



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005¹

EXOVA DEFIANCE
PRODUCT DEVELOPMENT TESTING - TROY
1628 Northwood Drive
Troy, MI 48084
Ms. N'Jeri Laird Phone: 248 458 5900

MECHANICAL

Valid To: May 31, 2019

Certificate Number: 0375.03

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory at the location listed above, as well as the three (3) satellite laboratories listed below, to perform the following tests on automotive components (brackets, structural members, suspension components, seats, body panels and interior parts):

Fatigue durability simulation, static and dynamic testing utilizing the following methods and techniques:

| <u>Test and Test Parameters:</u> | <u>Test Method(s)/Standard(s):</u> |
|--|---|
| <u>Axial and Bending, Monotonic Testing²</u> Maximum 100 000 lbs Force Maximum 12 in Displacement In Possible Combination with the Environmental Conditions (-40 to 180)°F and Up to 95% RH | DVM 0019-ST; RBA 245 (Axle Tech) |
| <u>Axial and Bending, Fatigue Testing²</u> 100 000 lbs Force Maximum 12 in. Displacement In Possible Combination with the Environmental Conditions Conditions (-40 to 180)°F and Up to 95% RH | DVM 0019-ST; SAE J684 |
| <u>Torsional, Monotonic and Fatigue Testing²</u> Up to 8 000 ft-lb, 20 000 RPM, and 50 HP In Possible Combination with the Environmental Conditions Conditions (-40 to 180)°F and Up to 95% RH | LP-9301 |
| <u>Environmental²</u> (-40 to 180)°F Using Various Chambers | CEPT 01-03-L-311 |
| <u>Static Testing²</u> Static Bending and Torsion Up to 2 in Maximum Displacement Up to 11 000 lb Force Application Up to 64 Channels Acquisition (+/- 10 V) | GM 7454, 277, 9842P; GMW 3067, 7699, 7000, 9123; LP 9606, 9611, 9301, 9533, 9605 |

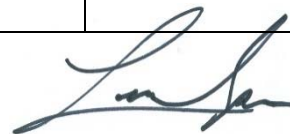
| <u>Test and Test Parameters:</u> | <u>Test Method(s)/Standard(s):</u> |
|---|---|
| Vehicle and Laboratory Data Acquisition | CETP 00.00-R-395; SLTID51601 |

¹ This accreditation covers testing performed at the main laboratory listed above, and the satellite laboratory listed below.

² Also using customer supplied test methods, or methods developed by the lab and approved by the client, within the parameters listed above.

EXOVA DEFIANCE
PRODUCT DEVELOPMENT TESTING – TROY
1150 W. Maple Rd
Troy, MI 48084
Ms. N’Jeri Laird Phone: 248 458 5900

| <u>Test and Test Parameters:</u> | <u>Test Method(s)/Standard(s):</u> |
|---|---|
| <u>Axial and Bending, Monotonic Testing</u> ² Maximum 100 000 lbs Force Maximum 12 in Displacement In Possible Combination with the Environmental Conditions (-40 to 180)°F and Up to 95% RH | DVM 0019-ST; RBA 245 (Axle Tech) |
| <u>Axial and Bending, Fatigue Testing</u> ² 100 000 lbs Force Maximum 12 in. Displacement In Possible Combination with the Environmental Conditions Conditions (-40 to 180)°F and Up to 95% RH | DVM 0019-ST; SAE J684 |
| <u>Torsional, Monotonic and Fatigue Testing</u> ² Up to 8 000 ft-lb, 20 000 RPM, and 50 HP In Possible Combination with the Environmental Conditions Conditions (-40 to 180)°F and Up to 95% RH | LP-9301 |
| <u>Multi-Axis Shake Table(s)</u> ² Up to 50 Hz Bounce, Vertical, Pitch, Roll, Yaw, Lateral and Longitudinal Inputs | DVM 0009-ST; ATE N 656 (Continental Teves) |
| <u>Environmental</u> ² (-40 to 180)°F Using Various Chambers | CEPT 01-03-L-311 |
| <u>Static Testing</u> ² Static Bending and Torsion Up to 2 in Maximum Displacement Up to 11 000 lb Force Application Up to 64 Channels Acquisition (+/- 10 V) | GM 7454, 277, 9842P; GMW 3067, 7699, 7000, 9123; LP 9606, 9611, 9301, 9533, 9605 |



| <u>Test and Test Parameters:</u> | <u>Test Method(s)/Standard(s):</u> |
|--|---|
| Vehicle and Laboratory Data Acquisition | CETP 00.00-R-395; SLTID51601 |
| <u>Four Post (Wheel) Road Simulator²</u> Up to 50 Hz 55 kip Actuators | GU0902B |
| <u>Spindle-Coupled Road Simulator (329 LT)²</u> Up to 50 Hz | GMN10124SOP |
| <u>Spindle-Coupled Road Simulator (329 PC)²</u> Up to 50 Hz | GMN10124SOP |

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² Also using customer supplied test methods, or methods developed by the lab and approved by the client, within the parameters listed above.

