

INCH-POUND

MIL-F-52618D(ME)  
29 June 1990  
SUPERSEDING  
MIL-F-52618C(ME)  
20 August 1980

MILITARY SPECIFICATION

FITTINGS, PIPE, ALUMINUM-ALLOY (THREADED) 150-POUND:

GENERAL SPECIFICATION FOR

This specification is approved for use within the USA Belvoir Research, Development and Engineering Center, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers aluminum-alloy threaded pipe fittings, 150-pound class.

1.2 Classification. The fittings shall be of types, configuration, sizes, thread direction and finishes as shown in the applicable specification sheets and as specified (see 6.2).

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: USA Belvoir Research, Development, and Engineering Center, ATTN: SIRBE-TSE, Fort Belvoir, VA 22060-5606 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 4730

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SPECIFICATIONS

FEDERAL

- WW-P-471 - Pipe-Fittings; Bushings, Locknuts, and Plugs, Iron, Steel, and Aluminum (Threaded): 125-150 Pounds.

MILITARY

- MIL-V-3 - Valves, Fittings, and Flanges (Except for Systems Indicated Herein): Packaging of.  
MIL-A-8625 - Anodic Coatings, For Aluminum and Aluminum Alloys.

(See Supplement 1 for list of associated specification sheets.)

STANDARDS

MILITARY

- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.  
MIL-STD-129 - Marking for Shipment and Storage.  
MIL-STD-130 - Identification Marking of US Military Property.

(Unless otherwise indicated, copies of federal and military specifications, and standards are available from the Naval Publications and Forms Center, (ATTN: NPODS), 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

- B 1.20.1 - Pipe Threads, General Purpose (Inch).  
B 16.4 - Cast Iron Threaded Fittings, 125 and 250.  
B 16.15 - Cast Bronze Threaded Fittings.

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- B 26 - Aluminum-Alloy Sand Castings.  
B 108 - Aluminum-Alloy Permanent Mold Castings.  
B 210 - Aluminum-Alloy Drawn Seamless Tubes.  
B 211 - Aluminum-Alloy Bars, Rods, and Wires.  
B 221 - Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.

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

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(Non-Government standards are normally available from the organizations which prepare or which distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, (except for associated detail specifications, specification sheets or MS standards), the text of this document shall take precedence. Nothing in this document, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

3.1 Description. The threaded aluminum pipe fittings, hereinafter referred to as "fittings" shall be of the 150-pound class. Fittings specified herein shall include crosses, tees, 90-degree and 45-degree elbows, couplings, reducers, return bends, reducing crosses, tees and elbows, caps, plugs, bushings and street elbows.

3.2 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 the requirements of this specification and the specification sheet, the latter shall govern. If a specific requirement specified herein is not required for a particular type of fitting, it will be indicated on the applicable specification sheet.

3.3 Material. Material shall be as specified herein. Materials not specified shall be selected by the contractor and shall be subject to all provisions of this specification.

3.3.1 Recovered materials. For the purpose of this requirement, recovered materials are those materials which have been collected from solid waste and reprocessed to become a source of raw materials, as distinguished from virgin raw materials. The components, pieces and parts incorporated in the fittings may be newly fabricated from recovered materials to the maximum extent practicable, provided the fittings produced meets all other requirements of this specification. Used, rebuilt or remanufactured components, pieces and parts shall not be incorporated in the fittings.

3.4 Fabrication. The fittings shall be fabricated from aluminum-alloy castings conforming to ASTM B 26 or ASTM B 108, alloy 356.0-T6, except that the fittings listed below shall be aluminum-alloy 6061-T6 fabricated from wrought products indicated herein:

- a. All couplings, size 1/4-inch through 1-inch, shall be drawn tube conforming to ASTM B 210.
- b. All couplings, size 1-1/4 inch through 4-inch, shall be extruded tube conforming to ASTM B 221.
- c. All plugs, size 1/8-inch through 1/2-inch, shall be rod conforming to ASTM B 211.

3.5 Design and tolerances. The design and tolerances of the fittings shall conform to ANSI B 16.4 or as specified herein. Cast couplings and street elbows

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shall be designed in accordance with dimensions and tolerances specified in ANSI B 16.15. Dimensions for all plugs and bushings shall be in accordance with WW-P-471.

3.6 Threads. All threads shall be American Standard taper pipe thread (NPT) in accordance with ANSI B 1.20.1, except that couplings, wrought caps, and wrought bushings in sizes 1/2-inch and under may be American Standard straight pipe (NPSC). Thread length, depth, variation in alignment, countersinking and chamfering shall be as specified in ANSI B 16.4.

3.7 Performance. The fittings shall not leak air when subjected to air pressure of 90 pounds per square inch gauge (psig). Fittings shall be capable of withstanding an internal hydrostatic pressure of 250 psig without developing leaks as an alternative.

