# Accredited Laboratory

A2LA has accredited

## EXOTIC FASTENERS INC.

*Roseville, MI*

for technical competence in the field of

## Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *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 8 January 2009*).

Presented this 24th day of March 2016.

Senior Director of Quality and Communications
For the Accreditation Council
Certificate Number 0925.01
Valid to April 30, 2018

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

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

EXOTIC FASTENERS INC.
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Roseville, MI 48066
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MECHANICAL

Valid To: April 30, 2018 Certificate Number: 0925.01

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

| Test | Test Methods |
|---|---|
| Hardness (Rockwell & Superficial B, C, 15N, 30N) | ASME B18.6.3; ASTM E18; Chrysler MS-4515; Ford ES21004-S100, ESS-M1A170B; ISO 6508-1, 898-1; SAE J417, J429; WD 950, WD 952 |
| Tensile (Axial & Wedge) (6°, 10° & 45°) | ASME B18.6.3; ASTM F606, F606M; Chrysler MS-4515; FMVSS 209 (5.2, C.1); ISO 898-1, 6892; JIS B1051; SAE J429 |
| Proof (Externally Threaded, Length Method) | ASTM F606, F606M; ISO 898-1 (8.5); JIS B1051 (8.5); SAE J429 (6.4) |
| Discontinuities | ASTM F788 / F788M; ISO 6157-1; SAE J123, J1199 |
| Stress Durability (Hydrogen Embrittlement) | ASME B18.6.3; Ford ES21003-S100; SAE J1237 |
| Torsional Strength | ASME B18.6.3; ASTM F738; Ford WD 950 |
| Ductility | ASME B18.6.3; Ford ES21003-S100, ES21004-S100; SAE J1237 |
| Drive Torque | ASME B18.6.3; Ford ES21004-S100; SAE J1237 |

*Note: The laboratory is only accredited for the test methods listed above. The accredited test methods are used in determining compliance with the material specifications listed below. The inclusion of these material specifications on this Scope does not confer laboratory accreditation to the material specifications nor does it confer accreditation for the method(s) embedded within the specifications.*

| Test | Material Specification(s) |
|---|---|
| Hardness (Rockwell & Superficial 15N, 30N, C, B) | GM275M, 280M, 6171M, 6202M |
| Tensile (Wedge) (6 ° to 45 °) | GM275M, 280M, 500M, 6171M |
| Proof (Externally Threaded) | GM275M, 280M, 500M, 6202M |
| Discontinuities | GM275M, 280M, 500M, 6102M; PF5188 |
| Stress Durability (Hydrogen Embrittlement) | GM6010M, 6202M |
| Torsional Strength | GM6010M, 6202M |
| Ductility | GM6010M, 6171M, 6202M |
| Drive Torque | GM6010M, 6171M, 6202M |

I. Dimensional Testing[1]

| Parameter | Range | CMC[2] (±) | Technique / Method |
|---|---|---|---|
| Thread Pitch Diameter[3] | M5 to M14<br>($^1/_4$ to $^9/_{16}$) in | N/A | Pitch Micrometer / ASME B1.3M, B18.6.4; ISO 1502 |
| Functional Thread Diameter[3] | M5 to M14<br>(¼ to $^9/_{16}$) in | N/A | Go/ No Go/ ASME B1.3M, B18.6.4; ISO 1502 |
| Linear[3] Length[3](1D) | Up to 2 in<br>Up to 6 in<br>Up to 1 in<br>Up to 1 in | 0.0005 in<br>0.0005 in<br>0.0005 in<br>0.0001 in | Micrometer / MIL-STD-120<br>Caliper / MIL-STD-120<br>Indicator / MIL-STD-120<br>Tri-micrometer/ MIL-STD-120 |
| Angle[3] | 0° to 360° | 1° | Comparator / MIL-STD-120 |
| Radii[3] | Up to 1 in | 0.001 in | Comparator / MIL-STD-120 |
| Recesses Depth[3] | Up to 0.3 in | 0.0005 in | Penetration gage / ASME B18.6.4, B18.6.3 |
| Head Height[3] | Up to 1 in | 0.0005 in | Indicator / ASME B18.6.4, B18.6.3 |

[1] This laboratory does not offer commercial dimensional testing services.

[2] 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.

[3] This test is not equivalent to that of a calibration.