

NATIONAL AEROSPACE STANDARD

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC., 610 SHOREHAM BUILDING, WASHINGTON 5, D. C.

NUT - SELF-LOCKING - AIRCRAFTFOR 160,000 TO 180,000 PSI TENSION BOLTSSPECIFICATION FOR**A. APPLICABLE SPECIFICATIONS**

A-1. The following specifications of the issue in effect on date of invitation for bids shall form a part of this specification:

A-1a. AN Aeronautical Specifications

AN-S-126 Screw Threads; Standard, Aircraft
 AN-I-32 Metals; Magnetic Inspection of (Process and Application)
 AN-QQ-H-201 Steels; Heat Treatment of
 AN-P-61 Plating; Cadmium
 AN-QQ-S-687 Steel; Chrome-Vanadium (6150) Bar and Billet
 AN-QQ-S-690 Steel; Nickel-Chromium (3140) Bar and Rod
 AN-S-16 Steel; Chrome-Nickel-Molybdenum (8740) Bar and Rod
 AN-S-14 Steel; Chrome-Nickel-Molybdenum (8630) Bar and Rod
 AN-N-5 Nuts; Self-Locking

A-1b. Federal Specification

QQ-M-151 Metals; General Specification for Inspection of

A-2. The following NAS drawings form a part of this specification:

NAS159 Specification; Aircraft Internal Wrenching Bolt

B. GRADE, TYPES AND SIZES

B-1. Grade - Nuts shall be furnished in one grade only.

B-2. Types and Sizes - Nuts shall be suitable for use with NAS Internal Wrenching Bolts NAS144 through NAS158, NAS172, NAS174 and NAS176 or with bolts of equivalent thread and heat treatment.

C. MATERIAL, WORKMANSHIP AND MARKING

C-1. Material - Nuts shall be made from material specified herein which shall be of suitable quality for the manufacture and use of the nuts.

C-1a. The choice of the material covered by the above listed specifications, unless otherwise specified, shall be predicated upon the ability of the manufacturer to obtain the required dimensional and physical requirements for each nut size.

② INACTIVE FOR DESIGN AFTER 30 SEPT. 1961. NO SUPERSEDING STANDARD.
 FOR DEFINITION OF DRAWING STATUS NOTES SEE NAS380.

CUSTODIAN:

PROCUREMENT
SPECIFICATION

TITLE

SPECIFICATION - Nut - Aircraft Self-Locking
 For 160,000 to 180,000 PSI Tension Bolts

CLASSIFICATION
SPECIFICATION

NAS Documents
 Sheet 1
 Document Sharing Hub

NATIONAL AEROSPACE STANDARD

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC., 610 SHOREHAM BUILDING, WASHINGTON 5, D. C.

- C-2. Workmanship shall be consistent with high grade manufacturing processes. Nuts shall be free from fins, seams or other defects which might affect their strength or serviceability.

D. GENERAL REQUIREMENTSD-1. Threads

- D-1a. Form - Threads shall conform to Spec AN-S-126, Class 3 fit. Unless otherwise specified, threads shall be right hand.

- D-2. Heat Treatment - Heat treatment of steel shall conform to applicable specifications contained herein.

- D-3. Form and Dimensions - The specific shape of the nut is optional with the manufacturer.

- D-3a. Bearing Surface and Finish - The bearing surface of the nut shall be normal to the tapped hole within one degree for all sizes. The finish of all machined bearing surfaces shall be 100 RMS or smoother.

- D-3b. Form - The self-locking nut shall be a self-contained unit including the locking device.

E. DETAIL REQUIREMENTSE-1. Strength

- E-1a. Tensile Strength - The minimum axial tensile strength of the nuts shall be as specified in Table I.

- E-2. Finish - Nuts shall be cadmium plated in accordance with Spec AN-P-61.

E-3. Torque

- E-3a. Maximum Torque - The torque for the first installation or removal shall not exceed the maximum values listed in Table II. There are no minimum torque requirements for screwing the nut on the bolt.

- E-3b. Prevailing Torque - The prevailing torques for the first and the fifteenth removals shall not be less than the minimum values listed in Table II.

