



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

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MECHANICAL

Valid To: September 30, 2020

Certificate Number: 1046.04

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 Method(s)</u>
Hardness (Rockwell: BW, C, 30N, 30TW)	ASTM A370, E18, F606, F606M; ISO 898-1, 898-2
Micro Hardness (HV 0.1 / 0.3 / 0.5) Vickers Hardness (HV 10 / 30)	ASTM E384, E92
Tensile (Axial, Wedge) Yield Strength Elongation Reduction of Area	ASTM A370 (A3.2, 13.2.1), F606, F606M (3.4, 3.5, 3.6); ISO 898-1 (9.1, 9.2, 9.5, 9.7)
Proof Bolts	ASTM A370 (A3.2.1.2), F606, F606M (3.2.3); ISO 898-1 (9.6)
Nuts	ASTM F606, F606M (4.2); IFI 100/107; ISO 898-2 (8.1); SAE J995 (5.1)
Stress Durability (Hydrogen Embrittlement)	ASME B18.6.3; ASTM F606, F606M; FIP 1000; SAE J78, J81
Decarburization	ASTM F2328, F2328M, F835, F835M, F912, F912M; ISO 898-1, 898-5; SAE J429
Torsional Strength	SAE J78, J81, J933
Ductility	ASME B18.6.3; FIP 1000; SAE J78, J81
Case Depth	SAE J78, J81, J423, J933

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<u>Test</u>	<u>Test Method(s)</u>
Prevailing Torque	ASME B18.16.6; IFI 101, 100/107; ISO 2320
Drive Torque	FIP 1000; SAE J81
Drive Test	FIP 1000; SAE J933, J81
Drilling Test	SAE J78
Plating Thickness (Magnetic Method)	ASTM B499
Plating Thickness (Microscope Method)	ASTM B487
Salt Spray	ASTM B117; ISO 9227
Surface Discontinuities	ASTM A574, A574M, F788 (Exclude S1), F812, F912, F912M; ISO-6157-1, 6157-2

I. Dimensional Testing¹

Parameter	Range	CMC ² (±)	Technique / Method
Threads ³ (System 21)	#4 to 2 ½ in M3 to M36	N/A	Ring gages/ ASME B1.2, B1.16M
	#4 to 1 ½ in M6 to M42	N/A	Plug gages/ ASME B1.2, B1.16M
	1/8 to 3 in NPT	N/A	Plug gage/ ASME B1.20.1
	1/8 to 4 in NPT	N/A	Ring gage/ ASME B1.20.1
Linear ³ - 1D	Up to 1 in	0.0003 in	Outside micrometer/ V-Anvil Micrometer/ MIL-STD-120 (Dec. 1950) ⁴
	Up to 24 in	0.0011 in	Calipers/ MIL-STD-120 (Dec. 1950) ⁴
	Up to 12 in	0.0009 in	Length gages/ MIL-STD-120 (Dec. 1950) ⁴
	Up to 115 in	0.066 in	Tape/QB/T 2443
3D	X axis: Up to 11 in Y axis: Up to 7 in Z axis: Up to 7 in	0.0008 in 0.0008 in 0.0018 in	Optical CMM (Zoomscope)/ QA 7S-78

Parameter	Range	CMC ² (±)	Technique/Method
Angle ³	0° to 360°	36''	Optical CMM (Zoomscope)/ QA 7S-78
Radii ³	Up to 5 in	0.003 in	Optical CMM (Zoomscope)/ QA 7S-78
Slot Width ³	#2 to 3/8 in M2 to M10	N/A	Slot plug gage/ ASME B18.6.3, FIP 1000
Recess ³	Pin Phillips: #1 to #4 Square: #1 to #3 Hex Socket: (0.078 to 0.3752 in) (3.0 to 10.0 mm) 6 lobe: T10 to T40	0.0007 in	Recess penetration/ ASME B18.6.3 Recess penetration/ ASME B18.3, B18.3.1M; ISO 23429; DIN 912 Recess penetration/ ISO 10664; ASME B18.6.3
Wobble (±15°)	Phillips: #1 to #3	51''	Wobble gage/ ASME B18.6.3
Straightness ³	Up to 1 in	0.0011 in	Straightness gage/ ASME B18.2.1
Flat Head ³ (82°) and Head Height	#2 to 5/8 in	0.0003 in	Protrusion gage/ ASME B18.6.3
Position, Perpendicularity, and Run Out	Up to 2 in.	0.0013 in	Dial indicator and fixture/ ASME B18.2.1, B18.2.2; ISO 4759

¹ This laboratory offers commercial dimensional testing services.

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 measurements 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 measurement 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 measurement.

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



Accredited Laboratory

A2LA has accredited

FASTENAL COMPANY LABORATORY - SHANGHAI

Shanghai, People's Republic of China

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 24th day of September 2018.

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

President and CEO
For the Accreditation Council
Certificate Number 1046.04
Valid to September 30, 2020

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