



Designation: F 467 – 03a

Standard Specification for Nonferrous Nuts for General Use¹

This standard is issued under the fixed designation F 467; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This specification covers the requirements for commercial wrought nonferrous nuts 0.250 to 1.500 in. inclusive in diameter in a number of alloys in common use and intended for general service applications.

1.2 Applicable bolts, cap screws, and studs for use with nuts covered by this specification are covered by Specification F 468.

NOTE 1—A complete metric companion to Specification F 467 has been developed—F 467M; therefore no metric equivalents are presented in this specification.

2. Referenced Documents

2.1 ASTM Standards:

- B 154 Test Method for Mercurous Nitrate Test for Copper and Copper Alloys²
- B 446 Specification for Nickel-Chromium-Molybdenum-Columbium-Alloy (UNS N06625), Nickel-Chromium-Molybdenum-Silicon Alloy (UNS N06219), and Nickel-Chromium-Molybdenum-Tungsten Alloy (UNS N06650) Rod and Bar³
- D 3951 Practice for Commercial Packaging⁴
- E 18 Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials⁵
- E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications⁶
- E 34 Test Methods for Chemical Analysis of Aluminum and Aluminum Base Alloys⁷
- E 38 Methods for Chemical Analysis of Nickel-Chromium and Nickel-Chromium-Iron Alloys⁸
- E 53 Test Methods for Determination of Copper in Unal-

loyed Copper by Gravimetry⁷

- E 54 Test Methods for Chemical Analysis of Special Brasses and Bronzes⁹
 - E 55 Practice for Sampling Wrought Nonferrous Metals and Alloys for Determination of Chemical Composition⁷
 - E 62 Test Methods for Chemical Analysis of Copper and Copper Alloys (Photometric Methods)⁷
 - E 75 Test Methods for Chemical Analysis of Copper-Nickel and Copper-Nickel-Zinc Alloys⁷
 - E 76 Test Methods for Chemical Analysis of Nickel-Copper Alloys⁷
 - E 92 Test Method for Vickers Hardness of Metallic Materials⁵
 - E 101 Test Method for Spectrographic Analysis of Aluminum and Aluminum Alloys by the Point-to-Plane Technique¹⁰
 - E 120 Test Methods for Chemical Analysis of Titanium and Titanium Alloys⁷
 - E 165 Practice for Liquid Penetrant Examination¹¹
 - E 227 Test Method for Optical Emission Spectrometric Analysis of Aluminum and Aluminum Alloys by the Point-to-Plane Technique⁹
 - E 354 Test Methods for Chemical Analysis of High-Temperature, Electrical, Magnetic, and Other Similar Iron, Nickel, and Cobalt Alloys⁷
 - E 478 Test Methods for Chemical Analysis of Copper Alloys⁷
 - E 1409 Test Method for Determination of Oxygen in Titanium and Titanium Alloys by the Inert Gas Fusion Technique⁷
 - F 468 Specification for Nonferrous Bolts, Hex Cap Screws, and Studs for General Use¹²
 - F 606 Test Methods for Determining the Mechanical Properties of Externally and Internally Threaded Fasteners, Washers, and Rivets¹²
 - F 1470 Guide for Fastener Sampling for Specified Mechanical Properties and Performance Inspection¹²
- #### 2.2 ASME Standards:

¹ This specification is under the jurisdiction of ASTM Committee F16 on Fasteners and is the direct responsibility of Subcommittee F16.04 on Nonferrous Fasteners.

Current edition approved Oct. 1, 2003. Published October 2003. Originally approved in 1976. Last previous edition approved in 2003 as F 467 – 03.

² Annual Book of ASTM Standards, Vol 02.01.

³ Annual Book of ASTM Standards, Vol 02.04.

⁴ Annual Book of ASTM Standards, Vol 15.09.

⁵ Annual Book of ASTM Standards, Vol 03.01.

⁶ Annual Book of ASTM Standards, Vol 14.02.

⁷ Annual Book of ASTM Standards, Vol 03.05.

⁸ Discontinued—see 1988 Annual Book of ASTM Standards, Vol 03.05. Replaced by E 350.

