

IFI NOTES:

1. *IFI-124 is a standard developed through the procedures of the Industrial Fasteners Institute under the jurisdiction of its Standards and Technical Practices Committee.*
2. *IFI-124 defines the testing of Nonmetallic Resistant Element Prevailing-Torque Screws to determine their conformance with specified prevailing-torque requirements. While the standard was originally established for nonmetallic insert type screws, it does not preclude other types of prevailing-torque screws, e.g. all-metal screws with a "designed-in" distortion of their threads, providing such screws meet the inherent test requirements.*
3. *IFI-124 was first published in 1973. It was revised in 1982, 1987, 1995, 1996, and again prior to the issuance of this 2002 edition.*

1.0 Introduction.

1.1 Scope. This standard establishes a conformance test procedure for the performance of Nonmetallic Resistant Element Prevailing-Torque Screws (hereinafter called "REPT screw"), in nominal screw sizes No. 0 thru 1½ in. While the requirements of this standard apply to Nonmetallic Resistant Element Screws, it is not the intent to preclude alternate types of screws which totally satisfy the requirements of this standard.

The prevailing-torque values given in this standard are conformance requirements for REPT screws and apply only to the combination of test conditions described in the performance test procedure (4.1). If the conditions of the actual service application differ from those of 4.1 (e.g., internally threaded hole in a different material, length of thread engagement, class of internal thread tolerance, speed of driving, different plating or coating on screw or mating part), the prevailing-torque values may vary. Such values can only be determined through testing the REPT screw in its specific application.

This standard is not concerned with dimensional features such as head styles, or with performance capabilities such as corrosion resistance, sealing, suitability for use in high or low temperatures, and/or consistency of torque-to-tension relationships during assembly. Such features and properties are covered in other standards and specifications and must be referenced when specifying a REPT screw to assure that all of the service conditions of the particular engineering application are properly met.

(Note: The application of some nonmetallic elements requires heating of an isolated area in the screw thread to approximately 600°F which may have an adverse effect on the mechanical properties of some products.)

1.2 Strength Grades.

1.2.1 Strength Grades. This standard covers only steel REPT screws produced to meet the mechanical strength requirements of one of three basic strength grades, SAE J429 Grades 5 and 8, ASTM A449, ASTM A354, and ASTM A574.

1.3 Definitions.

1.3.1 A prevailing-torque REPT screw is an externally threaded fastener which is frictionally resistant to rotation due to a self-contained prevailing-torque feature, and not because of a compressive load developed against the underhead bearing surface of the screw or a tensile load developed in the shank of the screw.

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1.3.2 REPT screws are metallic screws to which have been added a nonmetallic insert or fused nonmetallic substance in their threaded length. The design of the prevailing-torque feature shall be in accordance with the practice of the manufacturer. Depending upon the amount of friction present because of surface finish and lubricants, the dimensional characteristics of the nonmetallic element may vary to achieve the performance requirements stated in Table 1.

1.3.3 For purposes of this standard, "lot" means a quantity of fasteners of one part number fabricated by the same production process from the same coil or heat number of metal as provided by the fastener manufacturer and submitted for inspection and testing at one time.

2.0 Referenced Standards.

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

2.1 ASME Standards.

These may be obtained from ASME; Three Park Ave.; New York, NY 10016-5990.

- ASME B1.1 *Unified Inch Screw Threads (UN and UNR Thread Form)*.
- ASME B1.3M *Screw Thread Gaging Systems for Dimensional Acceptability — Inch and Metric Screw Threads (UN, UNR, UNJ, M, and MJ)*.

2.2 ASTM Standards.

These may be obtained from ASTM; 100 Barr Harbor Drive; West Conshohocken, PA 19428-2959

- ASTM A354 *Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners*
- ASTM A449 *Quenched and Tempered Steel Bolts and Studs*
- ASTM A574 *Alloy Steel Socket-Head Cap Screws*

2.3 SAE Standards.

These may be obtained from SAE; 400 Commonwealth Drive; Warrendale, PA 15096-0001.

- SAE J429 *Mechanical and Material Requirements for Externally Threaded Fasteners*

3.0 Requirements.

3.1 Finish. REPT screws shall be furnished plain or with a protective coating as specified by the purchaser. At the option of the manufacturer, screws may be provided with a supplementary lubricant.

3.2 Threads.

3.2.1 Thread Tolerances. Threads of REPT screws shall be Unified coarse or fine series, as specified in ASME B1.1, except that the portion of the threaded length containing the nonmetallic element need not conform. Unless otherwise specified, threads of REPT screws shall have Class 2A tolerances prior to plating, except that REPT screws of strength grade ASTM A574 of nominal sizes 1 in. and smaller shall have Class 3A tolerances.

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