FF-N-845D
May 8, 1981
SUPERSEDING
Fed. Spec. FF-N-845C
April 20, 1970

FEDERAL SPECIFICATION

NUT, PLAIN, WING, INCH AND METRIC

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers the complete general and dimensional data for various types of wing nuts designed in the inch and metric systems.

1.2 Classification. Wing nuts shall be of the following types, styles and sizes, as specified (see 6.2).

1.2.1 Types and styles.

Type A - Cold forged.
  Style 1 - Undrilled regular wing.
  Style 2 - Drilled regular wing.

Type B - Hot forged.
  Style 1 - Regular wing.
  Style 2 - High wing.

Type C - Die casting.
  Style 1 - Regular wing.
  Style 2 - Low wing.
  Style 3 - High wing.

Type D - Stamped.
  Style 1 - Regular wing.
  Style 2 - Low wing.
  Style 3 - Regular wing with larger bearing surface.

1.2.2 Sizes. Wing nuts shall be classified by size in accordance with the basic major diameter of the thread.

2. APPLICABLE DOCUMENTS

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

Federal Specifications:

QQ-A-225/6 - Aluminum Alloy Bar, Rod and Wire; Rolled, Drawn or Cold Finished, 2024.
QQ-B-613 - Brass, Leaded and Nonleaded: Flat Products (Plate, Bar, Sheet and Strip).
QQ-B-626 - Brass, Leaded and Nonleaded; Rods, Shapes, Forgings and Flat Products with Finished Edges (Bar and Strip).
QQ-N-290 - Nickel Plating (Electrodeposited).
QQ-P-416 - Plating, Cadmium (Electrodeposited).
QQ-Z-325 - Zinc Coating, Electrodeposited, Requirements for.
PPP-H-1581 - Hardware (Fasteners and Related Items), Packaging of.

Federal Standards:

FED-STD-H28/2 - Screw-Thread Standards for Federal Services, Section 2, Unified Thread Form and Thread Series for Bolts, Screws, Nuts, Tapped Holes and General Applications.
FED-STD-H28/21 - Screw-Thread Standards for Federal Services, Section 21, Metric Screw-Threads.
FED-STD-66 - Steel: Chemical Composition and Hardenability.

(Activities outside the Federal Government may obtain copies of Federal specifications, standards, and commercial item descriptions as outlined under General Information in the Index of Federal Specifications, Standards and Commercial Item Descriptions. The Index, which includes cumulative bimonthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.

(Single copies of this specification, other Federal specifications, and commercial item descriptions required by activities outside the Federal Government for bidding purposes are available without charge from General Services Administration Business Service Centers in Boston; New York; Washington, DC; Philadelphia; Atlanta, Chicago; Kansas City, MO; Fort Worth; Houston; Denver; San Francisco; Los Angeles; and Seattle, WA.

(Federal Government activities may obtain copies of Federal specifications, standards, and commercial item descriptions, and the Index of Federal Specifications, Standards and Commercial Item Descriptions from established distribution points in their agencies.)

Military Specifications:

MIL-F-495 - Finish, Chemical, Black, for Copper Alloys.
MIL-A-8625 - Anodic Coatings for Aluminum and Aluminum Alloys.
MIL-C-13924 - Coating, Oxide, Black, for Ferrous Metals.

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-1312 - Fasteners, Test Methods.
DS51402 - Nut, Plain, Wing, Metric.
MS35425 - Nut, Plain, Wing, UNC-2B.
MS35426 - Nut, Plain, Wing, UNF-2B.

(Copies of Military Specifications and Standards required by suppliers in connection with specific procurement functions should be obtained from procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) STANDARD:

ANSI B18.17-1968 - Wing Nuts, Thumb Screws, and Wing Screws.

(Application for copies should be addressed to the American National Standards Institute, 1430 Broadway, New York, NY 10018.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARDS:

ASTM E8-79 - Tension testing of Metallic Materials.
ASTM B86-76 - Zinc - Alloy Die Casting.
ASTM A380-78 - Cleaning and Descaling Stainless Steel Parts, Equipment and Systems.

