

United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 200158-0

San Shing Fastech Corp. Test Laboratory

Tainan
Taiwan

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Fasteners and Metals

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
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 on ISO/IEC 17025).*

2024-06-24 through 2025-06-30

Effective Dates



A handwritten signature in blue ink, appearing to read 'Dana S. Laman', positioned above a horizontal line.

For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

San Shing Fastech Corp. Test Laboratory

Test Laboratory

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Chemical Analysis

Optical emission spectrochemical analysis

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/457	ASTM E415	Standard Test Method for Analysis of Carbon and Low-Alloy Steel by Spark Atomic Emission Spectrometry

Dimensional Inspection

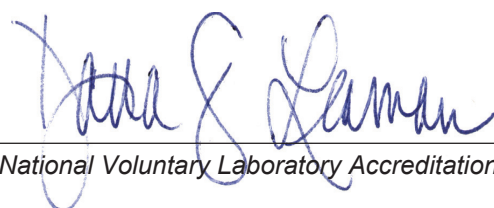
External thread parameters - system 21

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/379	ANSI/ASME B1.3	Screw Thread Gaging Systems for Dimensional Acceptability - Inch and Metric Screw Threads (UN, UNR, UNJ, M, and MJ)
FA/940	ANSI/ASME B1.2	Gages and Gaging for Unified Inch Screw Threads

External thread parameters - system 22

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/381	ANSI/ASME B1.3	Screw Thread Gaging Systems for Dimensional Acceptability - Inch and Metric Screw Threads (UN, UNR, UNJ, M, and MJ)
FA/941	ANSI/ASME B1.2	Gages and Gaging for Unified Inch Screw Threads

External thread parameters - ISO



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<u>Code</u>	<u>Designation</u>	<u>Description</u>
FB/1216	ANSI B18.2.1	Square and Hex Bolts and Screws - Inch Series

Dimensions of fasteners - flange screw heads and flange nuts

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/949	ANSI/ASME B18.2.2	Square and Hex Nuts (Inch Series)

Dimensions of fasteners - gaging for slotted nuts

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/417	ANSI/ASME B18.2.2	Square and Hex Nuts (Inch Series)

Internal thread parameters - system 21

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/391	ANSI/ASME B1.3	Screw Thread Gaging Systems for Dimensional Acceptability - Inch and Metric Screw Threads (UN, UNR, UNJ, M, and MJ)
FA/942	ANSI/ASME B1.2	Gages and Gaging for Unified Inch Screw Threads

Internal thread parameters - system 22

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/393	ANSI/ASME B1.3	Screw Thread Gaging Systems for Dimensional Acceptability - Inch and Metric Screw Threads (UN, UNR, UNJ, M, and MJ)
FA/943	ANSI/ASME B1.2	Gages and Gaging for Unified Inch Screw Threads

Internal thread parameters - ISO

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/953	ANSI/ASME B18.2.2	Square and Hex Nuts (Inch Series)

Mechanical and Physical Testing and Inspection

Adhesion

Adhesion of metallic coatings on fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/144	ISO 2819	Metallic Coatings on Metallic Substrates - Electrodeposited and Chemically Deposited Coatings - Review of Methods Available for Testing Adhesion

Aerospace Nut Test

Permanent set test of self-locking nuts

<u>Code</u>	<u>Designation</u>	<u>Description</u>
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FB/1291 NASM 25027 Nut, Self-Locking, 250 °F, 450 °F, 800 °F

Coating

Measurement of fastener coating thickness - magnetic methods

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/153	ASTM B499	Standard Test Method for Measurement of Coating Thicknesses by the Magnetic Method: Nonmagnetic Coatings on Magnetic Basis Metals

Measurement of fastener coating thickness - microscopical method

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/162	ISO 1463	Metallic and Oxide Coatings - Measurement of Coating Thickness - Microscopical Method
FA/873	NASM 1312-12	Fastener Test Methods, Method 12, Thickness of Metallic Coatings

Measurement of fastener coating thickness - weight of coating

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/164	ASTM A90/A90M	Standard Test Method for Weight [Mass] of Coating on Iron and Steel Articles With Zinc or Zinc-Alloy Coatings

Measurement of fastener coating thickness - X-ray methods

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/556	ASTM B568	Standard Test Method for Measurement of Coating Thickness by X-Ray Spectrometry
FB/1292	NASM 1312-12	Fastener Test Methods, Method 12, Thickness of Metallic Coatings

Corrosion

Salt spray testing of fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/166	ASTM B117	Standard Practice for Operating Salt Spray (Fog) Apparatus
FA/568	ISO 9227	Corrosion Tests in Artificial Atmospheres - Salt Spray Tests
FB/1032	NASM 1312-1	Fastener Test Methods, Method 1, Salt Spray

