



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

ELEMENT NEWTOWN  
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MECHANICAL

Valid To: April 30, 2024

Certificate Number: 0478.01

In recognition of the successful completion of the A2LA evaluation process (including compliance to R223 – Specific Requirements – GE Aviation S-400 Accreditation Program), accreditation is granted to this laboratory to perform the following tests on metals, metal alloys, metal fasteners and aircraft components:

**Test**

**Test Method(s)**

Blind Rivet

IFI 114, 520

Direct Tension Indicator  
Compression

ASTM F959/F959M

Discontinuities

AS 7452, 7454, 7455, 7456, 7459, 7460, 7461, 7466,  
7470, 7471, 7472, 7473, 7474, 7477, 7478, 7479;  
FF-N-836; FF-S-85, FF-S-86; DIN 267-19, 267-20;  
ISO 6157; MIL-B-8906, MIL-B-85604, MIL-B-87114;  
MIL-N-7873; MIL-S-21472, MIL-S-45909;  
MIL-STD-1907, MIL-STD-2035;  
SAE J122, J123, J1061; NASM 25027

Failure Analysis – SEM with EDS

SOP 60.06 and ASM Handbook Vol. 11 using the test  
methods listed on the lab's scopes.

Tube and Pipe Flattening

ASTM A450, A530, A999, B153; ASME SB-111

Heat Treat (Sample Preparation)

AMS 2750

Stress Durability  
(Hydrogen Embrittlement)

ASTM F519, F606/F606M; MIL-S-8831;  
NASM 1312-5, NASM 1312-14; USCAR-7

**Test****Test Method(s)**

Stress Rupture

ASTM E139, E292; NASM 1312-10

Washer Tests

(Twist, Temper, Pressure, Free Height, Interlinking, Hydrogen Embrittlement, Compressive Load, Permanent Load, Permanent Set)

ASME B18.21.1; DIN 267-26, 6799; FF-W-84A, FF-W-92, FF-W-100; MIL-W-12133; SAE J238, J773

Weld Procedure / Welder Qualification Testing

Using the tensile, bend, hardness, and macroetch methods listed in this document in accordance with: ASME Sec. IX.; AWS D1.1-D1.5; T9074-AQ-GIB-010/248

**Coating Quality Tests**

Adhesion

AMS 2400, 2416H, 2411E; AMS QQ P-416F; ASTM B571 (Sec. 4, 5, 8, 9, 13); GM9071P (2002)<sup>1</sup>, GM9102P (2010)<sup>1</sup>, GM9506P (1988)<sup>1</sup>; GMW14829, GMW15282; SAE J207

Coating Weight

ASTM A90, B137; MIL-DTL-16232g (Sec. 4.7.2)

**Ductility**

Bend

ASTM E190, E290; FF-S-92; GM4473P, GM4482P (1988)<sup>1</sup>; IFI 112, 113; NASM 6812, A370

Full-Size Eyebolts (Bend Test)

ASTM A489, F541

**Hardness**

Rockwell (A, B, C, E, F, N, T)

ASTM E18, F606/F606M; DIN 267-4; Ford ESS-M1A160-A; GM455M (Sec. 5.1) (1989)<sup>1</sup>, GM500M (Sec. 5.1, 5.2) (2010)<sup>1</sup>; ISO 898-1, 898-2, 898-5; NASM 1312-6Material Specifications<sup>2</sup>:GM 255M (2011)<sup>1</sup>, GM260M (1989)<sup>1</sup>, GM275M (1987)<sup>1</sup>, GM280M (1989)<sup>1</sup>, GM300M (1989)<sup>1</sup>, SAE J429

