

1. Scope

1.1 Scope. This standard establishes a conformance test procedure for the performance of pre-applied adhesive coatings applied to inch series nuts, in nominal sizes 1/4 thru 1 inch intended for application temperatures of – 40°F to 350°F.

Torque values for performance level I and level II given in this standard, Table 2, are conformance requirements for nuts which have adhesive coated threads and apply only to the combination of test conditions described in the performance ability test procedure (Section 6.0). **RESULTS OBTAINED BY THESE TESTS ARE RELEVANT TO THE TEST CONDITIONS PRESCRIBED HEREIN AND SHOULD NOT BE UTILIZED FOR OTHER SPECIFIC APPLICATIONS.** Such values can only be determined through testing the nut in its actual application.

This standard is not concerned with dimensional features such as nut thickness or flanges, or with other mechanical or performance properties such as strength properties, corrosion resistance, sealing, and/or consistency of torque-to-tension relationships during assembly. Such features and properties are covered in other standards and must be referenced when specifying a nut with adhesive coated threads to ensure that all service conditions of the particular application are properly met.

Reference information is also included in the Appendix.

1.2 Designation. There are a variety of pre-applied adhesives with differences in performance, therefore, there are two performance levels of pre-applied adhesives for which conformance test procedures are covered in this standard. These are designated as performance levels I and II, respectively. The performance level shall be specified by the purchaser on the purchase order.

2. General

2.1 Definition

A nut with adhesive coated threads is an internally threaded fastener which derives its resistance to loosening from the interaction of the adhesive with the threads of the mating part.

2.2 Type. The test procedure specified in this standard pertains to nuts having threads with preapplied adhesive coatings following manufacturing and prior to delivery for assembly.

3. Referenced Documents

All standards are latest issue, unless otherwise agreed between manufacturer and purchaser.

3.1 ASME Standards

- B1.1 *Unified Screw Threads*
- B1.3M *Screw Thread Gaging Systems for Dimensional Acceptability – Inch and Metric Screw Threads, (UN, UNR, UNJ, M and MJ)*
- B18.2.1 *Square and Hex Bolts and Screws*
- B18.2.2 *Square and Hex Nuts (Inch Series)*

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- B18.12 *Glossary of Terms for Mechanical Fasteners*
- B18.18.2 *Inspection and Quality Assurance for High-Volume Machine Assembly Fasteners*

ASME standards may be obtained from the American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5990.

3.2 ASTM Specifications

- ASTM A563 *Carbon and Alloy Steel Nuts*
- ASTM F1137 *Phosphate/Oil and Phosphate/Organic Corrosion Protective Coatings for Fasteners*
- ASTM F1789 *Terminology for F-16 Mechanical Fasteners*
- ASTM A449 *Quenched and Tempered Steel Bolts and Studs*

ASTM standards may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

3.3 SAE Standards

- J429 *Mechanical and Material Requirements for Externally Threaded Fasteners*
- J995 *Mechanical and Material Requirements for Steel Nuts*

SAE standards may be obtained from the Society of Automotive Engineers, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

3.4 IFI Standards

- IFI-140 *Carbon and Alloy Steel Wire, Rods and Bars for Mechanical Fasteners*

IFI standards may be obtained from the Industrial Fasteners Institute, 6363 Oak Tree Boulevard, Independence, OH 44131-2500.

4. Test Nut Requirements

4.1 Nut Finish. Plain finish nuts shall be furnished. The finish shall not interact, or prevent adherence of the adhesive coating material.

4.1.1 Trial Application. Values shown in Table 2 are those for plain finished (not coated) nuts. When using adhesives on very smooth finishes (including chrome and nickel platings, stainless steel and some zincs), a trial application should be conducted for proper performance. Smooth finishes will produce minimal torque values. Other finishes, such as dry phosphate, will increase the locking forces due to its excellent bonding surface, and generate higher breakaway values. Values for other than plain finish nuts shall be developed and agreed upon between manufacturer and user.

4.2 Nut Threads

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