

FED. SUPPLY CLASS

5310

1. SCOPE

1.1 Scope. This specification covers the requirements for preload locking nuts (hereinafter referred to as internally threaded fasteners) to be used in applications where temperatures will not exceed 450 °F, 800 °F and 1,200 °F.

1.2 Classification. Fastener threads shall be classified as follows:

Type I – 450 °F
Type II – 1,200 °F
Type III – 800 °F

2. APPLICABLE DOCUMENTS

2.1 Specifications, Standards and Handbooks. Unless otherwise specified, the following specifications, standards and handbooks of the issue listed in the current Department of Defense Index of Specifications and Standards (DODISS) and the supplement thereto (if applicable) form a part of this specification to the extent specified herein.

STANDARDS

Military

MIL-STD-129 Military Marking for Shipment and Storage
MIL-STD-2073/1 Parts and Equipment, Procedures for Packaging and Packing of
MS14194 Nuts (Fasteners), Internally Threaded, Preload Locking, 450 °F, 800 °F, 1200 °F, Reliability and Maintainability Design Requirements for

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. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply.

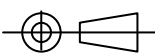
ASME International

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

Copies can be obtained from ASME, Three Park Ave., New York, NY 10016-5990. www.asme.org

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THE INITIAL RELEASE OF THIS DOCUMENT SUPERSEDES MIL-N-85353, AMENDMENT 2.

THIRD ANGLE PROJECTION		CUSTODIAN NATIONAL AEROSPACE STANDARDS COMMITTEE	REVISION 1
PROCUREMENT SPECIFICATION NONE	TITLE NUTS, FASTENERS, INTERNALLY THREADED, PRELOAD LOCKING, 450 °F, 800 °F AND 1,200 °F, GENERAL SPECIFICATION FOR	①	CLASSIFICATION SPECIFICATION NASM85353

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Aerospace Industries Association

NAS5002	Bolt, Pan Head, Close Tolerance Short Thread, Tri-Slot Recess, Alloy Steel, Self-Locking and Non-Locking
NAS5102	Bolt, Pan Head, Close Tolerance Short Thread, Tri-Slot Recess, A286 CRES, Self-Locking and Non-Locking
NAS6603-6612	Bolt, Hex Head, Close Tolerance, Alloy Steel, Long Thread, Self Locking and Non-Locking
NAS6703-6712	Bolt, Hex Head, Close Tolerance, A286 CRES, Long Thread, Self-Locking and Non-Locking
NASM1312	Fasteners, Test Methods
NASM21045	Nut, Self-Locking, Hexagon-Regular Height, 450 °F, 125 KSI Ft _u
NASM21084	Nut, Self-Locking, Steel, 200 KSI Ft _u , 450 °F, Flanged
NASM21296	Bolt, Tension, Steel, 260 KSI Ft _u , External Wrenching, Spline Drive, Flanged Head
NASM25027	Nut, Self-Locking, 250 °F, 450 °F, and 800 °F

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

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

SAE International

AS8879 Screw Threads - UNJ Profile, Inch Controlled Radius Root with Increased Minor Diameter
AMS-QQ-P-416 Plating, Cadmium (Electrodeposited)

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

3. REQUIREMENTS

- 3.1 Specification Sheets. The individual item requirements shall be as specified herein and in accordance with the applicable specification sheets. In the event of any conflict between requirements of this specification and the specification sheet, the latter shall govern.
- 3.2 Qualification. The preload locking fastener 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.
 - 3.2.1 Retention of Qualification. 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.
- 3.3 Materials. Fastener material shall be as specified on the applicable specification sheet.
- 3.4 Design and Construction. The design and construction of the fastener shall be as specified herein and in accordance with the applicable specification sheets.

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- 3.5 Lubrication. The fastener may have a coating of dry film lubrication, which meets the lubrication requirements specified in NASM25027. The lubrication shall be applied as shown on the specification sheet, NAS standard or drawing.
- 3.6 Dimensions. Dimensions shall be as specified on the applicable specification sheet and are to be met after plating but before lubrication. Plated dimensions and unplated dimensions are prior to any lubrication. Thread form, dimensions, and gaging shall be as specified in NASM85353/1.
- 3.7 Plating or Surface Treatment. Type I fasteners fabricated from alloy steel shall be cadmium plated in accordance with AMS-QQ-P-416, Class 2, Type II, or as shown on the applicable specification sheet. Within one hour after plating, all parts 180 KSI and above shall be baked for not less than 23 hours at 375 °F ± 25 °F.
- 3.7.1 1,200 °F and 800 °F CRES. The Type II fastener threads fabricated for 1,200 °F and Type III fastener threads fabricated for 800 °F may be silver plated in accordance with AMS2410 or provided with a coating or finish in accordance with the applicable specification sheet.
- 3.8 Torque. Except for the torque required to preload lock the fastener, the torque required to assemble the fastener shall be not greater than finger torque (see 4.8).
- 3.9 Identification of Product. The preload locking fastener shall be identified as indicated on the applicable specification sheet.
- 3.10 Mechanical Properties
- 3.10.1 Stress Corrosion. There shall be no fracture, permanent set or deformation of fastener when subjected to a stress corrosion test (see 4.3.5).
- 3.10.2 Tensile Strength. Tensile strength of preload locking fastener shall meet the values shown on the applicable specification sheet. Qualification test samples shall meet the tensile strength values specified in Table IV (see 4.3.6).
- 3.10.3 Locking Torque. Locking torque shall not be less than 80% of the seating torque listed in Table V for 50 cycles (see 4.3.7).
- 3.10.4 Reusability. The threads shall show no distortion or scratches when tested in accordance with 4.3.8.
- 3.10.5 Vibration. There shall be no malfunction or deterioration of the fastener when subjected to the vibration test (see 4.3.9). The vibration test is not required for size .1640-32 and sizes larger than .5000-20.
- 4. QUALITY ASSURANCE PROVISIONS**
- 4.1 Responsibility for Inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the procuring activity. The procuring activity reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.
- 4.2 Classification of Inspection. The inspection requirements specified herein are classified as follows:
- Qualification inspection (see 4.3)
 - Quality conformance inspection (see 4.6)

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