Microhardness

Knoop (100, 200, 500) gf

Vickers (100, 200, 500, 1000) gf

ASTM E384; NASM 1312-6

ASTM E384; NASM 1312-6

**Metallographic Evaluation**

Preparation

ASTM E3

Alpha Case

AMS 2380; PWA E142; GE Photographic Standards



**Test****Test Method(s)****Metallographic Evaluation (cont'd)**

Banding / Orientation of Microstructures	ASTM E930, E1181, E1268
Case Depth (Carburization)	ASTM E384; SAE J423
Corrosion Resistance (IGA)	ASTM A262 (Practice A, E); GE E50YP11; PWA E50
Delta Ferrite	AMS 2315; ASTM E562
Depth of Decarburization	ASTM E1077, F835, F912; FF-S-85C; GM6104M (Sec. 4) (2011) <sup>1</sup> ; ISO 898-1, 898-5; SAE J121 (2013) <sup>1</sup>
Determining Volume Fraction	ASTM E562
Discontinuities	GM6102M (Sec. 4) (2011) <sup>1</sup> ; SAE J122, J123
Grain Size	ASTM E112, E1181
Graphite Rating	ASTM A247
Inclusion Content	ASTM E45 (Method A, D); SAE J422
Macroetch / Microetch	ASTM E340, E407
Macroetch Evaluation	ASTM A604, E381
Magnetic Permeability	ASTM A342; MIL-I-17214
Plating Thickness	ASTM B487; NASM 1312-12
Salt Spray	ASTM B117, D1654; NASM 1312-1

**Nondestructive<sup>3</sup>**

Liquid Penetrant Fluorescent Water Washable Fluorescent Post Emulsifiable	AMS 2645, 2646, 2647; ASME Sec. III, V; ASTM E165, E1417, E1418; MIL-STD-6866; SAE J426; T9074-AS-GIB-010/271
Magnetic Particle Bench Fluorescent Yoke Dry Powder	AMS 2640; ASME Sec. III, V; ASTM A275, E709, E1444; MIL-I-6868, MIL-STD-1949, MIL-STD-271; SAE J420; T9024-25-GIB-010/271

**Proof Load**

Cone Strip Proof Load	ASTM A194/A194M, F606/F606M, F812/F812M; SAE J122
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**Test****Test Method(s)****Proof Load (cont'd)**  
External Threads

ANSI B18.16.1M; ASTM A370, F606/F606M;  
GM455M (Sec. 5.2) (1989)<sup>1</sup>, GM500M (Sec. 5.3)  
(2010)<sup>1</sup>; ISO 898-1, 898-5; SAE J1216

Material Specifications<sup>2</sup>:  
GM255M (2011)<sup>1</sup>, GM275M (1987)<sup>1</sup>, GM280M (1989)<sup>1</sup>,  
GM290M (1989)<sup>1</sup>, GM300M (1989)<sup>1</sup>; SAE J429

## Full-Size Eyebolts

ASTM A489, F541

## Internal Threads

ASTM A370, F606/F606M; DIN 267-4;  
GM510M (Sec. 6.1) (2011)<sup>1</sup>; IFI 100/107;  
ISO 898-2; SAE J995, J1965

Material Specifications<sup>2</sup>:  
GM284M (2011)<sup>1</sup>, GM286M (2000)<sup>1</sup>, GM301M (1989)<sup>1</sup>,  
GM305M (1989)<sup>1</sup>, GM456M (1989)<sup>1</sup>

**Shear**

## Double

ANSI/ASME B18.8.2; AS 7207; ASTM B565; IFI 135;  
MIL-P-10961, MIL-R-5674; NASM 1312-13; SAE J496

## Single

ASTM F606/F606M; NASM 1312-20

**Tapping Screws**

## Ductility

Ford ESS-M1A160A; SAE J78

## Hydrogen Embrittlement

ANSI/ASME B18.6.4, B18.6.5.M;  
GM6010M (Sec 4.7) (2011)<sup>1</sup>, GM6170M (Sec. 4.8)  
(2011)<sup>1</sup>, GM6171M (Sec. 4.8) (2011)<sup>1</sup>,  
GM6172M (Sec. 4.8) (2011)<sup>1</sup>; SAE J78, J81, J1237

**Tensile**Breaking Strength of Full-size  
Eyebolt

ASTM A489, 541

Elevated Temperature  
(up to 2000° F)

ASTM E21 (Sec 10.2); NASM 1312-18 (Sec. 5.1.1.2)

Fastener  
Axial

ASTM A370, F541, F606/F606M; DIN 275-11;  
GM455M (Sec. 5.3) (1989)<sup>1</sup>,  
GM500M (Sec. 5.4) (2010)<sup>1</sup>, GM6171M (Sec. 4.4);  
ISO 898-1; NASM 1312-8