② INACTIVE FOR DESIGN AFTER 30 SEPT. 1961. NO SUPERSEDING STANDARD.
FOR DEFINITION OF DRAWING STATUS NOTES SEE NAS380.

CUSTODIAN:

PROCUREMENT SPECIFICATION	TITLE	CLASSIFICATION SPECIFICATION
	SPECIFICATION - Nut - Aircraft Self-Locking For 160,000 to 180,000 PSI Tension Bolts	NAS 353 Documents

Published and distributed by: National Standards Association, Inc.
1315 Fourteenth Street, N. W.
Washington 5, D. C.

Copyright, 1961, Aerospace Industries Association of America, Inc.

NATIONAL AEROSPACE STANDARD

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC., 610 SHOREHAM BUILDING, WASHINGTON 5, D. C.

TABLE I - TENSILE STRENGTH OF SELF-LOCKING NUTSFine Thread Series

<u>Bolt Size</u>	<u>Threads Per Inch</u>	<u>Ultimate Tensile Strength (Min Lb)*</u>
1/4	28	5,700
5/16	24	9,350
3/8	24	14,500
7/16	20	19,500
1/2	20	26,700
9/16	18	34,000
5/8	18	43,300
3/4	16	63,400
7/8	14	86,900
1	14	116,900
1 1/8	12	146,800
1 1/4	12	185,400
1 3/8	12	228,300
1 1/2	12	275,400

*These strengths are based on 114 per cent of the ultimate tensile strengths of the NAS Internal Wrenching Bolts as given in Table II of Spec NAS159.

TABLE II - NUT TORQUE

<u>Bolt Size</u>	<u>1st Installation Or Removal Maximum Torque Inch-Pounds</u>	<u>1st Removal Prevailing Torque Inch-Pounds, Min</u>	<u>15th Removal Prevailing Torque Inch-Pounds, Min</u>
1/4-28	30	4.1	1.8
5/16-24	60	7.0	3.2
3/8-24	80	11.0	5.2
7/16-20	100	15.6	7.4
1/2-20	150	21.8	10.3
9/16-18	200	29.0	13.5
5/8-18	300	38.0	18.0
3/4-16	400	57.5	27.5
7/8-14	600	80.5	40.0
1-14	800	112.0	55.5
1 1/8-12	900	146.0	73.0
1 1/4-12	1000	188.0	94.2
1 3/8-12	1200	240.0	117.0
1 1/2-12	1300	395.0	142.0

② INACTIVE FOR DESIGN AFTER 30 SEPT. 1961. NO SUPERSEDING STANDARD.
② FOR DEFINITIONS OF DRAWING STATUS NOTES SEE NAS380.

CUSTODIAN:

PROCUREMENT
SPECIFICATION

TITLE

SPECIFICATION - Nut - Aircraft Self-Locking
For 160,000 to 180,000 PSI Tension BoltsCLASSIFICATION
SPECIFICATIONNAS 353
Sheet 2Published and distributed by: National Standards Association, Inc.
1315 Fourteenth Street, N. W.
Washington 5, D. C.

Copyright, 1961, Aerospace Industries Association of America, Inc.

Copyright Aerospace Industries Association of America Inc.
Provided by IHS under license with AIA/NAS
No reproduction or networking permitted without license from IHSLicensee= www.sepana.ir/5991803002, User=sam, albert
Not for Resale, 01/16/2016 18:52:50 MST

Full document details: AIA NAS353 1961

APPROVAL DATE Feb. 1946 REVISION ① April 1949 ② 30 Sept. 1961

IN FORMULATING AND APPROVING THESE STANDARDS AIA AND ITS COMMITTEES WILL NOT INVESTIGATE OR GUARANTEE THE SUITABILITY OF THE STANDARDS FOR ANY PARTICULAR APPLICATION. USERS OF THE STANDARDS ARE RESPONSIBLE FOR PROTECTING THEMSELVES AGAINST LIABILITY FOR INFRINGEMENT OF PATENTS.

THIS DRAWING SUPERSEDES ALL ANTECEDENT STANDARD DRAWINGS FOR THE SAME PRODUCT, AND SHALL BECOME EFFECTIVE FOR VENDOR MANUFACTURING NOT LATER THAN 6 MONTHS AFTER THE LATEST DATE OF APPROVAL SHOWN.