Accredited Fastener Testing Capabilities

ACCREDITED
CERT # 2625.01

Mechanical Testing

Prevailing Torque
Used to qualify prevailing torque (lock) nuts according to industry specifications.

ASME B18.16.6; IFI 124, 524, 100/107; ISO 2320

Proof Load Internal Threads
Used to qualify internally threaded fasteners by taking them to a test load for a set time, then checking for thread deformation.

ASME B18.16.6; ASTM F606/606M; ISO 898-1

Proof Load External Threads
Used to qualify externally threaded fasteners by taking them to a test load for a set time, then checking for elongation.

ASME B18.16.6; ASTM F606/606M; ISO 898-1

Torsional Strength
Used to qualify externally threaded parts for torsional strength. (1/4-20 or smaller parts only)

SAE J78, J81, J933

Torque Tension (Coefficient of Friction Analysis)
Used to measure coefficient of friction between two mating fasteners. Allows for comparison between coatings. Important part of the fastener selection process.

ISO 16047; DTNA 49-00230

Torque to Failure
Whole Joint testing used to determine torque specifications. Involves torquing the joint until failure, analyzing the cause, and using statistics to set a recommended torque tightening value.

L-10704 (Ford), FST-10 (Ford); MAT-WI-013 (Navistar)

Metallurgy/Metallography Testing

Carburization
Used to determine the success of the case-hardening heat treatment process by measuring using a microscope.

ASTM F2328; ISO 898-1; SAE J423

Decarburization
Used to measure the loss of carbon content during regular heat treatment by measuring using a microscope.

ASTM F2328; ISO 898-1; SAE J419

Hardness (HRC, B, 15N, 30N)
Used to qualify varied fasteners for use according to industry specifications.

ASTM E18, F606/606M; ISO 898-1, ISO 898-2

Hydrogen Embrittlement
Used to test for the effects of hydrogen-induced cracking, a process concern in assembled joints.

ASTM F606/606M; SAE J78, J81

Surface Discontinuities
Capability to check parts for external issues like cracking, fractures, or damaged threads.

ASTM F788/788M, F812/F812M

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Additional Fastener Testing Capabilities

Mechanical Testing

Coefficient of Friction Analysis (Torque-Tension)
Used to measure coefficient of friction between two mating fasteners. The test can provide clamp load data at a specified torque or torque data at a specified clamp load. The resultant data can then be used to calculate friction.

STD 186-0004 (Volvo); WZ 102 (Ford)

Breaking Torque
Used to qualify fasteners according to industry specifications. Usually part of a whole joint test.

Tensile (Axial/Wedge)
Used to qualify parts (usually bolts) for strength. Parts are pulled until failure and must break according to industry standards.

ASTM F606/F606M; ISO 898-1

Ultrasonic Testing
Advanced sonic technology used to measure the tension (load) a joint is under. Can be performed in the field or on production components.

L-10704 (Ford); FST-10 (Ford)

Joint Relaxation
Typically used in conjunction with Ultrasonic methods to monitor a fastened joint over time. Often used for product development.

L-10704 (Ford); FST-10 (Ford)

Environmental Joint Study
Typically used in conjunction with Ultrasonic methods to monitor a fastened joint in different environmental conditions (hot, cold, wet). Often used for product development.

L-10704 (Ford); FST-10 (Ford)

Metallurgy/Metallography Testing

Hardness (HV)
Used to qualify varied fasteners for use according to industry specifications.

ASTM F606/606M; ISO 898-1, ISO 898-2

Coating Thickness Measurement
Used to measure the thickness of a coating applied to a fastener.

ISO 10683; ISO 4042; Ford WX 100; Volvo STD121-0013/14

Microstructure Analysis
Used to investigate steel microstructures using darkfield and brightfield microscopy.

Corrosion Testing

Cyclic Corrosion Accredited Through Volvo Trucks Group
Used to measure components for real-world service life by subjecting them to an accelerated test that mimics on-road climate conditions. Also used when developing new products to ensure the selected components can handle the expected conditions. Facil has passed VTG accreditation for two of their most used testing standards.

ACT1 STD 423.0014; ACT2 VCS 1027.1449

Cyclic Corrosion Testing (CCT)
Used to measure components for real-world service life by subjecting them to an accelerated test that mimics on-road climate conditions. Also used when developing new products to ensure the selected components can handle the expected conditions.

There are many CCT standards available, listed below are some of the most common.

ACT2 CETP 00.00-L467 (Ford)
D17-2028 (ECC1) (Renault)
ISO 6270-2/16701/9227 CASS
STD 1027,1375/STD 423-0014 (Volvo)
VCS 1027.149 (Volvo)
ASTM D1735/D2247/G85
GM4298P (GM)
Japan Acid Rain CCT
STD 4319 (Scania)
VDA 233-102/621-415

Neutral Salt Spray (NSS)
Salt fog corrosion test used to qualify part coatings. Will pass the test if no red rust appears within the set time frame.

ASTM B117; ISO 9227, JIS H8502

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