



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

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MECHANICAL

Valid To: September 30, 2022

Certificate Number: 1046.03

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

<u>Test</u>	<u>Test Methods</u>
Hardness (Rockwell: A, BW, C, 15N, 30N)	ASTM A370, E18, F606, F606M; ISO 898-1, 898-2, 898-5, 6508-1
Micro Hardness (100, 300 & 500g) Vickers Hardness (10 & 30kgs)	ASTM E384, E92, ISO 898-5, 6507-1
Case Depth	ASME B18.6.3; DIN 7500; ISO 2702, 7085 (1999) ⁵ ; SAE J78, J81(2012) ⁵ , J423, J933, J1237
Decarburization/Carburization	ASTM F835, F835M (2011) ⁵ , F912, F912M (2011) ⁵ , F2328, F2328M; ISO 898-1, 898-5; SAE J121 (1997) ⁵ , J121M(1997) ⁵ , J419
Ductility	ASME B18.6.3; DIN 7500, FIP 1000; IFI 112, 113; ISO 7085 (1999) ⁵ ; SAE J78, J81(2012) ⁵ , J1237
Drive Test	ASME B18.6.3; DIN 7500; FIP 1000; IFI 112; ISO 2702, 7085 (1999) ⁵ ; SAE J81(2012) ⁵ , J933, J1237
Drive Torque	ASME B18.6.3; DIN 7500; FIP 1000; IFI 112; ISO 7085 (1999) ⁵ ; SAE J81(2012) ⁵ , J1237
Drill Drive	DIN 7504 (1995) ⁵ ; IFI 113; ISO 10666; SAE J78
Torsional Strength	ASME B18.6.3; ASTM F606, F606M; DIN 7500; FIP 1000; IFI 112, 113; ISO 898-7, 2702, 3506-1, 3506-4, 7085 (1999) ⁵ ; SAE J78, J81(2012) ⁵ , J933, J1237

Test**Test Methods**

Twist Test on S/P Lock Washer	ASME B18.21.1
Hex Socket Strength (Proof Torque)	ASTM F880, F880M, F912, F912M (2011) ⁵ ; ISO 898-5, 3506-3
Stress Durability (Hydrogen Embrittlement)	ASTM F606, F606M; ASME B18.6.3, B18.21.1; FIP 1000; SAE J78, J81(2012) ⁵ , J1237
Prevailing Torque	ASME B18.16.6; DIN 267-15 (1983) ⁵ , IFI 100/107; ISO 2320
Tensile (Axial, Wedge, Tension), Yield Strength, Elongation & Reduction of Area	ASTM A370 (A3.2, 13.2.1), E8/E8M, F606, F606M (3.4, 3.5, 3.6); DIN 267-11 (1980) ⁵ ; ISO 898-1 (9.1, 9.2, 9.5, 9.7), 3506-1
Proof (Internal / External Threaded) Bolts	ASTM A370 (A3.2.1.2), F606, F606M (3.2.3); ISO 898-1 (9.6)
Nuts	ASTM F606, F606M (4.2), A962; DIN 267-4 (1983), -15 (1983); IFI 100/107; ISO 898-2 (8.1), 2320, 3506-2
Double Shear	ASME B18.8.2
Coating Thickness (Microscope)	ASTM B487
Plating Thickness (Zn/Fe, Ni/Fe)	ASTM B568
Salt Spray	ASTM B117; ISO 9227
Discontinuities	ASTM A574, A574M (2012) ⁵ , F788 (<i>Exclude Sec. SI</i>), F812, F912; DIN 267-19 (1984) ⁵ ; ISO 6157-1; 6157-2, 6157-3 (<i>Exclude Sec. 3.6</i>); SAE J122 (1998) ⁵ , J123 (1994) ⁵ , J1061 (2008) ⁵

