



Standard Specification for Aluminum Transmission Tower Bolts and Nuts¹

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1. Scope

1.1 This specification covers aluminum structural bolts and nuts for use in the construction of aluminum transmission towers, substations, and similar aluminum structures.

1.2 Diameters of bolts and nuts furnished to this specification are $\frac{5}{8}$, $\frac{3}{4}$, and $\frac{7}{8}$ in.

1.3 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 ASTM Standards:

B 565 Test Method for Shear Testing of Aluminum and Aluminum-Alloy Rivets and Cold-Heading Wire and Rods²

D 3951 Practice for Commercial Packaging³

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications⁴

E 34 Test Methods for Chemical Analysis of Aluminum and Aluminum-Base Alloys⁵

E 55 Practice for Sampling Wrought Nonferrous Metals and Alloys for Determination of Chemical Composition⁵

E 101 Test Method for Spectrographic Analysis of Aluminum and Aluminum Alloys by the Point-to-Plane Technique⁶

E 227 Test Method for Optical Emission Spectrometric Analysis of Aluminum and Aluminum Alloys by the Point-to-Plane Technique⁵

F 606 Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets⁷

F 1470 Guide for Fastener Sampling for Specified Mechanical Properties and Performance Inspection⁷

2.2 ASME Standards:⁸

B1.1 Unified Inch Screw Threads (UN and UNR Thread Form)

B18.2.1 Square and Hex Bolts and Screws (Inch Series) Addenda A

B18.2.2 Square and Hex Nuts

2.3 Military Standard:

MIL-STD-A-8625 Anodic Coatings for Aluminum and Aluminum Alloys⁹

3. Ordering Information

3.1 Orders for bolts and nuts under this specification shall include the following:

3.1.1 Quantity (number of pieces of each item and size);

3.1.2 Name of item;

3.1.3 Size (diameter, threads per inch, length);

3.1.4 Alloy number;

3.1.5 Shipment lot testing, as required (see Supplementary Requirements S1);

3.1.6 Source inspection, if required (see Section 14);

3.1.7 Certificate of compliance or test report, if required (see Section 16);

3.1.8 Additional requirements, if any, to be specified on the purchase order (see 4.2.1, 4.2.3, 8.2.1, 8.2.2, 9.2, 12.1, and 13.1);

3.1.9 Supplementary requirements, if any; and

3.1.10 ASTM specification and year of issue.

NOTE 1—Example: 10 000 pieces Aluminum Transmission Tower Bolt, 0.750-10 by 2.00 in., Alloy 2024-T4, Furnish Certificate of Compliance, Supplementary Requirement S2, ASTM F 901-XX.

4. Materials and Manufacture

4.1 *Materials*—Bolts shall be manufactured from Alloy 2024 and nuts from Alloy 6061 or 6262. The materials chemical composition shall be capable of developing the mechanical properties required by Table 1, when in the finished condition.

4.2 Manufacture:

4.2.1 *Forming*—Unless otherwise specified, the bolts and nuts shall be cold formed, hot formed, or machined from

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² Annual Book of ASTM Standards, Vol 02.02.

³ Annual Book of ASTM Standards, Vol 15.09.

⁴ Annual Book of ASTM Standards, Vol 14.02.

⁵ Annual Book of ASTM Standards, Vol 03.05.

⁶ Annual Book of ASTM Standards, Vol 03.06; discontinued 1996.

⁷ Annual Book of ASTM Standards, Vol 01.08.

⁸ Available from Global Engineering Documents; 15 Inverness Way East, Englewood, CO 80112.

⁹ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094 Attn: NPODS.