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

3. REQUIREMENTS

3.1 Material. Recycled and reclaimed materials shall be used to the maximum extent practicable. Wing nuts shall be manufactured from the following materials, as specified (see 6.2).

3.1.1 Carbon steel. Carbon steel shall be in accordance with one of the carbon steel compositions of FED-STD-66. The carbon steel shall have a minimum ultimate tensile strength of 50,000 psi (345 MPa).

3.1.2 Corrosion-resisting steel. Corrosion-resisting steel shall be manufactured from the 300 series in accordance with FED-STD-66 or any other austenitic corrosion-resisting steel developed for cold heading or free machining.

3.1.3 Aluminum alloy. Aluminum alloy shall be in accordance with QQ-A-225/6.

3.1.4 Brass. Brass shall be in accordance with QQ-B-613 or QQ-B-626.

3.1.5 Zinc die casting alloy . Zinc die casting alloy shall be in accordance with ASTM B86, Alloy Composition UNS Z 33520 (see 6.5).

3.2 Protective finish. Unless otherwise specified (see 6.2), wing nuts shall be furnished uncoated. When specified (see 6.2), protective finishes shall be in accordance with the following paragraphs.

3.2.1 Cadmium plating. Cadmium plating shall be in accordance with type II, class 3 of QQ-P-416 (5.1 µm thick).

3.2.2 Zinc coating. Zinc coating shall be in accordance with type II, class 3 of QQ-A-325 (5.1 µm thick).

3.2.3 Anodic coating. Anodic coating shall be in accordance with type II of MIL-A-8625.

3.2.4 Passivation. Passivation shall be in accordance with ASTM A380.

3.2.5 Nickel plating. Nickel plating shall be in accordance with class 2 of QQ-N-290.

3.2.6 Black oxide. Black oxide coating for carbon steel shall be in accordance with class 1 of MIL-C-13924, for brass the finish shall be in accordance with MIL-F-495 and for corrosion-resisting steel the coating shall be in accordance with class 4 of MIL-C-13924.

3.2.7 Zinc alloy finish. Zinc alloy wing nuts shall have a plain, bright finish.

3.3 Threads. U.S. Customary (inch) threads shall be in accordance with FED-STD-H28/2, class 2B, UNC or UNF, as specified (see 6.2), except type D wing nuts which shall be class 2B modified. The minor eter of the thread in type D wing nuts may be somewhat larger than the class 2B maximum, but shall exceed the minimum pitch diameter. Metric threads shall be in accordance with FED-STD-H28/21, "M" profile, tolerance class 6H.

3.4 Dimensions. Dimensions of the wing nuts shall be in accordance with MS35425, MS35426, DS51402 or ANSI B18.17, as specified (see 6.2).

3.5 Bearing surface. The bearing surface of all wing nuts shall be at right angles to the axis of the threaded hole within 3°. The bearing surface shall be free from burrs, fins and protruding surface irregularities.

3.6 Concentricity. The threaded hole shall be concentric with the boss diameter within 10 percent of the hole size.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government 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 Inspection lot. A lot shall consist of all wing nuts of the same type, style, size, material and finish, produced by the same manufacturer under essentially the same conditions, and submitted for acceptance at one time.

4.3 Sampling for lot acceptance.

4.3.1 Sampling for examination. A random sample of wing nuts shall be taken from each lot in accordance with MIL-STD-105, at inspection level II. The Acceptable Quality Level (AQL) shall be as specified in ble I.

4.3.2 Sampling for tensile strength test. Sampling for tensile strength test shall be in accordance with inspection level S-1 of MIL-STD-105. The AQL shall be 2.5 percent defective.

4.3.3 Sampling for protective finish test. Sampling for protective finish test shall be in accordance with the applicable specification of 3.2

4.4 Packaging inspection. The sampling and inspection of the preservation-packaging, packing and container marking shall be in accordance with PPP-H-1581.

4.5 Examination. Each wing nut taken as specified in 4.3.1 shall be examined to verify compliance with this specification. Examination shall be conducted in accordance with table I.

