



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

MIAMI VALLEY MATERIALS TESTING CENTER, LLC
4155 Lisa Drive
Tipp City, OH 45371
Craig Riviello Phone: 937 669 4500

MECHANICAL

Valid To: February 28, 2018

Certificate Number: 2633.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on aerospace components, metals, metal fasteners, paper, plastics, office furniture, rubber, windows/doors, and wood:

| <u>Tests</u> | <u>Test Methods¹</u> |
|---|---|
| <i>Metallurgical:</i> | |
| <i>Hardness:</i> | |
| Rockwell Hardness & Rockwell Superficial Hardness (B, C, 15T, 30T, 15N, 30N) | ASTM E18 |
| Microindentation | |
| Knoop (500g) | ASTM E384 |
| Vickers (500g) | ASTM E384 |
| | |
| <i>Tensile:</i> | |
| Grey Iron Tensile Testing | ASTM A48 |
| Mechanical Properties of Fasteners, Washers and Rivets | ASTM F606, F606M (<i>Except 3.5 – Wedge</i>) |
| Mechanical Testing of Steel Products | ASTM A370 (Sections 5-15, 17) |
| Stress Durability (Hydrogen Embrittlement) | SAE/USCAR-7; SAE J78, J81, J1237; GM512M, GM6010M, GM6171M; GMW4205, GMW15170 |
| Tension Testing of Metallic Materials (1,124 and 56,000 lbs) | ASTM E8 |
| Plastic Strain Ratio – Drawability (r-value) | ASTM E517 |
| Tensile Strain - Hardening - Formability (n-value) | ASTM E646 |
| Tension Testing Wrought & Cast Aluminum Products | ASTM B557 |
| | |
| <i>Metallographic Evaluation:</i> | |
| Preparation of Metallographic Specimens | ASTM E3 |
| Case Depth | SAE J423 |
| EDS (Energy Dispersive Spectroscopy) | ASTM E1508 |
| Determining Average Grain Size | ASTM E112 (Comparison and Intercept) |
| Estimating Depth of Decarburization of Steel Specimens | ASTM E1077 |

| <u>Tests</u> | <u>Test Methods¹</u> |
|---|---|
| <i>Metallographic Evaluation (continued):</i> | |
| Evaluating Graphite Microstructure in Iron Castings | ASTM A247 |
| Macroetching | ASTM E381 |
| Microetching | ASTM E407 |
| Reflected Light Photomicrography | ASTM E883 |
| SEM Beam Characterization | ASTM E986 |
| <i>Density:</i> | |
| Wet Density | ASTM B311 |
| <i>Coating Characterization:</i> | |
| Coating Weight | ASTM A90, Honda HES D2008; Honda 5100Z-SGO-A000; Honda 5100Z-SEO-000; Honda 5100Z-TR0-6001 |
| Qualitative Adhesion Testing of Metallic Coatings | ASTM B571 (Sections 3, 4, 5), JDQ 117; Honda HES D2003 (3.4), D6001 (4.4) |
| Coating Thickness Measurement by Microscopical Exam | ASTM B487, JDQ 117, JDM F15; Honda HES D2003 (3.3), D2008, D2021, D2016, D2028, D6001 (4.2), D6501 (3.2); Honda 5100Z-TR0-6001 |
| Acid Resistance | ASTM D1308; Honda HES D6001, D2016, D2021, D6501 (3.25, 3.28); Honda 5100Z-SGO-A000 (6-15); Honda 5100Z-SEO-000 (6-14); Honda 5100Z-TR0-6001 |
| Alkali Resistance | ASTM D1308; Honda HES D2008, D2016, D2021; Honda 5100-SGO-A000 (6-14); Honda 5100-SEO-000 (6-13); Honda HES D6501 (3.24, 3.28); Honda 5100Z-TR0-6001 |
| Fuel Resistance | Honda HES D2016, D2021; Honda 5100Z-SGO-A000 (6-17); Honda 5100Z-SEO-000 (6-16); Honda 4251Z-SEP-A000 (5); Honda HES D6501 (3.21, 3.28); Honda 5100Z-TR0-6001 |
| Oil Resistance | Honda HES D2008, D2016, D2021, D2028, D6501 (3.23, 3.28); Honda 5100Z-SGO-A000 (6-16); Honda 5100Z-SEO-000 (6-15); Honda 4251Z-SEP-A000 (6); Honda HES Honda 5100Z-TR0-6001 |
| Degree of Blistering | ASTM D714 |



