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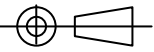
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THE INITIAL RELEASE OF THIS DOCUMENT SUPERSEDES MIL-N-8984, AMENDMENT 1.

THIRD ANGLE PROJECTION		CUSTODIAN NATIONAL AEROSPACE STANDARDS COMMITTEE	REVISION 1
PROCUREMENT SPECIFICATION NONE	TITLE NUT, SELF-LOCKING, STEEL, 260 KSI FTU, 450 °F	CLASSIFICATION SPECIFICATION NASM8984	SHEET 1 OF 20

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1. SCOPE

This specification covers self-locking, alloy steel nuts for use in temperatures up to and including 450 °F, in conjunction with tensile bolts and screws having class UNJF-3A threads conforming to AS8879.

2. APPLICABLE DOCUMENTS

2.1 Standards and specifications

The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

Federal

TT-E-751	Ethyl Acetate, Technical, Organic Coatings Use
TT-I-735	Isopropyl Alcohol
~~TT-M-261~~	~~Methyl Ethyl Ketone (for use in Organic Coatings)~~
TT-N-97	Naphtha; Aromatic
PPP-B-566	Boxes, Folding, Paperboard
~~PPP-B-601~~	~~Boxes, Wood, Cleated Plywood~~
~~PPP-B-621~~	~~Boxes, Wood, Nailed and Lock Corner~~
~~PPP-B-636~~	~~Box, Fiberboard~~
PPP-B-665	Boxes; Paperboard, Metal Stayed (including Stay Material)
PPP-B-676	Boxes, Set-Up, Paperboard

Military

MIL-STD-2073/1	Standard Practice for Military Packaging
~~MIL-S-5000~~	~~Steel Chrome-Nickel-Molybdenum (E4340) Bars and Reforging Stock~~
MIL-DTL-5541	Chemical Films for Aluminum and Aluminum Alloys
~~MIL-S-6049~~	~~Steel Chrome-Nickel-Molybdenum (8740) Bars and Reforging Stock~~
MIL-STD-7179	Finishes and Coatings; General Specification for Protection of Aircraft and Aircraft Parts
~~MIL-S-7502~~	~~Sealing Compound, Integral Fuel Tanks and Fuel Cell Cavities, High Adhesion, Accelerator Required~~
MIL-A-8625	Anodic Coatings, for Aluminum and Aluminum Alloys
~~MIL-S-8802~~	~~Sealing Compound, Temperature-Resistant, Integral Fuel Tanks and Fuel Cell Cavities, High Adhesion~~
MIL-W-8982	Wrenches, Splined, Socket and Box, Square Drive, High Strength, Thin Wall
MIL-L-10547	Liners, Case, and Sheet, Overwrap, Water-Vaporproof of Waterproof, Flexible
MIL-STD-129	Marking for Shipment and Storage

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

ASTM International

ASTM D740	Standard Specification for Methyl Ethyl Ketone
ASTM D1974/D1974M	Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
ASTM D6251/D6251M	Boxes, Wood, Cleated-Plywood
ASTM D5118/D5118M	Box, Fiberboard
ASTM D6880	Boxes, Wood, Nailed and Lock-Corner
ASTM E1444/E1444M	Inspection Process, Magnetic Particle

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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Aerospace Industries Association

NASM1312	Fasteners, Test Methods
NASM8907	Bolt, Alloy Steel, Shear and Tensile (156 KSI MIN Fsu and 260 KSI MIN Ft _u), 450 Degrees F, External Wrenching, Flanged Head
NASM21085	Nut, Self-Locking, Steel, 260 KSI Ft _u , 450 Degrees F, Flanged, MS33787 Wrenching Element
NASM21296	Bolt, Tension, Steel, 260 KSI Ft _u , 450 Degrees F, External Wrenching, Spline Drive, Flanged Head

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

SAE International

AS8879	Screw Threads, Controlled Radius Root with Increased Minor Diameter, General Specification for
AMS6322	Steel Bars, Forgings, and Rings 0.50Cr–0.55Ni–0.25Mo (0.38–0.43C) (SAE 8740) (UNS G87400)
AMS6325	Steel, Bars and Forgings 0.50Cr–0.55Ni–0.25Mo (0.38–0.43C) (SAE 8740) Heat Treated, 105 KSI (724 MPa) Tensile Strength (UNS G87400)
AMS6327	Steel Bars and Forgings 0.50Cr–0.55Ni–0.25Mo (0.38–0.43C) (SAE 8740) Heat Treated, 125 KSI (862 MPa) Tensile Strength
AMS6415	Steel, Bars, Forgings, and Tubing 0.80Cr–1.8Ni–0.25Mo (0.38–0.43C) (SAE 4340) (UNS G43406)
AMS6484	Steel, Bars, Forgings, and Tubing 0.80Cr–1.8Ni–0.25Mo (0.38–0.43C) (SAE 4340) Normalized and Tempered (UNS G43406)
AMS-S-8802	Sealing Compound, Temperature-Resistant, Integral Fuel Tanks and Fuel Cell Cavities, High-Adhesion
AMS-C-81562	Coating, Cadmium and Zinc (Mechanically Deposited)
AMS-QQ-P-416	Plating, Cadmium (Electrodeposited)

