

MIL-S-1222F
 INTERIM AMENDMENT-4(SHIPS)
 31 March 1969
 SUPERSEDING
 Interim Amendment-3(SHIPS)
 7 June 1968

MILITARY SPECIFICATION

STUDS, CONTINUOUS THREAD (BOLT STUDS); NUTS, FLAIN, HEXAGON;
 AND STEEL BARS, ROUND-HIGH TEMPERATURE SERVICE

This Interim Amendment is issued for use by the Department of the Navy, Naval Ship Engineering Center, with Military Specification MIL-S-1222F, dated 9 December 1963.

Page 1

2.1, under SPECIFICATIONS, FEDERAL: Delete reference to "PPP-B-645" and add "PPP-B-640 - Boxes, Fiber-board, Corrugated, Triple-Wall."

Page 2

2.2, delete and substitute:

"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.

NATIONAL BUREAU OF STANDARDS

Handbook H-28 - Screw-Thread Standards for Federal Services.

(Application for copies should be addressed to the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.)

UNIFORM CLASSIFICATION COMMITTEE

Uniform Freight Classification Rules

(Application for copies should be addressed to the Uniform Classification Committee, 1 Park Avenue at 33rd Street, New York, N.Y. 10016.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

A 193 - Specification for Alloy-Steel-Bolting Materials for High-Temperature Service.

A 370 - Methods and Definitions for Mechanical Testing of Steel Products.

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

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)"

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Table II, last column, lines 13 and 14: Delete "160 Brinell hardness or 84 Rockwell B" and substitute "179 Brinell hardness or 89 Rockwell B".

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Add the following new paragraphs:

"3.3.8.1 Traceability (for certification). In addition to manufacturer's and material symbols, when certification or traceability is specified, each bolt stud shall be legibly die stamped with the letters "LI" and also with the manufacturer's production lot number (see 4.1.1 and 6.2)".

1/CHANGES FROM PREVIOUS ISSUE. THE OUTSIDE MARGINS OF THIS DOCUMENT HAVE BEEN MARKED "P" TO INDICATE WHERE CHANGES (DELETIONS, ADDITIONS, ETC.) FROM THE PREVIOUS ISSUE HAVE BEEN MADE. THIS HAS BEEN DONE AS A CONVENIENCE ONLY AND THE GOVERNMENT ASSUMES NO LIABILITY WHATSOEVER FOR ANY INACCURACIES IN THESE NOTATIONS. BIDDERS AND CONTRACTORS ARE CAUTIONED TO EVALUATE THE REQUIREMENTS OF THIS DOCUMENT BASED ON THE ENTIRE CONTENT AS WRITTEN IRRESPECTIVE OF THE MARGINAL NOTATIONS AND RELATIONSHIP TO THE LAST PREVIOUS ISSUE.

FSC 5307, 5310

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Table VI, column 2, line 6: For 9/16 inch nominal size, change the maximum width across flats from ".7850" inch to ".8750".

Table VI, footnote 3, item (e), delete and substitute:

"(e) The bearing surface shall be washer faced, except that nuts in sizes 1/4 through 5/8 inch size may be double chamfered."

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Add the following new paragraph:

"3.4.7.1 Traceability (for certification). In addition to manufacturer's and material symbols, when certification or traceability is specified, each nut/shall be legibly die stamped with letters "II" and also with the manufacturer's production lot number (see 4.1.1 and 6.2)."

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4.1, delete and substitute:

"4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier 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."

Add the following new paragraphs:

"4.1.1 Certification. When certification is specified by the ordering activity, each delivery shall be accompanied by a certificate identifiable by production lot number(s) and include the following:

"(a) Copy of report setting forth data on examinations and tests.

"(b) Statement "Records are available covering heat or melt number(s) of the material used, processing of bar stock and fastener blanks, thread forming and gaging, dimensional control employed, and heat treatment.

"4.1.1.1 For certification and traceability purposes, all fasteners identifiable by one production lot number shall be of the same nominal dimensions and threading, same heat or melt of metal, same processing of bar stock and fastener blanks, and same heat-treat batch or continuous heat treating process controlled by the same quenching and tempering limits."

4.3.1, add as last sentence: "Suitable solid samples shall be taken in lieu of chips or drillings when the analysis is made by the spectrographic method."

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4.3.3.2, line 2: Delete "MIL-STD-414 at Inspection Level III" and substitute: "MIL-STD-105 at Inspection Level II, or MIL-STD-414 at Inspection Level III at the option of the supplier".

4.3.4.2: Delete.

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4.4.1.2: Delete.

