SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

SEMBLEX CORPORATION
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MECHANICAL

Valid To: August 31, 2019 Certificate Number: 0794.01

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

Test	Test Methods
Axial & Wedge Tensile (≤ 60 klbs)	ASTM F606/F606M; DIN 7513 (Section 5.2.3); EN20-898-1 (Section 8.5); SAE J429, J1216
Hardness (Rockwell) (A, B, C, 15N, & 30N)	ASTM E18; CHRYSLER MS-4515 (Section 2.41.2); FORD WD/950 (Section 3.1), WD/951 (Section 4.1), WD/953 (Section 2.2/2.3); GM 6010M (Sections 4.1, 4.2, and 4.3), 6109M and 6177M (Section 3.2), 6170M (Section 4.1); SAE J417, J429 (Sections 5.1 and 5.2), J1216 (Sections 3.1 and 3.2)
Microhardness (Knoop 500g)	ASTM E384 (Knoop); DIN 50-133, DIN 50-150; GM 6109M, 6177M (Section 3.1), 6170M (Sections 4.2 and 4.3); SAE J423
Sample Preparation	ASTM E3
Case Depth	CHRYSLER MS415 (Sections 2.4.1.1 and 2.4.2.2); DIN 50 190-1; GM 6010M (Sections 4.2 and 4.3), 6171M (Appendix A); SAE J78
Decarburization	FORD WD/952 (Section 4.1); ISO 898-5 (Sections 6.2.2, 6.2.2.1, and 6.2.2.2); GM 6104M; SAE J121, J419
Surface Discontinuities	PA WI 073; ASTM F788, F788M; Chrysler PF-5188; DX 520007; Ford WA990; GM 6102M; ISO 6157-1/3; SAE J123, J1061
Plating Thickness	ASTM B568

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Test	Test Methods
Salt Spray	ASTM B117; ISO-9227; GMW 3286; USCAR-1
Drive Testing (≤ 200 N-m)	ANSI/ASME B18.6.4 and 2.91.1; CHRYSLER MS415 (Section 2.6); DIN 7513 (Section 5.2.1), DIN EN ISO 2702 (Section 6.2.1); FORD WD/952 (Section 4.3), WD/953 (Section3.2); GM 6010M (Section 3.6), 6170M (Section 4.6), 6171M (Section 4.6)
Stress Durability (Hydrogen Embrittlement)	SAE J81 (Section 4.9)
Torsional Strength (≤ 200 N-m)	ANSI B18.6.4 and 2.9.1.2; DIN 7513 (Section 5.2.2), DIN EN ISO 2702 (Section 6.2.2); FORD WD/950 (Section 4.2), WD/951 (Section 4.4), WD/953 (Section 2.6); GM 6010M (Sections 3.5 and 4.4), 6170M (Section 4.5), 6171M (Sections 3.5, 3.6, 4.4 and 4.5); SAE J81 (Section 3, Table 5A); WI ENG 007[1]
Ductility	FORD WD/951 (Sections 3.3 and 4.5); GM 6170M (Section 3.8), 6171M (Sections 3.8 and 4.6); SAE J81 (Sections 3.3.7 and 4.8)
Product Evaluation	WI ENG 015[1]
Torque Test (Unsupported, Proof, Drive/Failure, Drive, Breakaway) (≤ 200 N-m)	WI ENG 022[1], 026[1], 016[1], 025[1], 012[1]
Pull Out/Push Out Testing (≤ 2000 lbs)	WI ENG 020[1], 021, 024[1]
Clamp Load Testing (≤ 100 kN)	WI ENG 023[1]

I. Dimensional Testing[2]

Parameter / Equipment	Range	CMC[3] (±)	Technique / Method
Angle[4]	0° to 360°	0.01', 14"	Optical comparator / MIL-STD 120
Radius[4]	Up to 0.75 in	0.002 in	Optical comparator / MIL-STD 120
External Threads[4]–			
Thread Pitch Die	(0.17 to 0.28) in	0.0002 in	Tri-rolls / MIL-STD 120
Thread Accept			Ring gages / MIL-STD 120
Length[4] –			
1D	Up to 1 in	0.0008 in	Micrometers / MIL-STD 120
	(0.2 to 1) in	0.0004 in	Tri-micrometer / MIL-STD 120
	(0.2 to 1) in	0.0004 in	Penta-micrometer / MIL-STD 120
	(0.2 to 1) in	0.0002 in	Blade micrometer / MIL-STD 120
	Up to 1 in	0.0004 in	Pitch micrometer / MIL-STD 120
	Up to 1 in	0.0007 in	Digital caliper / MIL-STD 120
	Up to 6 in	0.001 in	Digital caliper / MIL-STD 120
	Up to 6 in	0.0007 in	Dial caliper / MIL-STD 120
	Up to 2 in	0.001 in	Dial indicator / MIL-STD 120
	Up to 0.5 in	0.001 in	Depth gage / MIL-STD 120
	Up to 2 in	0.0004 in	Digital head height / MIL-STD 120
2D			
X-axis	Up to 7 in	0.0006 in	Optical comparator / MIL-STD 120
Y-axis	Up to 4 in	0.0006 in	Optical comparator / MIL-STD 120

[1] In-house method

[2] This laboratory does not offer commercial dimensional testing service

[3] 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.

[4] This test is not equivalent to that of a calibration.

Accredited Laboratory

A2LA has accredited

SEMBLEX CORPORATION

Elmhurst, IL

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 8 January 2009*).

Presented this 15th day of September 2017.

President & CEO
For the Accreditation Council
Certificate Number 0794.01
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For the types of tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.