**Test****Test Method(s)**

Fastener (cont'd)  
Axial (cont'd)

Material Specifications<sup>2</sup>:  
GM 255M (2011)<sup>1</sup>, GM275M (1987)<sup>1</sup>, GM280M  
(1989)<sup>1</sup>, GM290M (1989)<sup>1</sup>, GM300M (1989)<sup>1</sup>; SAE J429

Wedge

ASTM A370, F606/F606M; GM455M (Sec. 5.4) (1989)<sup>1</sup>,  
GM500M (Sec. 5.5) (2010)<sup>1</sup>; ISO 898-1, 898-5

Material Specifications<sup>2</sup>:  
GM 255M (2011)<sup>1</sup>, GM275M (1987)<sup>1</sup>, GM280M  
(1989)<sup>1</sup>, GM290M (1989)<sup>1</sup>, GM300M (1989)<sup>1</sup>; SAE J429

Full-Size Extension Test

ASTM F837/F837M, F879/F879M; DIN 267-11;  
ISO 3506

Machined Specimen Tensile (Yield,  
Elongation & Reduction of Area)

ASTM A370, E8/E8M, F606/F606M;  
GM500M (Sec. 5.6) (2010)<sup>1</sup>

**Torque**

Prevailing Torque

ANSI/ASME B18.16.1M; DIN 267-15; GM9092P;  
IFI 100/107, 101, 124, 125; ISO 898-5; MIL-N-45913

Torque

DIN 267-11; ISO 3506; SAE J1237; NASM 1312-31;  
FORD ES M1A160A

Torque Tension

IFI 101; NASM 1312-15; SAE J174, J1965



I. Dimensional Testing<sup>4</sup>

Parameter	Range	CMC <sup>5</sup> (±)	Comments
External Thread Gauging	#4 to 1.5 in	N/A	ANSI/ASME B1.2, B1.3 (system 21, 22); FED-STD-H28-20A; MIL-S-7742; IFI 138  Go/No Go ring gauge
Internal Thread Gauging	#10 to 1 in	N/A	ANSI/ASME B1.2, B1.3 (system 21); FED-STD-H28-20A; MIL-S-7742  Go/No Go thread plug gauge
Length – (1D) (1D) (2D)	Up to 12 in Up to 1 in Up to 6 in	0.0012 in 0.0019 in 0.00011 in	Calipers / MIL-STD-120 Micrometers / MIL-STD-120 Optical comparator / MIL-STD-120
Radii	Up to 6 in	0.0014 in	Optical comparator / MIL-STD-120
Angles	Up to 360°	0.04°	Optical comparator / MIL-STD-120
Head Height	Up to 1.3 in	0.0006 in	Digital indicator / MIL-STD-120
Depths	Up to 1 in Up to 1.3 in	0.0014 in 0.0006 in	Depth micrometer / MIL-STD-120 Digital indicator / MIL-STD-120

<sup>1</sup> This 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.

<sup>2</sup> This material specification is not an accredited test and the inclusion of this material specification on this Scope does not confer laboratory accreditation to the material specification nor does it confer accreditation for the method(s) embedded within the specification. The accredited test methods listed on this scope are used in determining compliance with this material specification.

<sup>3</sup> This laboratory performs field testing activities for these tests.

<sup>4</sup> This laboratory offers commercial dimensional testing service only. These tests are not equivalent to that of a calibration.

<sup>5</sup> Calibration and Measurement Capability (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine measurements of nearly ideal measurement standards or nearly ideal measuring equipment. Calibration and Measurement Capabilities represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of  $k = 2$ . The actual measurement uncertainty of a specific measurement performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific measurement.

WITHDRAWN



# Accredited Laboratory

A2LA has accredited

**ELEMENT NEWTOWN**

Newtown, PA

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 laboratory also meets the requirements of R223 – Specific Requirements: GE Aviation S400 Accreditation Program. 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 12<sup>th</sup> day of May 2022.

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

Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 0478.01  
Valid to April 30, 2024

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