Page 12

4.4.3.2, delete and substitute the following:

"4.4.3.2 Bolt studs and nuts. The sample bolt studs and nuts selected in accordance with MIL-STD-105 as specified in 4.3.3.2 shall be examined by means of GO and NOT GO thread gages and plain gages in accordance with 4.4.3.3.2 and other measuring instruments as necessary. Any bolt stud or nut found in the sample that does not pass the appropriate "X" thread gage and "Z" plain gage for the thread size and class requirements of this specification or fails to meet any other dimensional requirements shall not be offered for delivery. If the number of nonconforming bolt studs or nuts found in the sample equals or exceeds the rejection number shown in MIL-STD-105 for that sample, this shall be cause for rejection of the entire lot.

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Page 12 (cont'd).

"4.4.3.2.1 The sample bolt studs and nuts selected in accordance with MIL-STD-414 as specified in 4.3.3.2 shall be examined by means of indicating gages or measuring instruments as described in H-28 for "inspection by variables", and other instruments as necessary for other than thread dimensional measurements. Any bolt stud or nut found in the sample that does not conform to the applicable dimensional requirements of H-28 for threading or fails to meet any other dimensional requirement of this specification shall not be offered for delivery. If the estimate of the lot percent defective exceeds the maximum allowable percent defective shown in MIL-STD-414, this shall be cause for rejection of the lot."

4.4.3.3.2, delete and substitute:

~~"4.4.3.3.2 Thread gages. Screw thread gaging (for "inspection by attributes") required by 4.4.3.2 shall be performed by means of "X" thread gages and "Z" plain gages conforming to the applicable dimensional requirements of H-28. Thread gages shall be adjusted to setting plug gages conforming to the applicable dimensional requirements of, and by the procedure specified in, H-28."~~

4.5.1, line 2: After "method 111", add "or 112".

4.5.2.1, delete and substitute:

"4.5.2.1 Bar stock. Each of the samples selected in accordance with 4.3.2.1 (a) shall be machined to the form and dimensions of round type specimen of ASTM A370, and shall be pulled in tension to determine compliance with table II. The tension test shall be made in accordance with ASTM A370. When no definite yield point is exhibited, the yield strength shall be determined by the offset method specified in ASTM A370 at an offset of 0.2 percent of the gage length."

Page 13

4.5.2.2.1.2, delete and substitute:

"4.5.2.2.1.2 Turned or ground specimens. When test equipment of sufficient capacity is not available for testing bolt studs to 3/4 inch exclusive, in full size as described in 4.5.2.2.1, tests shall be made as follows: Bolt studs 3/4 to 1-3/8 inch in diameter, inclusive, shall have their shanks concentric with the axis of the screw as shown on figure 3. For bolt studs over 1-3/8 inch in diameter a round type specimen in accordance with ASTM A370, shall be turned or ground from the bolt stud. The axis of the specimen shall be midway between the center and outside surface as shown on figure 4. The specimens shall be pulled in tension to determine compliance with table II."

4.5.3, delete and substitute:

"4.5.3, Hardness test. Brinell or Rockwell hardness tests shall be made on the samples selected in accordance with 4.3.2.1(b), 4.3.2.2(b), and 4.3.2.3(a) to determine compliance with table II. When hardness testing shows surface hardness exceeding maximum requirements, then a tensile test shall be performed on specimens machined from the studs to determine compliance with table II; or require that when hardness testing of end of studs (see 4.5.3.2) indicates hardness exceeding specification allowance, then studs should be tested for internal hardness by sectioning studs and hardness testing the section."

4.5.3.3, lines 3 and 4: Delete "methods 243 and 242, respectively, of FED-STD-151." and substitute "ASTM A370."

Table X, column 4, lines 2 and 3: Delete "Grade 4 Finished 4/" and substitute "Grade 4 Finished 3/".

Table X, column 1, after "1-1/2 - 8 UN" add "5/"; and at end of table add "5/ Test not required above 1-1/2 inch diameter provided that threading operation is done after heat treatment and all other requirements are complied with."

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4.5.6, delete and substitute:

"4.5.6 Magnetic particle examination. Each bolt stud and nut shall be subjected to magnetic particle examination in accordance with MIL-STD-271 and MS17980. Standards for acceptance criteria for bolt studs and nuts shall be in accordance with figure 1, and 7a, 7b, and 7c of MS 17980, which shall be considered major defects and render the stud or nut unsuitable for service."

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Pages 14, 15 and 16

Section 5, delete and substitute:

"5. PREPARATION FOR DELIVERY

(The preparation for delivery requirements specified herein apply only for direct Government procurements. For the extent of applicability of the preparation for delivery requirements of referenced documents listed in section 2, see 6.8)

"5.1 Preservation and packaging. Preservation and packaging shall be Level A or C as specified (see 6.2).