Embrittlement

Hydrogen embrittlement (stress durability) of internally threaded fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
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FB/1033 NASM 1312-14 Fastener Test Methods, Method 14, Stress Durability - Internally Threaded Fasteners

Hardness

Microhardness of fasteners

<u><i>Code</i></u>	<u><i>Designation</i></u>	<u><i>Description</i></u>
FA/189	ASTM E384	Standard Test Method for Microindentation Hardness of Materials
FA/877	NASM 1312-6	Fastener Test Methods, Method 6, Hardness

Rockwell hardness of fasteners

<u><i>Code</i></u>	<u><i>Designation</i></u>	<u><i>Description</i></u>
FA/197	ASTM E18 (A, B, & C)	Standard Test Methods for Rockwell Hardness of Metallic Materials
FA/878	NASM 1312-6	Fastener Test Methods, Method 6, Hardness

Rockwell superficial hardness of fasteners

<u><i>Code</i></u>	<u><i>Designation</i></u>	<u><i>Description</i></u>
FA/205	ASTM E18	Standard Test Methods for Rockwell Hardness of Metallic Materials
FB/1004	NASM 1312-6	Fastener Test Methods, Method 6, Hardness

Vickers hardness - test forces from 9.807 to 1176 N (1 to 120 kgf)

<u><i>Code</i></u>	<u><i>Designation</i></u>	<u><i>Description</i></u>
FA/492	ASTM E92	Standard Test Methods for Vickers Hardness and Knoop Hardness of Metallic Materials
FB/1036	NASM 1312-6	Fastener Test Methods, Method 6, Hardness
FB/1380a	ISO 898-1:2013 sec. 9.9	Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Part 1: Bolts, Screws and Studs with Specified Property Classes - Course Thread and Fine Pitch Thread. Section 9.9 - Hardness Test
FB/1381	ISO 898-2:2012 sec. 9.2	Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Part 2: Nuts with Specified Property Classes - Course Thread and Fine Pitch Thread. Section 9.2 - Hardness Test

Impact

Head soundness testing

<u><i>Code</i></u>	<u><i>Designation</i></u>	<u><i>Description</i></u>
FA/614	ISO 898-1	Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Part 1: Bolts, Screws and Studs. Section 8.8, Head Soundness Test.

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Prevailing Torque

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/217	IFI-100/107	Prevailing-Torque Type Steel Hex and Hex Flange Nuts, Regular and Light Hex Series
FA/218	ISO 2320	Prevailing Torque Type Steel Hexagon Nuts - Mechanical and Performance Properties
FA/557	DIN 267, Part 15	Fasteners, Technical Delivery Conditions, Prevailing Torque Type Nuts
FA/630	MIL-N-25027	Nut, Self-Locking, 250 °F, 450 °F, and 800 °F
FA/836	Ford WE 950	Ford Worldwide Standard for Prevailing Torque-Type Steel Hexagon Nuts and Hexagon Flange Nuts - Mechanical and Performance Properties
FA/954	GM 9092P	General Motors Test for Prevailing Torque Nuts (Hand Qualification Test)
FA/955	GM 9084P	Test for Prevailing Torque Nuts

Proof

Cone proof load of internally threaded fasteners (nuts)

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/220	ASTM F606/F606M	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets. Section 4.3: Cone Proof Load Test

Proof load of full-size externally threaded fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/226	ASTM F606/F606M	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/573	JIS B1051	Mechanical properties of fasteners made of carbon steel and alloy steel
FB/1302	SAE J1199	Mechanical and Material Requirements for Metric Externally Threaded Steel Fasteners
FB/1367	GM 500M Sec. 5.3	Mechanical and Material Requirements for Metric Externally Threaded Fasteners
FB/1387	ISO 898-1:2009 sec. 9.6	Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Part 1: Bolts, Screws and Studs with Specified Property Classes - Course Thread and Fine Pitch Thread. Section 9.6 - Proof Load Test for Finished Bolts, Screws, Stds

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FB/1387a ISO 898-1:2013 sec. 9.6 Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Part 1: Bolts, Screws and Studs with Specified Property Classes - Course Thread and Fine Pitch Thread. Section 9.6 - Proof Load Test for Finished Bolts, Screws, Studs

Proof load of internally threaded fasteners (nuts)

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/236	ASTM F606/F606M	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets. Section 4.2: Proof Load Test
FA/241	SAE J995	Mechanical and Material Requirements for Steel Nuts. Section 5.1: Proof Load Test
FA/918	MIL-N-25027	Nut, Self-Locking, 250 °F, 450 °F, and 800 °F
FB/1192	ISO 2320	Prevailing Torque Type Steel Hexagon Nuts - Mechanical and Performance Properties
FB/1215	IFI-100/107	Prevailing-Torque Type Steel Hex and Hex Flange Nuts, Regular and Light Hex Series
FB/1383	ISO 898-2:2012 sec. 9.1	Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Part 2: Nuts with Specified Property Classes - Course Thread and Fine Pitch Thread. Section 9.1 - Proof Load Test