⁹ Discontinued—see 2001 Annual Book of ASTM Standards, Vol 03.05.

¹⁰ Discontinued—see 1995 Annual Book of ASTM Standards, Vol 03.05.

¹¹ Annual Book of ASTM Standards, Vol 03.03.

¹² Annual Book of ASTM Standards, Vol 01.08.



F 467 – 03a

B 1.1 Unified Inch Screw Threads (UN and UNR Thread Form)¹³

B 18.2.2 Square and Hex Nuts¹³

3. Ordering Information

3.1 Orders for nuts under this specification shall include the following information:

3.1.1 Quantity (number of pieces of each item and size);

3.1.2 Name of item;

3.1.3 Size (diameter and threads per inch);

3.1.4 Alloy number (Table 1);

3.1.5 Stress relieving, if required (4.2.3);

3.1.6 “Shipment lot” testing, as required (Section 9);

3.1.7 Source inspection, if required (Section 14);

3.1.8 Certificate of compliance or test report, if required (Section 16);

3.1.9 Additional requirements, if any, to be specified on the purchase order (4.2.1, 7.2, 8.2, , 12.1, and 13.1),

3.1.10 Supplementary requirements, if any; and

3.1.11 ASTM designation (including year or published date).

¹³ Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112.

NOTE 2—A typical ordering description is as follows: 10 000 pieces, Hex Nut, 0.250” -20, Alloy 270, Furnish Certificate of Compliance, Supplementary Requirement S 1, ASTM Specification F 467-XX



TABLE 1 Chemical Requirements

UNS Designation Number	Composition, %												
	Copper and Copper-Base Alloys												
	Alloy	General Name	Aluminum	Copper, min	Iron, max	Manganese, max	Nickel, max	Phosphorus	Silicon	Zinc, max ^A	Lead, max	Tin	Arsenic, max
C11000	110	ETP copper		99.9						balance	0.10		
C27000	270	brass		63.0–68.5	0.07					balance	0.20	0.5–1.0	
C46200	462	naval brass		62.0–65.0	0.10					balance	0.20	0.5–1.0	
C46400	464	naval brass		59.0–62.0	0.10					0.30	0.05	4.2–5.8	
C51000	510	phosphor bronze		balance ^A	0.10					0.05	0.01	0.20–0.50	
C61300	613	aluminum bronze	6.0–7.5		2.0–3.0	0.10	0.15 ^C	0.03–0.35	0.10				
C61400	614	aluminum bronze	6.0–8.0		1.5–3.5	1.0	4.0–5.5	0.015					
C63000	630	aluminum bronze	9.0–11.0		2.0–4.0	1.5	0.25						
C64200	642	aluminum silicon bronze	6.3–7.6		0.30	0.10	0.25						
C65100	651	silicon bronze		88.65 ^D	0.8	0.7	0.6		0.25 max	0.50	0.05	0.20 max	0.15
C65500	655	silicon bronze		96.0 ^D	0.8	1.5			1.5–2.2 ^E	1.5	0.05	0.20 max	
C66100	661	silicon bronze		94.8 ^D	0.25	1.5	0.6		0.8–2.0	1.5	0.05		
C67500	675	manganese bronze		57.0–60.0	0.8–2.0	0.05–0.5			2.8–3.5	1.5	0.20–0.8		
C71000	710	cupro-nickel	0.25 max	74.0 ^D	0.60	1.00	19.0–23.0 ^C			balance	0.20	0.5–1.5	
C71500	715	cupro-nickel		65.0 ^D	0.40–0.7	1.00	29.0–33.0 ^C			1.00	0.05		

^A Elements shown as balance shall be arithmetically computed by deducting the sum of the other named elements from 100.

^B Copper plus specified elements = 99.8 min; copper plus silver = 88.5–91.5.

^C Cobalt is to be counted as nickel.

^D Minimum content of copper plus all other elements with specified limits shall be 99.5 %.

^E An alloy containing as high as 2.6 % silicon is acceptable provided the sum of all the elements other than copper, silicon, and iron does not exceed 0.30 %.