| <u>Tests</u> | <u>Test Methods¹</u> |
|---|---|
| <i>Coating Characterization (continued):</i> | |
| Degree of Rusting | ASTM D610 |
| Evaluation of Painted/Coated/Plated Specimens | ASTM D1654 |
| Water Immersion | Honda HES D2008, D2016, D2021, D2028; Honda 5100Z-SGO-A000 (6-8, 6-10); Honda 5100Z-SEO-000 (6-7, 6-9); Honda 4251Z-SEP-A000 (Section 5); Honda HES D6501 Sections 3.18, 3.37; Honda 5100Z-TR0-6001 |
| Coating Adhesion | ASTM D3359; Honda HES D2008, D2016, D2021, D2028, D6501 (3.6); Honda 5100Z-SGO-A000; Honda 5100Z-SEO-000; Honda 5100Z-TR0-6001 |
| <i>Environmental Simulation:</i> | |
| Salt Spray (Fog) | ASTM B117; JDM F15, F15X1; Honda HES 6501 Sections 3.15.1, 3.15.2; Honda HES: D2003 (3.2), D2008, D2016, D2021, D2028, D6001; Honda 5100Z-SEO-0000 Section 6-2-1; Honda 5100Z-SGO-A000 Section 6-2-1; Honda 5100Z-TR0-6001; JDQ 115; JDQ 117 |
| Hot Salt Water Resistance | Honda 5100Z-SGO-A000 (6-3); Honda 5100Z-SEO-000 (6-3); Honda 5100Z-TR0-6001 |

¹The laboratory is accredited for the test methods listed above. The accredited test methods are used in determining compliance with the material specifications listed below; however, the inclusion of these material specifications on this Scope does not confer laboratory accreditation to the material specifications. Inclusion of these material specifications on this Scope also does not confer accreditation for every method embedded within the specification or procedure. Only the methods listed above on this Scope are accredited.

Test Specifications:

| | |
|---|--------------|
| Specification for Stainless Steel 316 (Surgical Implants) | ASTM F138 |
| Specification for Titanium 6 – 4 (Surgical Implants) | ASTM F136 |
| JDM F15 Addendum – Zinc Clear Chromate C Requirements | BOSSARD CSS3 |





Accredited Laboratory

A2LA has accredited

MIAMI VALLEY MATERIALS TESTING CENTER, LLC

Tipp City, OH

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 6th day of November 2015.

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

President and CEO
For the Accreditation Council
Certificate Number 2633.01
Valid to February 28, 2018
Revised December 29, 2017

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



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4155 Lisa Drive
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CHEMICAL

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Certificate Number: 2633.02

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on aerospace components, metals, metal fasteners, paper, plastics, office furniture, rubber, windows/doors, and wood:

| <u>Tests</u> | <u>Test Methods¹</u> |
|--|--|
| <i>Spectroscopy:</i> | |
| Inductively coupled plasma (ICP) (Al, As, B, Be, Bi, Cr, Cu, Fe, Ga, Mg, Mn, Mo, Nb, Ni, P, Pb, Sb, Se, Si, Sn, Ta, Te, Ti, V, W, Y, Zr) | MVMTC WI-16; ASTM E1479 |
| <i>Optical Emission Spectroscopy (OES):</i> | |
| Aluminum and Aluminum Alloys (Be, Bi, B, Ca, Cr, Co, Cu, Ga, Fe, Pb, Li, Mg, Mn, Ni, P, Si, Na, St, Sb, Ti, V, Zn) | ASTM E1251 |
| Cast Iron (C, Cr, Cu, Mn, Mo, Ni, P, Si, S, Sb, Ti, V) | ASTM E1999 |
| Copper Based | MVMTC WI-6 |
| Low Alloy Steels and Cast Irons (Less Nitrogen) (Al, As, B, Ca, C, Cr, Co, Cu, Mn, Mo, Ni, Nb, P, Si, S, Sb, Ti, Zr) | ASTM E415 |
| Stainless Steel (Less Nitrogen) (Cr, Ni, Mo, Mn, Si, Cu, C, P, S) | ASTM E1086 |
| Zinc Based | MVMTC WI-6 |
| Nickel Based | MVMTC WI-6 |
| Titanium (Less Oxygen, Hydrogen, Nitrogen) (Al, Fe, V) | MVMTC WI-6 |
| <i>Combustion:</i> | |
| Combustion LECO (C, S) | ASTM E1019 |
| <i>Failure Analysis:</i> | |
| | Using the test methods listed above and evaluation of data methods: ASTM E620, E678, E860, E2332 (Withdrawn 2004) ² |

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Test Specifications:

| | |
|--|-----------|
| Specification for Stainless Steel 316 (Surgical Implants) | ASTM F138 |
| Specification for Titanium 6 – 4 (Surgical Implants) | ASTM F136 |
| Standard Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products | ASTM A751 |

² This laboratory's scope contains withdrawn 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.





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