

FED. SUPPLY CLASS

5306

1. SCOPE

- 1.1 Scope. This specification establishes the requirements for the manufacture and inspection of one type and class of bolt that shall be furnished in one grade only for use where temperatures will not exceed 1,200 °F.

2. APPLICABLE DOCUMENTS

2.1 Government documents

- 2.1.1 Specifications, standards and handbooks. Unless otherwise specified, the following specifications, standards and handbooks of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

SPECIFICATIONS

Federal

MIL-N-7873 ——— Nut, Self Locking, 1,200 °F

Copies can be obtained from the Department of Defense Single Stock Point (DODSSP). <http://dodssp.daps.dla.mil>

STANDARDS

Military

MIL-STD-2073/1 Standard Practice for Military Packaging

Copies can be obtained from the Department of Defense Single Stock Point (DODSSP). <http://dodssp.daps.dla.mil>

- 2.2 Other publications. The following documents form a part of this specification to the extent specified herein. The issues of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

ASTM International

ASTM D3951 Standard Practice for Commercial Packaging

Copies can be obtained from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. www.astm.org

Aerospace Industries Association

NASM1312 Fasteners, Test Methods

NASM7873 Nut, Self-Locking, 1,200 °F

Copies can be obtained from the Aerospace Industries Association, 1000 Wilson Blvd., Suite 1700, Arlington, VA 22209. www.aia-aerospace.org

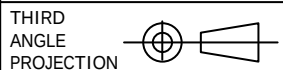
ASME International

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

Copies can be obtained from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. www.astm.org

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THE INITIAL RELEASE OF THIS DOCUMENT SUPERSEDES MIL-B-7874, REVISION B.



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REVISION

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PROCUREMENT
SPECIFICATION

TITLE

②

CLASSIFICATION
SPECIFICATION

NONE

BOLT, MACHINE, 1,200 °F

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SAE International

AS8879	Screw Threads, Controlled Radius Root with Increased Minor Diameter, General Specification for Steel, Corrosion and Heat-Resistant, Bars, Wire, Forgings, Tubing, and Rings 15Cr - 25.5Ni - 1.2Mo - 2.1Ti - .006B - .30V Consumable Electrode Melted, 1800 °F (982 °C) Solution Heat Treated - UNS S66286
AMS5731	
AMS5732	Steel, Corrosion and Heat Resistant, Bars, Wire, Forgings, Tubing, and Rings 15Cr - 25.5Ni - 1.2Mo - 2.1Ti - .006B - .30V Consumable Electrode Melted 1800 °F (982 °C) Solution and Precipitation Heat Treated - UNS S66286
AMS5734	Steel, Corrosion and Heat-Resistant, Bars, Wire, Forgings, and Tubing 15Cr - 25.5Ni - 1.2Mo - 2.1Ti - .006B - .30V Consumable Electrode Melted, 1650 °F (899 °C) Solution Heat Treated - UNS S66286
AMS5737	Steel, Corrosion and Heat-Resistant, Bars, Wire, Forgings, and Tubing 15Cr - 25.5Ni - 1.2Mo - 2.1Ti - .006B - .30V Consumable Electrode Melted 1650 °F (899 °C) Solution and Precipitation Heat Treated - UNS S66286

Copies can be obtained from SAE International, 400 Commonwealth Dr., Warrendale, PA 15096-0001. www.sae.org

American Society for Quality

ANSI/ASQ Z1.4 Sampling Procedures and Tables for Inspection by Attributes

Copies can be obtained from the American Society for Quality, 600 North Plankinton Ave., Milwaukee, WI 53203. www.asq.org

- 2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

- 3.1 Qualification. The bolt manufacturer shall be responsible for conducting qualification tests and furnishing part drawings, certified qualification test reports (if required by the purchaser) and test samples. The bolts furnished under this specification shall be produced using the same manufacturing methods as those used to produce bolts that have passed qualification tests. The purchaser may apply any or all tests specified herein to any product represented as meeting this specification, at any time, to verify conformance.
- 3.2 Material. The bolts shall be fabricated from heat and corrosion-resisting material. Unless otherwise specified, this material shall have a minimum tensile strength of 140 KSI, a minimum .2 percent yield strength of 95 KSI and a minimum stress rupture strength of 65 KSI in 23 hours at 1,200 °F. Material shall be A286 per AMS5731, AMS5732, AMS5734 or AMS5737.
- 3.3 Design and construction
- 3.3.1 Dimensions. Dimensions shall be in accordance with applicable standards.
- 3.3.2 Threads
- 3.3.2.1 Form and dimensions. Thread dimensions shall be in accordance with AS8879 and shall be fully formed by any single rolling process after heat treatment.
- 3.3.2.2 Incomplete thread pitches. The threads shall be faired into the shank with a thread runout of a maximum of two and a minimum of one imperfect threads, to eliminate an abrupt change in cross-sectional area. The bottom and sides of runout thread pitches may deviate from true thread form but shall be smooth and free of tool marks.
- 3.3.2.3 Grain flow. The grain flow in the threads shall be continuous and shall follow the general thread contour with the maximum density at the bottom of the root radius as shown in Figure 1.

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NAS Documents

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3.3.3 Heads. The bolt heads shall be forged.

3.3.3.1 Bearing surface. The bearing surface of bolt heads shall be at right angles to the shank within limits shown in Figure 2. The angular variation of the underside of the head shall be uniform around the shank within a tolerance of 10 minutes, as measured between the bearing surface of the head and the shank at a length along the shank equal to the diameter of the bolt.

3.3.3.2 Head structure and grain flow. A section of the head shall show no detrimental defects and shall show grain flow lines substantially as shown on Figure 4. The grain-flow lines may be slightly broken by the finish machining or grinding.

3.4 Surface texture. The surface texture of the bolt shall not exceed the values specified in Table I. The surface texture shall be measured in accordance with ASME B46.1.

3.5 Straightness. The straightness of the bolt shall be within the values specified in Table II.

3.6 Mechanical properties

3.6.1 Tensile and rupture strength. The tensile and rupture strength of the bolts shall be as specified in Table III.

3.6.2 Shear strength. The ultimate double shear strength of bolts shall be as specified in Table III.

3.6.3 Hardness. Hardness shall be 27-37 HRC.

TABLE I – SURFACE ROUGHNESS

Area	Microinches (max)
Shank and underside of head	63
Head to shank fillet	32
Sides of thread and root area	32
Other surfaces	125

TABLE II – SHANK STRAIGHTNESS

Bolt size	Bolt shank straightness FIM (inch per inch of bolt length) (max)
10	.0040
1/4, 5/16	.0030
3/8, 7/16	.0025
1/2 & larger	.0020

3.7 Metallurgical properties

3.7.1 Carburization and nitrogenization. The bolts shall show no decarburization, carburization, recarburization or increase in nitrogenization on the bearing surface of the head, head-to-shank fillet, shank or threads.

3.7.2 Discontinuities. Discontinuities shall not exceed the following limitations.

3.7.2.1 Cracks. There shall be no cracks in any location. A crack is defined as a clean crystalline break passing through the grain or grain boundary without inclusion of foreign elements.

3.7.2.2 Laps and seams. Bolts may possess laps and seams, except in locations specified in 3.7.2.3. Depth of discontinuities, when measured normal to the surface at the point of greatest penetration, shall not exceed .005 inch for No. 10 through 3/8 inch diameter, .007 for 7/16 and .008 for 1/2 through 1 1/4.

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