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

ASME

ASME B46.1	Surface Texture, Waviness and Lay
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Copies can be obtained from ASME, Three Park Ave., New York, NY 10016-5990. www.asme.org

American Society for Quality

ANSI/ASQ Z1.4	Sampling Procedures and Tables for Inspection by Attributes
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Copies can be obtained from the American Society for Quality, 600 North Plankinton Ave., Milwaukee, WI 53203. www.asq.org

3. REQUIREMENTS

3.1 Qualification

The nut 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 nuts furnished under this specification shall be produced using the same manufacturing methods as those used to produce nuts 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.

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3.1.1 Requalification

Requalification will be required in the event any change is made in the product design, construction, materials, method of manufacture, heat treatment, finish, lubricant, or manufacturer's part number or designation.

3.2 Definitions

For definitions of terms used in this specification, see 6.4.

3.3 Materials

The nuts shall be fabricated from material as specified on the nut standard.

3.3.1 Decarburization

The permissible depth of decarburization (partial plus full) shall not exceed .003 inch. Heat-treating furnace atmospheres shall not increase the surface carbon content above that allowed for the core.

3.4 Construction

Nuts shall be of the prevailing torque-type. The locking device shall not operate by means of separate movement as a result of installation and shall not depend upon pressure on the bearing surface for locking action.

3.4.1 Wrenching element

Wrenching element shall be in accordance with applicable standard.

3.4.2 Bearing surface

The bearing surface shall be normal to the axis of the pitch diameter of the threads within the values specified on the applicable standard or drawing.

3.4.3 Threads

Unless otherwise specified, thread dimensions shall be in accordance with AS8879. Threads used on the locking device may be displaced in any manner which will provide self-locking nuts conforming to this specification. Thread gaging shall be performed after plating in accordance with the applicable thread specification, (except that the nut with locking device incorporated but without lubricant shall allow the go plug gage members to enter a minimum of three-fourths turn before engagement of the locking device). When lubricant prevents use of standard gages, the nut shall permit free rotational (finger torqued) bolt engagement of at least three-fourths turn.

3.5 Plating

The nuts shall be cadmium plated in accordance with the applicable standard or drawing.

3.6 Dry film lubricant

The nut when provided with a dry film lubricant coating shall pass the applicable tests specified in 4.5.8. The certified test report shall identify the lubricant coating and it shall not be changed without requalification of the nut.

3.7 Axial strength

The nuts shall have a minimum axial strength of not less than the values specified in Table I when tested as specified in 4.5.2.

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3.8 Torque

3.8.1 Wrench torque

The nuts shall withstand the wrench torque values specified in Table I, when tested as specified in 4.5.3.1. Upon completion of the test, the nut shall show no indications of permanent deformation which may prevent its proper application and removal with a socket-type wrench conforming to MIL-W-8982. The nuts shall show no evidence of cracking when tested in accordance with 4.5.7.

3.8.2 Torque effectivity, room temperature

The nuts shall not exceed the room temperature maximum locking torque nor produce less than the minimum breakaway torque specified in Table III, when tested as specified in 4.5.3.2.

3.8.2.1 Torque effectivity, 450 °F

The nuts shall not exceed the room temperature after bake maximum locking torque nor produce less than the minimum breakaway torque specified in Table III, when tested as specified in 4.5.3.2.1.

3.8.3 Locking torque

The nuts shall not exceed the room temperature maximum locking torque nor produce less than the 1st cycle minimum breakaway torque specified in Table III, when tested as specified in 4.5.3.3.

3.8.4 Permanent set

The nuts shall not exceed the maximum locking torque nor be less than the minimum breakaway torque specified in Table III when tested as specified in 4.5.3.4.

3.9 Accelerated vibration

The nuts shall withstand the vibration test specified in 4.5.4.

3.10 Stress durability

The nuts shall show no evidence of cracking when tested as specified in 4.5.5.

3.11 Stress corrosion

The nuts shall show no evidence of cracking when tested as specified in 4.5.6.

3.12 Discontinuities

Discontinuities in the nuts shall not exceed the depth limitations shown in Table IV when examined as specified in 4.5.7. Care shall be exercised not to confuse cracks with discontinuities. A crack is defined as a clean crystalline break passing through the grain or grain boundary without the inclusion of foreign elements. Cracks are not permitted in any location.

3.13 Hardness

Hardness shall be as specified on the applicable standard or drawing.

3.14 Workmanship

Workmanship shall be consistent with the type or product, finish, and the class of thread fit specified. Sharp edges shall be broken; hanging burrs and slivers shall be removed.

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