



AEROSPACE STANDARD

AS7471™

REV. K

Issued	1991-01
Reaffirmed	1997-07
Revised	2023-02

Superseding AS7471J

Bolts and Screws, Nickel Alloy, UNS N07001
Tensile Strength 165 ksi, Corrosion- and Heat-Resistant
Procurement Specification

FSC 5306

RATIONALE

Revision to add paragraphs for undercut bolts (3.3.4.1), shouldered bolts (3.3.4.2), and close tolerance bolts (3.3.4.3).

1. SCOPE

1.1 Type

This procurement specification covers bolts and screws made from a corrosion- and heat-resistant, age hardenable nickel base alloy of the type identified under the Unified Numbering System as UNS N07001. The following specification designations and their properties are covered:

AS7471 165 ksi minimum ultimate tensile strength at room temperature.
 75 ksi stress-rupture strength at 1350 °F.

AS7471-1 165 ksi minimum ultimate tensile strength at room temperature.
 99 ksi minimum ultimate shear strength at room temperature.

1.2 Application

Primarily for aerospace propulsion systems bolt applications where a good combination of tensile strength and resistance to relaxation at elevated temperatures up to approximately 1500 °F is required.

1.3 Safety - Hazardous Materials

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

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<p>For more information on this standard, visit https://www.sae.org/standards/content/AS7471K/</p>

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other documents shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this specification and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2700	Passivation of Corrosion-Resistant Steels
AMS2750	Pyrometry
AMS5708	Nickel Alloy, Corrosion- and Heat-Resistant, Bars, Wire, Forgings, and Rings, 58Ni - 19.5Cr - 13.5Co - 4.3Mo - 3.0Ti - 1.4Al - 0.05Zr - 0.006B, Consumable Electrode or Vacuum Induction Melted, 1975 °F (1079 °C), Solution Heat Treated
AS1132	Bolts, Screws, and Nuts - External Wrenching UNJ Thread, Inch - Design Standard
AS3062	Bolts, Screws, and Studs, Screw Thread Requirements
AS3063	Bolts, Screws, and Studs, Geometric Control Requirements
AS6416	Bolts, Screws, Studs, and Nuts, Definitions for Design, Testing, and Procurement
AS8879	Screw Threads - UNJ Profile, Inch Controlled Radius Root with Increased Minor Diameter

2.1.2 AIA/NAS Publications

Available from Aerospace Industries Association, 1000 Wilson Boulevard, Suite 1700, Arlington, VA 22209-3928, Tel: 703-358-1000, www.aia-aerospace.org.

NASM1312-6	Fastener Test Methods, Method 6, Hardness
NASM1312-8	Fastener Test Methods, Method 8, Tensile Strength
NASM1312-10	Fastener Test Methods, Method 10, Stress-Rupture
NASM1312-13	Fastener Test Methods, Method 13, Double Shear Test

2.1.3 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM A380	Practice for Cleaning and Descaling of Stainless Steel Parts
ASTM A967	Chemical Passivation Treatment for Stainless Steel
ASTM D3951	Standard Practice for Commercial Packaging
ASTM E8/E8M	Standard Test Methods for Tension Testing of Metallic Materials

ASTM E112	Determining Average Grain Size
ASTM E139	Conducting Creep, Creep-Rupture, and Stress-Rupture Tests of Metallic Materials
ASTM E140	Standard Hardness Conversion Tables for Metals
ASTM E340	Standard Test Methods for Microetching Metals and Alloys
ASTM E407	Standard Practice for Microetching Metals and Alloys
ASTM E930	Standard Test Methods for Estimating the Largest Grains Observed in a Metallographic Section (ALA Grain Size)
ASTM E1417/E1417M	Standard Practice for Liquid Penetrant Testing

2.1.4 ASME Publications

Available from ASME, P.O. Box 2900, 22 Law Drive, Fairfield, NJ 07007-2900, Tel: 800-843-2763 (U.S./Canada), 001-800-843-2763 (Mexico), 973-882-1170 (outside North America), www.asme.org.

ASME B46.1 Surface Texture (Surface Roughness, Waviness, and Lay)

2.2 Definitions

Refer to AS6416.

2.3 Unit Symbols

°C degree Celsius

°F degree Fahrenheit

cm³ cubic centimeter

g gram (mass)

HRC hardness Rockwell C scale

lbf pound-force

% percent (1% = 1/100)

sp gr specific gravity

ksi kips (1000 pounds) per square inch