TABLE I. Classification of defects.

Categories	Defects	Inspection method
Critical	None defined	
Major	AQL = 2.5 percent defective	
101	Thread dimensions (see 3.3)	SIE*
102	Bearing surface (see 3.5)	SIE
103	Concentricity (see 3.6)	SIE
104	Material, not as specified (see 3.1)	SIE
Minor	AQL = 6.5 percent defective	
201	Dimensions, not as specified (see 3.4)	SIE
202	Protective finish, not as specified (see 3.2)	Visual
203	Drilled holes, if required	Visual-SIE

*SIE = Standard inspection equipment.

4.6 Tests.

4.6.1 Tensile strength. When specified (see 6.2), samples taken in accordance with 4.3.2 shall be tested for tensile strength requirements in accordance with ASTM E8 (inch dimensioned nuts) or MIL-STD-1312, method 8 (metric dimensioned nuts). When specified (see 6.2), the steel manufacturer's certification will be accepted in lieu of this test.

4.6.2 Protective finish. Tests for protective finishes shall be in accordance with the applicable specification of 3.2.

5 PREPARATION FOR DELIVERY

5.1 Preparation for delivery. Requirements for packaging shall be as specified in PPP-H-1581 (see 6.2).

6 NOTES

6.1 Intended use. A wing nut is a nut having wings designed for manual turning without driver or wrench.

6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents.

a. Title, number and date of this specification.
b. Type, style and size (see 1.2).
c. Material (see 3.1).
d. Protective finish, when required (see 3.2).
e. Threads (see 3.3).
f. Applicable Military Standard part number, when required (see 3.4).
g. Applicable ANSI B18.17 series (light, regular or heavy) when required (see 3.4).
h. Tensile strength test, when required (see 4.5.1).
i. When steel certification will be accepted (see 4.5.1).
j. Level (degree) of protection, in accordance with PPP-H-1581, ordering data (see 5.1).

6.3 Cross reference data. Cross reference between types and styles of wing nuts covered by FF-N-845a, dated March 7, 1962, FF-N-845b, dated October 22, 1965 and FF-N-845C are as follows.

FF-N-845C	FF-N-845b	FF-N-845a
Type A - Cold forged	Type I - Cold forged	Type I - Cold forged
Style 1 - Undrilled	Style A-1 - Undrilled	Style A-1 - Undrilled
Style 2 - Drilled	Style A-2 - Drilled	Style A-2 - Drilled
Type B - Hot forged	Type III - Hot forged	None
Style 1 - Regular wing	Style A - Low wing	None
Style 2 - High wing	Style B - High wing	Style C
Type C - Die casting	Type IV - Die casting	None
Style 1 - Regular wing	Style A - Regular	None
Style 2 - Low wing	Style C - Low wing	None
Style 3 - High wing	Style B - High wing	None
Type D - Stamped	Type II - Stamped	Type II - Stamped
Style 1 - Regular wing	None	None
Style 2 - Low wing	None	None
Style 3 - Regular wing with larger bearing surface	None	None

6.4 Definitions.

6.4.1 Metric terms and definitions. Metric terms used in this specification are defined in American Society for Testing and Materials Standard ASTM E 380, Standard for Metric Practice.

6.4.2 Quality assurance terms and definitions. Quality assurance terms used in this specification are defined in MIL-STD-109.

6.5 Equivalent zinc-alloy compositions. ASTM B86 composition UNS Z 33520 (see 3.1.5) is equivalent to alloy 903 of SAE standard J469 which was specified in the previous revision of FF-N-845.

MILITARY CUSTODIANS:
Army - AR
Air Force - 99

Review activities:
Army - AV
Air Force - 11
DLA-IS
NSA-NS

User activities:
Army - ME
Navy - MC

Civil agency coordinating activity.
GSA-FSS

Preparing activity:
Army - AR

AGENT:
DLA-IS

Project 5310-0926

~~Orders for this publication are to be placed with General Services Administration, acting as an agent~~ for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein.