



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

Trinity Metals Laboratory

4001 Irving Blvd.

Dallas, TX 75247

Mr. Michael S. Beaton P.E.

Phone: 214-589-7599

Email: michael.beaton@trin.net

<http://www.TrinityMetalsLaboratory.com>

FASTENERS AND METALS

NVLAP LAB CODE 200654-0

Chemical Analysis

Optical emission spectrochemical analysis

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/457	ASTM E415	Method for Optical Emission Vacuum Spectrometric Analysis of Carbon and Low-Alloy Steel
FA/459	ASTM E1086	Method for Optical Emission Vacuum Spectrometric Analysis of Stainless Steel by the Point-to-Plane Excitation Technique
FB/1272	ASTM E1999	Standard Test Method for Analysis of Cast Iron Using Optical Emission Spectrometry

Mechanical and Physical Testing and Inspection

Bend

Flattening Test for Tubing

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FB/1266	ASTM A370	Standard Test Methods and Definitions for Mechanical Testing of Steel Products, Section A2.5.1.1, Flattening Test.
FB/1274	ASME Sec. II, Part A, SA-370	SA-370 Test Methods and Definitions for Mechanical Testing of Steel Products - ASTM A370

Bend Test for Steel

<u>Code</u>	<u>Designation</u>	<u>Description</u>
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FA/503	ASTM A370	Standard Test Methods and Definitions for Mechanical Testing of Steel Products, Part 14, Bend Test
FB/1273	ASME Sec. II, Part A, SA-370	SA-370 Test Methods and Definitions for Mechanical Testing of Steel Products - ASTM A370

Bend Test for Welds

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FB/1275	ASME Sec. IX	BPCV SECTION IX Welding and Brazing Qualifications - Non-Interfiled
FB/1276	AAR Appendix W - Bend Test	Bend test for welding of tank cars.
FB/1279	ANSI/AWS D1.1, Structural Welding Code	Bend test for structural steel welding.
FB/1280	ANSI/AWS D1.5, Bridge Welding Code	Bend test for bridge welding, AASHTO BWC-4.
FB/1281	ANSI/AWS D15.1, Railroad Welding Specification	Bend test for railroad welding, cars and locomotives.

Corrosion

Intergranular corrosion susceptibility in austenitic stainless steel fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/173	ASTM A262	Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels, Sections 15 to 21, Practice C - Nitric Acid Test for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels
FA/174	ASTM A262	Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels, Sections 3 to 7, Practice A - Oxalic Acid Etch Test for Classification of Etch Structures of Austenitic Stainless Steel
FA/545	ASTM A262	Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels, Sections 22-31, Practice E - Copper-Copper Sulfate-Sulfuric Test
FB/1258	ASTM A262	Standard Practices for Detecting Susceptibility to Intergranular Attack in Austenitic Stainless Steels, Sections 8-14, Practice B - Ferric Sulfate - Sulfuric Acid Test.

Hardness

Brinell hardness of fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/186	ASTM E10	Standard Test Method for Brinell Hardness of Metallic Materials

Microhardness of fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/189	ASTM E384	Standard Test Method for Microhardness Indentation of Materials

Rockwell hardness of fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/197	ASTM E18 (A, B, & C)	Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

Rockwell superficial hardness of fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/205	ASTM E18	Standard Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

Impact
Charpy impact (v-notch) testing

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/212	ASTM E23	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials
FB/1265	ASTM A923	Standard Test Methods for Detecting Detrimental Intermetallic Phase in Duplex Austenitic/Ferritic Stainless Steels, Test Method B - Charpy Impact Test for Classification of Structures of Duplex Stainless Steels.