Screw Tests

Clamp load test

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/558	ISO 2320	Prevailing Torque Type Steel Hexagon Nuts - Mechanical and Performance Properties
FA/559	DIN 267, Part 15	Fasteners, Technical Delivery Conditions, Prevailing Torque Type Nuts
FA/560	IFI-100/107	Prevailing-Torque Type Steel Hex and Hex Flange Nuts, Regular and Light Hex Series

Tensile

Axial tensile strength of full-size threaded fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/266	ASTM F606/F606M	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/273	SAE J429	Mechanical and Material Requirements for Externally Threaded Fasteners
FA/574	JIS B1051	Mechanical properties of fasteners made of carbon steel and alloy steel

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FB/1370	GM 500M Sec. 5.4	Mechanical and Material Requirements for Metric Externally Threaded Fasteners
FB/1384	ISO 898-1:2009 sec. 9.3	Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Part 1: Bolts, Screws and Studs with Specified Property Classes - Course Thread and Fine Pitch Thread. Section 9.3 - Tensile Test for Full-Size Bolts, Screws & Studs
FB/1384a	ISO 898-1:2013 sec. 9.3	Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Part 1: Bolts, Screws and Studs with Specified Property Classes - Course Thread and Fine Pitch Thread. Section 9.3 - Tensile Test for Full-Size Bolts, Screws & Studs

Total extension at fracture of externally threaded fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/285	ASTM F606/F606M	Standard Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets Section 3.7: Total Extension at Fracture Test

Wedge tensile strength of full-size threaded fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/290	ASTM F606/F606M	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/468	SAE J429	Mechanical and Material Requirements for Externally Threaded Fasteners
FA/575	JIS B1051	Mechanical properties of fasteners made of carbon steel and alloy steel
FB/1375	GM 500M Sec. 5.5	Mechanical and Material Requirements for Metric Externally Threaded Fasteners
FB/1385	ISO 898-1:2009 sec. 9.1	Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Part 1: Bolts, Screws and Studs with Specified Property Classes - Course Thread and Fine Pitch Thread. Section 9.1 - Tensile Test Under Wedge Loading
FB/1385a	ISO 898-1:2013 sec. 9.1	Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Part 1: Bolts, Screws and Studs with Specified Property Classes - Course Thread and Fine Pitch Thread. Section 9.1 - Tensile Test Under Wedge Loading

Torque Tension

Torque-tension of full-size threaded fasteners

<u>Code</u>	<u>Designation</u>	<u>Description</u>
FA/306	IFI-101	Torque-Tension Requirements for Prevailing-Torque Type Steel Hex and Hex Flange Nuts
FA/944	ISO 2320	Prevailing Torque Type Steel Hexagon Nuts - Mechanical and Performance Properties
FB/1355	ISO 16047	Torque/clamp force

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FB/1356	Ford WZ 101	Steel Metric Threaded Fasteners Torque/Clamping Force Performance
FB/1357	Renault 01-50-005	Fastener Coefficient of Friction
FB/1376	DIN 946	Determination of Coefficient of Friction in Bolt/Nut Assemblies
FB/1377	PSA Peugeot C10 0054	Screw, Studs, and Nuts Aptitude to Friction

Washer Tests

Embrittlement test of washers

<u><i>Code</i></u>	<u><i>Designation</i></u>	<u><i>Description</i></u>
FA/316	SAE J773	Conical Spring Washers
FB/1316	ISO 15330	Fasteners - Preloading test for the detection of hydrogen embrittlement - Parallel bearing surface method

Metallography

Decarburization and case depth measurement in fasteners

<u><i>Code</i></u>	<u><i>Designation</i></u>	<u><i>Description</i></u>
FA/323	ASTM E1077	Standard Test Methods for Estimating the Depth of Decarburization of Steel Specimens
FA/329	SAE J419	Methods of Measuring Decarburization
FB/1386a	ISO 898-1:2013 sec. 9.10	Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Part 1: Bolts, Screws and Studs with Specified Property Classes - Course Thread and Fine Pitch Thread. Section 9.10 - Decarburization Test

Determination of grain size of fasteners

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

Surface discontinuities of externally threaded fasteners

<u><i>Code</i></u>	<u><i>Designation</i></u>	<u><i>Description</i></u>
FA/357	ASTM F788	Standard Specification for Surface Discontinuities of Bolts, Screws, Studs, and Rivets, Inch and Metric Series

Surface discontinuities of internally threaded fasteners

<u><i>Code</i></u>	<u><i>Designation</i></u>	<u><i>Description</i></u>
FA/363	ASTM F812	Standard Specification for Surface Discontinuities of Nuts, Inch and Metric Series
FB/1299	NASM 25027	Nut, Self-Locking, 250 °F, 450 °F, 800 °F