EXOVA DEFIANCE
PRODUCT DEVELOPMENT TESTING – TROY
1154 Maplelawn
Troy, MI 48084
Ms. N’Jeri Laird Phone: 248 458 5900

| <u>Test and Test Parameters:</u> | <u>Test Method(s)/Standard(s):</u> |
|---|---|
| <u>Environmental²</u> (-40 to 180)°F Using Various Chambers | CEPT 01-03-L-311 |
| <u>Pendulum Bumper Impact Testing²</u> Bumper and Side Impact Tests (On Test Vehicles or Defiance Test Sleds) European Danner Offset Impact Material Sample Comparisons (Foam, Plastic, Steel) (-40 to 180)°F Impact Tests Small Test Sled: (1 to 6) mph Impacts at a (2 000 to 4 000) lb Mass Truck Test Sled: (1 to 12) mph Impacts at a (3 600 to 6 500) lb Mass Customer Supplied Test Vehicles: (1 to 12) mph Impacts at a (2 000 to 6 500) lb Mass | FMVSS 581 |



| <u>Test and Test Parameters:</u> | <u>Test Method(s)/Standard(s):</u> |
|--|---|
| <u>Barrier Bumper Impact Testing²</u> Bumper Impact Tests (on Test Vehicles or Defiance Test Sleds) IIHS Flat and Angle Barrier and Pole Tests Material Sample Comparisons (Foam, Plastic, Steel, etc) (-40 to 180)°F Impact Tests Up to 5 mph and Up to 6 kip Small Test Sled: (1 to 16) mph Impacts at a (2 000 to 4 000) lb Mass Truck Test Sled: (1 to 16) mph Impacts at a (3 600 to 8 000) lb Mass Customer Supplied Test Vehicles: (1 to 16) mph impacts at a (2 000 to 8 000) lb Mass | CMVSS 215 |
| <u>Static Testing²</u> Static Bending and Torsion Up to 2 in Maximum Displacement Up to 11 000 lb Force Application Up to 64 Channels Acquisition (+/- 10 V) | GM 7454, 277, 9842P; GMW 3067, 7699, 7000, 9123; LP 9606, 9611, 9301, 9533, 9605 |
| Vehicle and Laboratory Data Acquisition | CETP 00.00-R-395; SLTID51601 |

¹ This accreditation covers testing performed at the main laboratory listed above, and the satellite laboratory listed below.

² Also using customer supplied test methods, or methods developed by the lab and approved by the client, within the parameters listed above.

EXOVA DEFIANCE
 PRODUCT DEVELOPMENT TESTING - WESTLAND
 5820 Hix Road
 Westland, MI 48185
 Mr. Brian Rilet Phone: 248 458 5900

| <u>Test and Test Parameters:</u> | <u>Test Method(s)/Standard(s):</u> |
|---|---|
| <u>Axial and Bending, Monotonic Testing²</u> Up to 100,000 lbs of Force Up to 40 in. Displacement in Possible Combination with the Following Environmental Condition (-40 to 180)°F and Up to 95% RH | DVM 0019-ST |



| <u>Test and Test Parameters:</u> | <u>Test Method(s)/Standard(s):</u> |
|--|---|
| <u>Axial and Bending, Fatigue Testing</u> ² Up to 100,000 lbs of Force Up to 40 in. Displacement in Possible Combination with the Following Environmental Condition (-40 to 180)°F and Up to 95% RH | DVM 0019-ST |
| <u>Torsional, Monotonic and Fatigue Testing</u> ² Up to 8 000 ft-lb., 20 000 RPM, and 50 HP in Possible Combination with the Following Environmental Condition (-40 to 180)°F and Up to 95% RH | LP-9301 |
| <u>Thermal Hot Exhaust Furnace</u> ² Exhaust System Testing Up to 2 000 °F | CETP: 09.00-E-400 |
| <u>Multi-Axis Shake Table(s)</u> ² Up to 50 Hz Bounce, Vertical, Pitch, Roll, Yaw, Lateral and Longitudinal Inputs (-40 to 180)°F and Up to 95% RH | DVM 0009-ST |
| <u>Environmental Four Post (Wheel) Road Simulator</u> ² Up to 50 Hz Up to 11 000 lbs. Vertical Force at Each Wheel Up to 10 in. of Displacement at Each Wheel (-40 to 180)°F and Up to 95% RH 40 KW Near Infrared Solar Radiation Simulation | CEPT 01-03-L-301 |
| <u>Closures</u> ² Up to 20 ft-lb. Slam Energy Up to 24 in. Displacement Up to 20 ft/sec Velocity In Possible Combination with the Following Environmental Condition (-40 to 180)°F and (10 to 95)% RH | CEPT 01-03-L-311 |
| Laboratory (L) Data Acquisition | CETP 00.00-R-395; SLTID5160 |
| <u>Four Post (Wheel) Road Simulator</u> ² Up to 50 Hz 55 kip Actuators | GU0902B |

²Also using customer supplied test methods, or methods developed by the lab and approved by the client, within the parameters listed above.





Accredited Laboratory

A2LA has accredited

EXOVA DEFIANCE

Troy, 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 8th day of September 2017.

A handwritten signature in black ink, written over a horizontal line.

President & CEO
For the Accreditation Council
Certificate Number 0375.03
Valid to May 31, 2019

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