



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

FASTENAL COMPANY LABORATORY
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MECHANICAL

Valid To: September 30, 2020

Certificate Number: 1046.01

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

<u>Test</u>	<u>Test Methods</u>
<u>Mechanical Testing</u>	
Charpy Impact Strength	ASTM E23; ISO 148
Drill Drive	SAE J78
Drive Test	SAE J81, J933; DIN 7500; ISO 7085
Ductility	ASME B18.6.3; FIP 1000; SAE J78, J81
Hardness	
Rockwell (B, C, 30N)	ASTM A370, E18, F606, F606M; ISO 898-1, 898-2; NASM 1312-6
Brinell	ASTM E10
Leeb Hardness	ASTM A956
Hex Socket Strength	ASTM F880, F880M, F912, F912M
Microhardness (Vickers) (300 & 500 gf)	ASTM E384
Proof (Internal / External Threaded)	
Bolts	ASTM A370 (A3.2.1.2), F606M (3.2.3); ISO 898-1 (8.4)
Nuts	ASTM A370 (A3.5.1), F606M (4.2); ISO 898-2 (8.1)
Rotational Capacity	AASHTO M164; ASTM F3125
Shear Testing	ASME B18.8.2 Appendix B; NASM 1312-20

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<u>Test</u>	<u>Test Methods</u>
Fatigue Testing	NASM 1312; ISO 3800
Stress Durability (Hydrogen Embrittlement)	ASME B18.6.3; ASTM F606, F606M; FIP 1000; SAE J81, J78
Tensile (Axial, Wedge)	ASTM A370 (A3.2, 13.2.1), F606, F606M (3.4, 3.5, 3.6); DIN 267-11; ISO 898-1 (8.1, 8.5); MIL-STD-FFS 85;
Torsional Strength	SAE J78, J81, J933
Torque	
Torque Tension	IFI 101; SAE J174
Prevailing Torque	ASME B18.16.6; IFI 100-107; ISO 2320; NASM 25027
Fasteners – Torque/Clamp Force Testing	ISO 16047
 <u>Metallographic Evaluation</u>	
Macro-etch Testing Steel Bars, Billets, Blooms, and Forgings	ASTM E381
Case Depth	SAE J423, J78, J81, J933
Decarburization	ASTM A574, A574M, F835, F835M, F912, F912M, F2328; ISO 898-1, 898-5; SAE J419; AMS 2759-1E
Grain Size	ASTM E112
Assessing the Degree of Banding	ASTM E1268
Discontinuities (Visual, MT, PT, NDT)	AMS 2644; ASTM A574, A574M, E709, F788, F788M, F812, F912, E1417, E1444; ISO 6157; NAVSEA T9074-AS-GIB-01/271; SAE J122, J123
Plating Thickness	ASTM B487, B568
Salt Spray	ASTM B117; ISO 9227
Evaluating Degree of Rusting on Painted Steel Surfaces	ASTM D610
Rating Adhesion by Tape Test	ASTM D3359

TestTest MethodsNondestructive Analysis

Magnetic Permeability

ASTM A342 (Method 3)

XRF PMI Analyzer

Niton Alloy Analyzer User's Guide

UT Testing

ASTM E114, A388

Chemical Analysis

Optical Emission Spectroscopy

ASTM E415, E1086

(On alloy & stainless steel for: B, C, Co, Cr, Cu, Mn, Mo, Nb, Ni, P, Pb, S, Si, Ti, V, W)

I. Dimensional Testing¹

Parameter	Range	CMC ² (±)	Technique/Method
Threads ³	#4 to 2½ in M3 to M24	0.0095 in 0.23 mm	Rings, plugs/ ANSI B1.1, B1.3 (System 21)
	Up to 2 in	0.00084 in	Pitch micrometer/ ANSI B1.1 (System 21)
Linear ³ — 1D	Up to 24 in	0.0003 in	Gage maker/ NAVAIR 17-MD20-39
	Up to 3 in	0.00026 in	Outside micrometers
	Up to 60 in	(1200 + 82L) µin	Calipers 6, 12, 60 in/ L is length in inches.
	Up to 1 in	0.00053 in	Digital indicator/ ASME B18.2.1
	(0.011 to 1.00) in	0.00024 in	Pin gage/ SAE J81
2D	x axis: Up to 8 in y axis: Up to 4 in	0.00068 in 0.00039 in	Optical comparators
	Angle ³	0° to 360°	12'
Radii ³	Up to 0.675 in	0.0021 in	Optical comparators

Parameter	Range	CMC ² (±)	Technique/Method
Recesses ³	Up to 1 in	0.002 in	Recess penetration/ ASME B18.6.3
Flat Head ³	Up to 1 in	0.00065 in	Protrusion gage/ ASME B18.6.3

¹ Commercial dimensional testing service is sometimes available for this laboratory.

² Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMC's 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 calibration 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 calibration.

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



Accredited Laboratory

A2LA has accredited

FASTENAL COMPANY LABORATORY

Winona, MN

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 April 2017).



Presented this 19th day of November 2018.

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

President and CEO
For the Accreditation Council
Certificate Number 1046.01
Valid to September 30, 2020

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