Proof
Proof load of full-size externally threaded fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/225	ASTM A370	Standard Test Method and Definitions for Mechanical Testing of Steel Products Annex A3 - Steel Fasteners, Sections A3.2.1.1 through A3.2.1.3 : Proof Load
FA/226	ASTM F606	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets. Sections 3.2.1 through 3.2.3: Proof Load (Length Measurement)
FA/229	SAE J429	Mechanical and Material Requirements for Externally Threaded Fasteners
FA/467	ASTM F606M	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets (Metric) Sections 3.2.1 through 3.2.3: Proof Load (Length Measurement)

Proof load of internally threaded fasteners (nuts)

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/236	ASTM F606	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets. Section 4.2: Proof Load Test

FA/237 ASTM F606M Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets (Metric) Section 4.2: Proof Load Test

Tensile
Axial tensile strength of full-size threaded fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/265	ASTM A370	Standard Test Method and Definitions for Mechanical Testing of Steel Products Annex A3 - Steel Fasteners, Section A3.2.1.4: Axial Tension Testing of Full Size Bolts
FA/266	ASTM F606	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets. Sections 3.4.1 through 3.4.3: Axial Tension Testing of Full Size Products
FA/267	ASTM F606M	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers and Rivets (Metric) Sections 3.4.1 through 3.4.3: Axial Tension Testing of Full Size Products
FA/530	ASTM E8	Standard Test Methods for Tension Testing of Metallic Materials

Tension testing of machined specimens from externally threaded fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/278	ASTM A370	Standard Test Method and Definitions for Mechanical Testing of Steel Products Annex A3 - Steel Fasteners, Section A3.2.1.7: Tension Testing of Bolts Machined to Round Test Specimens
FA/279	ASTM F606	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets Section 3.6: Tension Testing of Machined Test Specimens
FA/280	ASTM F606M	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets (Metric) Section 3.6: Tension Testing of Machined Test Specimens
FB/1043	ASTM B557	Tension Testing Wrought and Cast Aluminum- and Magnesium-Alloy Products

Wedge tensile strength of full-size threaded fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/289	ASTM A370	Standard Test Method and Definitions for Mechanical Testing of Steel Products, Annex A3 - Steel Fasteners, Section A3.2.1.5: Tension Testing of Full Size Bolts with a Wedge, and Section A3.2.1.6: Wedge Testing of HT Bolts Threaded to Head
FA/290	ASTM F606	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets Section 3.5: Wedge Tension Testing of Full Size Bolts

FA/291	ASTM F606M	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets (Metric) Section 3.5: Wedge Tension Testing of Full Size Products
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Yield strength of full-size externally threaded fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/298	ASTM F606	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets Section 3.2.4 (Proof Load) Method 2, Yield Strength
FA/299	ASTM A370	Standard Test Method and Definitions for Mechanical Testing of Steel Products Annex A3 - Steel Fasteners, Section A3.2.1.3(a): (Proof Load) Method 2, Yield Strength
FA/300	ASTM F606M	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets (Metric) Section 3.2.4: (Proof Load) Method 2, Yield Strength

Metallography

Decarburization and case depth measurement in fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/328	SAE J121	Decarburization in Hardened and Tempered Unified Threaded Fasteners

Determination of grain size of fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/331	ASTM E112	Standard Test Methods for Determining Average Grain Size

Macroscopic examination of steel

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/484	ASTM E381	Standard Method of Macroetch Testing Steel Bars, Billets, Blooms, and Forgings.
FA/511	ASTM E340	Standard Test Method for Macroetching Metals and Alloys

Microscopic examination of steel

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/512	ASTM E407	Standard Practice for Microetching Metals and Alloys
FB/1179	ASTM E45	Determining the Inclusion Content of Steel
FB/1259	ASTM A923	Standard Test Methods for Detecting Detrimental Intermetallic Phase in Duplex Austenitic/Ferritic Stainless Steels, Test Method C - Ferric Chloride Corrosion Test for Classification of Structures of Duplex Stainless Steels

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FB/1264	ASTM A923	Standard Test Methods for Detecting Detrimental Intermetallic Phase in Duplex Austenitic/Ferritic Stainless Steels, Test Method A - Sodium Hydroxide Etch Test for Classification of Etch Structures of Duplex Stainless Steels
FB/1354	ASTM E562	Determining Volume Fraction by Systematic Manual Point Count