"5.1.1 Level A.

"5.1.1.1 Preservation. Bolt studs and nuts shall be cleaned, dried, and immediately thereafter coated with grade 4 preservative of MIL-C-16173. Items coated with preservative do not require a wrap of grease-proof barrier material when the preservative has been allowed to set.

"5.1.1.1.1 Packaging. Bolt studs, and nuts in the quantity specified in table XI, shall be packaged in folded cartons, set-up, fiberboard or metal edge boxes conforming to PPP-B-566, PPP-B-676, PPP-B-636 or PPP-B-665, respectively, at the option of the contractor.

"5.1.1.1.2 Gross weight of cartons or boxes shall not exceed the applicable weight limitations of the box specifications. Fiberboard boxes with a minimum Mullen test of 175 or 200 pounds shall not exceed 20 and 45 pounds, respectively. Quantities of bolts and nuts specified in table XI exceeding a net weight of 45 pounds shall be bulk packed and the unit container shall meet the requirements set forth for shipping containers.

Table XI - Quantity of bolt studs and nuts per container.

Nominal sizes	Quantity	
	Bolt studs	Nuts
Inches		
1/4 to 3/8, incl.	100	100
7/16 to 5/8, incl.	50	50
3/4	25	50
7/8	25	25
1 (studs to 4-3/4 inch length, incl.)	20	25
1 (studs over 4-3/4 inch length to 6 inch length, incl.)	16	25
1-1/8 to 1-3/8, incl.	bulk	20
Over 1-3/8	bulk	bulk

"5.1.1.2 Level C. Preservation and packaging shall be sufficient to afford adequate protection against corrosion, deterioration and physical damage during shipment from the supply source to the using activity and until early installation.

"5.2 Packing. Packing shall be level A, B, or C as specified (see 6.2).

"5.2.1 Levels A and B. Bolt studs and nuts packaged as described in 5.1 shall be packed in boxes conforming to any one of the following specifications at the option of the supplier:

Specification	Type or class	
	Level A	Level B
PPP-B-576	Class 2	Class 1
PPP-B-591	Overseas	Domestic
PPP-B-601	Overseas	Domestic
PPP-B-621	Class 2	Class 1
PPP-B-636	Class 2	Class 1
PPP-B-640	Class 2	Class 1

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Boxes shall be closed, strapped or banded in accordance with applicable box specification or appendix thereto for the level specified. Gross weight of wood or wood-oleated boxes shall not exceed 200 pounds. Gross weight of fiberboard boxes shall not exceed the weight limitation of the box specification.

"5.2.2 Level C. Bolt studs and nuts packaged as specified in 5.1, shall be packed in a manner to insure carrier acceptance and safe delivery at destination. Containers shall conform to the applicable rules and regulations applicable to the mode of transportation.

"5.2.3 Levels A and B (Bars). Bars shall be shipped in accordance with MIL-STD-163.

"5.2.4 Cushioning. All bolt studs 5/8 inch and under which are packaged in unit cartons shall not require any additional cushioning, provided there is no void in the cartons. Sizes over 5/8 inch and all sizes packed directly into an exterior container (bulk packed), shall be furnished with thread protectors or other suitable cushioning.

"5.3 Marking. In addition to the identification marking requirements of 3.2.7 for bars, 3.3.8 for bolt studs, and 3.4.7 for nuts, and any special marking required by the contract or order, marking shall be in accordance with MIL-STD-129."

Page 17

6.2, sub-item(1): Delete and substitute "(1) Levels of preservation-packaging, and level of packing required (see 5.1 and 5.2).

6.2, add the following:

"(j) Additional marking, if required (see 5.3)."

"(k) Whether traceability and certification are required (see 3.3.8.1, 3.4.7.1, and 4.1.1)."

6.4, line 4: Delete "ASA B18.2" and substitute "USAS B18.2".

6.7, delete in its entirety.

Add the following new paragraphs:

"6.7 Certain provisions of this specification are the subject of international standardization agreement ABC-NAVY-STD-41. When amendment, revision, or cancellation of this specification is proposed which will effect or violate the international agreement concerned, the preparing activity will take appropriate reconciliation action through international standardization channels including departmental standardization offices, if required."

"6.8 Sub-contracted material and parts. The preparation for delivery requirements of referenced documents listed in Section 2 do not apply when material and parts are procured by the supplier for incorporation into the equipment and lose their separate identity when the equipment is shipped."

"International interest (see section 6)"

Preparing activity:
Navy - SH
(Project 5307-M005)