I. Dimensional Testing²

Parameter	Range	CMC ³ (±)	Technique/ Method
Threads ⁴	#2 to 1-3/4 in M2 to M36	N/A	Rings / System 21; ASME B.1.2, B1.3, B1.16M
	#3 to 2-1/4 in M3 to M42		Plug gages / System 21; ASME B.1.2, B1.3, B1.16M
	1/8" – 2" NPT		Ring Gages / System 21; ASME B1.20.1
	1/8" – 1-1/4" NPT		Plug Gages / System 21; ASME B1.20.1
	3/4 – 1-3/4" ACME		Ring Gages / 2G; ASME B1.5
	1/8" – 1" NPTF		Ring Gages / Class 1, 2; ASME B1.20.5
	1/8" – 1" NPTF		Plug Gages / Class 1, 2; ASME B1.20.5
-Pitch Diameter ⁴	Up to 1 in	0.00066 in	Pitch Micrometer/ ASME B1.1, B1.13M

Parameter	Range	CMC ³ (±)	Technique/ Method
Linear ⁴ – 1D	Up to 2 in	0.00020 in	Outside micrometers / MIL-STD-120 (Dec. 1950) ⁵
	Up to 24 in	0.0014 in	Calipers / MIL-STD-120 (Dec. 1950) ⁵
	Up to 12 in	0.0016 in	Length gage / MIL-STD-120 (Dec. 1950) ⁵
	Up to 16 ft	0.076 in	Tape / MIL-STD-120 (Dec. 1950) ⁵
2D	X axis: Up to 6.2 in Y axis: Up to 3.1in	0.0080 in 0.0080 in	Optical comparators / MIL-STD-120 (Dec. 1950) ⁵
3D	X axis: Up to 11.8 in Y axis: Up to 7.8 in Z axis: Up to 7.8 in	0.00046 in 0.00051 in 0.00086 in	Optical CMM / QA7T-87 (Zoomscope)
Angle ⁴	0° to 360°	0.59°	Optical comparators / MIL-STD-120 (Dec. 1950) ⁵
	0° to 360°	0.59°	Optical CMM / QA7T-87 (Zoomscope)
Radii ⁴	Up to 0.50 in	0.0029 in	Optical comparators / MIL-STD-120 (Dec. 1950) ⁵
	Up to 3 in	0.00053 in	Optical CMM / QA7T-87 (Zoomscope)

Parameter	Range	CMC ³ (±)	Technique/ Method
Recesses ⁴	Pin Pozi: #1 to #4 Phillips: #0 to #4 Square: #1 to #4 Hex Socket: (0.028 to 0.375) in (1.3 to 10.0) mm 6 Lobe T6 to T55 6 Lobe Fallaway T8 to T40	0.00068 in	Recess penetration / ASME B18.6.3 Recess penetration / B18.3, B18.3.1.M; DIN 912 (1983) ⁵ Recess penetration / ISO 10664
Protrusion ⁴	#2 to 1 in	0.00079 in	Protrusion gage / ASME B18.6.3
Straightness ⁴	Up to 1 in	0.0019 in	Straightness gage / ASME B18.2.9; IFI 138
Spring Pin Gaging ⁴	(1/16 to 1/2) in	N/A	Cylinder ring / ASME B18.8.2
Slot Width ⁴	M2 to M10 #2 to 3/8 in	N/A	Slot plug gage / ASME-B18.6.3; FIP 1000
Wobble ⁴	Phillips: #1 to 3 #4 Pozi #2 Square #2	1.3°	Wobble gage/ ASME B18.6.3
Concentricity, Perpendicularity, and Run Out ⁴	Up to 0.19"	0.0018 in	Dial indicator and fixture, Zoomscope/ ASME B18.2.1, B18.2.2; ISO 4759; ASME Y14.5

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 measurements of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs 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.

⁴ This laboratory's scope contains withdrawn or superseded 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.



Accredited Laboratory

A2LA has accredited

FASTENAL COMPANY LABORATORY - TAIWAN

Gangshan District, Kaoshiung City, Taiwan (R.O.C.)

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *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 21st day of October 2020.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1046.03
Valid to September 30, 2022

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