



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

FASTENAL COMPANY LABORATORY - TAIWAN  
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MECHANICAL

Valid To: September 30, 2020

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
Stress Durability (Hydrogen Embrittlement)	ASTM F606, F606M; ASME B18.6.3, B18.21.1; FIP 1000; SAE J78, J81, J1237
Decarburization/Carburization	ASTM F835, F835M, F912, F912M, F2328, F2328M; ISO 898-1, 898-5; SAE J121, J121M, J419
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; SAE J78, J81, J933, J1237
Hex Socket Strength (Proof Torque)	ASTM F880, F880M, F912, F912M; ISO 898-5, 3506-3
Ductility	ASME B18.6.3; DIN 7500, FIP 1000; IFI 112, 113; ISO 7085; SAE J78, J81, J1237
Plating Thickness (Zn/Fe, Ni/Fe)	ASTM B568
Case Depth	ASME B18.6.3; DIN 7500; ISO 2702, 7085; SAE J78, J81, J423, J933, J1237
Prevailing Torque	ASME B18.16.6; DIN 267-15 (1983) <sup>5</sup> , IFI 100/107; ISO 2320

**Test**

**Test Methods**

Drive Torque	ASME B18.6.3; DIN 7500; FIP 1000; IFI 112; ISO 7085; SAE J81, J1237
Drive Test	ASME B18.6.3; DIN 7500; FIP 1000; IFI 112; ISO 2702, 7085; SAE J81, J933, J1237
Drill Drive	DIN 7504 (1995) <sup>5</sup> ; IFI 113; ISO 10666; SAE J78
Coating Thickness	ASTM B487
Twist Test on S/P Lock Washer	ASME B18.21.1
Discontinuities	ASTM A574, A574M, F788 ( <i>Exclude Sec. S1</i> ), F812, F912; DIN 267-19 (1984) <sup>5</sup> ; ISO 6157-1; 6157-2, 6157-3 ( <i>Exclude Sec. 3.6</i> ); SAE J122, J123, J1061
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) <sup>5</sup> ; 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
Salt Spray	ASTM B117; ISO 9227

I. Dimensional Testing<sup>2</sup>

Parameter	Range	Technique/ Method
Threads <sup>4</sup>	#2 to 1-3/4 in M2 to M36	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

Parameter	Range	Technique/ Method
Threads <sup>4</sup>	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" – 3/4" NPTF	Plug Gages / Class 1, 2; ASME B1.20.5

Parameter	Range	CMC (±)	Technique/ Method
Linear <sup>4</sup> – 1D	Up to 2 in	0.00025in	Outside micrometers / MIL-STD-120 (Dec. 1950) <sup>5</sup>
Pitch Diameter	Up to 1 in	0.00061 in	Pitch Micrometer/ ASME B1.1, B1.13M; ISO 724965-1
	Up to 1.5 in	0.00015 in	3 Wire Gauge/ ASME B1.1, B1.13M; ISO 724965-1
2D	Up to 24 in	0.0025 in	Calipers / MIL-STD-120 (Dec. 1950) <sup>5</sup>
	Up to 12 in	0.0017 in	Length gage / MIL-STD-120 (Dec. 1950) <sup>5</sup>
3D	Up to 30 ft	0.062 in	Tape / MIL-STD-120 (Dec. 1950) <sup>5</sup>
	(1/16 to 1/2) in	N/A	Cylinder ring / ASME B18.8.2
	X axis: Up to 6.9 in Y axis: Up to 2.8 in	0.0015 in 0.0013 in	Optical comparators / MIL-STD-120 (Dec. 1950) <sup>5</sup>
	X axis: Up to 11 in Y axis: Up to 7 in Z axis: Up to 7 in	0.00057in 0.00044 in 0.00038in	Optical CMM / QA7T-87 (Zoomscope)
Angle <sup>4</sup>	0° to 360°	13'	Optical comparators / MIL-STD-120 (Dec. 1950) <sup>5</sup>
	0° to 360°	12'	Optical CMM / QA7T-87 (Zoomscope)

Parameter	Range	CMC ( $\pm$ )	Technique/ Method
Radii <sup>4</sup>	Up to 0.50 in	0.006 in	Optical comparators / MIL-STD-120 (Dec. 1950) <sup>5</sup>
	Up to 3 in	0.00041in	Optical CMM / QA7T-87 (Zoomscope)
Recesses <sup>4</sup>	Pin Pozi: #1 to 4 Phillips: #0 to 4 Square: #1 to 4	0.0006 in	Recess penetration / ASME B18.6.3
	Hex Socket: (0.0028 to 0.375) in (1.3 to 10.0) mm		Recess penetration / B18.3, B18.3.1.M; DIN 912 (1983) <sup>5</sup>
	6 Lobe T8 to T55		Recess penetration / ISO 10664
Flat Head <sup>4</sup> (80°)	#2 to 3/8 in	0.0015 in	Protrusion gage / ASME B18.6.3
Straightness <sup>4</sup>	Up to 1 in	0.002 in	Straightness gage / ASME B18.2.9; IFI 138
Slot Width <sup>4</sup>	M2 to M10 #2 to 3/8 in	N/A	Slot plug gage / ASME-B18.6.3; FIP 1000
Wobble	Phillips: #1 to 3	1.3°	ASME B18.6.3
Concentricity, Perpendicularity, and Run Out	Up to 0.06"	0.00071in	Dial indicator and fixture/Zoomscope ASME B18.2.1, B18.2.2; ISO 4759

<sup>2</sup> Commercial dimensional testing service is sometimes available for this laboratory.

<sup>3</sup> 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.

<sup>4</sup>This test is not equivalent to that of a calibration.

<sup>5</sup>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 17025:2005 *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 9<sup>th</sup> day of October 2018.

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

President and CEO  
For the Accreditation Council  
Certificate Number 1046.03  
Valid to September 30, 2020

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