.2; USCAR-21 section 4.5.4; MIL-STD-810(G,H) method 507; MIL-STD-202(G,H) methods 103, 106; JDQ 53.3; Hyundai/KIA ES95400-10; ISO 16750-4; IEC 60068-2-38; IEC 60068-2-78
Thermal Shock ¹	(-70 to 300) °C Air to Air	Including but not limited to the following: EPS-24126248; EPS-24138553; FCA CS.00056 section 5.3.5; Ford CEPT:00:00-E-412 sections 5.6, 5.7; GMW 3172 ² section 9.4.2; GMW 3191 section 4.4.2; USCAR-2 section 5.6.1; USCAR-21 section 4.5.5; MIL-STD-810(G,H) method 503; MIL-STD-202(G,H) method 107; JDQ 53.3; ISO 16750-4
Force Testing Tension and Compression ¹	Up to 10 kN	Including but not limited to the following: EPS-24126248; EPS-24138553; FCA CS.00056 section 5.4.2; Ford CEPT:00:00-E-412; GMW 3172 ² section 9.3.7; GMW 3191; USCAR-2; USCAR-21
Microscopic Evaluation/Visual Examination/Microsection Analysis (Cross Sectioning) ¹	(3x to 10,000x)	IPC-TM-650 (methods 2.1.1, 2.1.2, 2.1.5, and 2.1.10)

Test Type	Test Parameters	Test Methods/Standard
Dynamometer ¹ Driveline: Performance, Fatigue, Durability	Up to 600 HP, Torque Up to 8,333 ft/lbs, Speed Up to 25,000 RPM	GMW15788:2014 ²
Pressure ¹	0 to 2000 psi	ISO 20653 9K only
Liquid Flow ¹	up to 39 gpm	ISO 20653 9K only

Test Type	Test Methods
Salt Fog/Mist	Including but not limited to the following: ASTM B117; FCA CS.00056 section 5.5.5; Ford CEPT:00:00-E-412 section 5.15; GMW 3172 ² section 9.4.7; GMW 3191 section 4.4.7; SAE J1455; NaCl only MIL-STD-202(G,H) method 101; MIL-STD-810(G,H) method 509; IEC 60068-2-11
Real Time X-Ray	ASTM E94
Optical Microscopy	Used in the test types Case Depth through SEM/EDS
Case Depth	ASTM B934
Depth of Decarbonization	ASTM E1008
Grain Size	ASTM E112
Inclusion Content	ASTM E45
Intergranular Corrosion	ASTM A262
Macro – Etching	ASTM E340
Plating Thickness	ASTM B659
SEM/EDS	SEM/EDS Handbook
Rockwell Hardness Series 500 ¹ LECO Hardness DM400-DTF	ASTM E18; Rockwell HRBw, HRC, HR15Tw, HR30Tw; Leco, HK/300
Gravel Impact ¹	Including but not limited to the following: EPS-24126248; SAE J400
Dust Exposure ¹	Including but not limited to the following: EPS-24126248; EPS-24138553; DIN 40050-9e; FCA CS.00056 section 5.5.1; Ford CEPT:00:00-E-412 section 5.10.1; GMW 3172 ² section 9.5.1; IEC 60529;

	SAE J1455 2017, Alternate Method only ISO 20653
Chemical Resistance ¹	Including but not limited to the following: EPS-24126248; EPS-24138553; GM3172 ² ; FCS CS CS.00056; Ford CETP 00.00-E-412; ISO 16750-5; GMW 14334; GMW 16449
Water Spray	Including but not limited to the following: DIN 40050-9e; IP9K only FCA CS.00056 section 5.5.3; IP9K only GMW 3172 ² Section 9.5.2; IPK only USCAR-2 sections 5.6.74; IEC 60529; IP9 only ISO 20653 IP9K only

I. Dimensional Testing

Parameter	Range	Technique/Method
Linear (1D) ¹	Up to 10 inches (+/- .0004in.)	Micrometers/ASME B18.3 and per Customer Requirements
	Up to 8 inches (+/- .0001in.)	Optical Multi Sensor/Digital Microscope/ASME B18.3 and per Customer Requirements
	40in. x 48in. x 24in. (+/- .0005in.)	Coordinate Measurement Machine (CMM)
Angle ¹	Up to 360 degrees (+/- 0.5 degrees)	Optical Multi Sensor/Digital Microscope + CMM/ASME B18.3 and per Customer Requirements
Radius ¹	0.005 to 4.00 inches (+/- 0.001in.)	Optical Multi Sensor/Digital Microscope + CMM/ASME B18.3 and per Customer Requirements

¹Also using customer specified methods directly related to the types of tests and parameters listed.

²This 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 including but not limited to GMW 3172 (2008, 2010, 2012, 2015, 2018).



Accredited Laboratory

A2LA has accredited

ELEMENT MATERIALS TECHNOLOGY AUBURN HILLS

Auburn Hills, MI

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 6th day of September 2022.

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 1123.11
Valid to September 30, 2024
Revised December 5, 2023

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