3.8 Finish. The finish of cast and extruded fittings shall be workmanlike and free of burrs, sharp edges, and corners. When specified for anodized (see 6.2), fittings shall be anodized in accordance with MIL-A-8625, type II, class 1, thickness no less than 0.0004-inch for castings and no less than 0.0007-inch for wrought products.

3.9 Identification marking. The pipe fittings shall be identified and marked in accordance with MIL-STD-130.

3.10 Workmanship. The fittings shall be free of sand inclusions, fins, gate protrusions, cracks, shrinks and other injurious defects.

#### 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 (examination and tests) as specified herein. Except as otherwise specified in the contract or purchase 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 ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.2 Classification of inspection. Inspection shall be classified as follows:

- a. Quality conformance inspection (see 4.3).
- b. Inspection of packaging (see 4.5).

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4.3 Quality conformance inspection.

4.3.1 Sampling. Sampling for examination and tests shall be in accordance with MIL-STD-105, tables I and table IIa. The sample shall be taken at random from a production run and shall be produced with equipment and procedures normally used in production. A lot shall be accepted when 0 defects are found and rejected when 1 or more defects are found.

4.3.2 Examination.

4.3.2.1 Samples. Samples selected in accordance with 4.3.1 shall be examined as specified in 4.4.1.

4.3.3 Tests. Samples selected in accordance with 4.3.1 shall be tested as specified in 4.4.2.

4.4 Inspection procedure.

4.4.1 Examination. The fittings shall be examined as specified herein for the following defects:

Major

101. Material not as specified.
102. Used, rebuilt or remanufactured components, pieces, or parts incorporated in the fittings.
103. Configuration not as specified.
104. Size not as specified.
105. Threads not as specified.
106. Ribs not as specified.
107. Thread direction not as specified.
108. Bushing heads not as specified.
109. Finish not as specified.
110. Dimensions and tolerances not as specified.

Minor

201. Countersinking and chamfering not as specified.
202. Band dimensions not as specified.
203. Workmanship not as specified.

4.4.2 Tests. Fittings selected from the sample shall be subjected to either the air pressure test or the hydrostatic test, as required (see 6.2).

4.4.2.1 Air pressure test. Each of the sample fittings selected shall be subjected to an air pressure test at normal plant air pressure of at least 90 psig for a length of time sufficient for an examination for leaks, but not less than one minute. Any evidence of air leakage shall constitute failure of this test.

4.4.2.2 Hydrostatic test. Sample pipe fittings shall be subjected to a hydrostatic pressure of 250 psig for 1 minute. Any evidence of leakage shall constitute failure of this test.

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4.5 Inspection of packaging. The preservation, packing, and marking shall be examined and tested to determine compliance with the quality assurance provisions of MIL-V-3.

## 5. PACKAGING

5.1 Preservation. Preservation shall be level A or C, as specified (see 6.2).

5.1.1 Level A. The pipe fittings shall be preserved in accordance with the level A requirements of MIL-V-3.

5.1.2 Level C. The pipe fittings shall be preserved in accordance with the level C requirements of MIL-V-3.

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

5.2.1 Level A, B or C. Level A, B, or C packing shall be in accordance with the applicable requirements of MIL-V-3.

5.3 Marking. In addition to any special marking required by the commodity specification, contract or order, all units packages, intermediate packages, shipping container and palletized loads shall be marked in accordance with the requirements of MIL-STD-129.

## 6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The aluminum fittings are primarily intended for use with threaded aluminum piping in water or liquid petroleum product service.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of the specification.
- b. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2).
- c. PIN number (see 6.4).
- d. Specification sheet number required.
- e. Finish, if required (see 3.8).
- f. Type of test as required (see 4.4.2).
- g. Level of preservation and degree of packing required (see 5.1 and 5.2).
- h. Any special marking required (see 5.3).

6.3 Cross-reference. A cross-reference of old to new classification or part number is not used in this revision because of the general nature of types in the previous issue.

6.4 Part or identifying number. The specification pin numbers for the fittings described in this specification shall be in accordance with the applicable specification sheets (MIL-F-52618/1 thru MIL-F-52618/9).

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6.5 Subject term (key word) listing.

Bushings, pipe, aluminum (threaded)  
Caps, pipe, aluminum (threaded)  
Couplings, pipe, aluminum (threaded)  
Crosses, pipe, aluminum (threaded)  
Elbows, pipe, aluminum (threaded)  
Fittings, pipe, aluminum (threaded)  
Reducers, pipe, aluminum (threaded)  
Street elbows, pipe, aluminum  
Tees, pipe, aluminum (threaded)

6.6 Changes from previous issue. Asterisks (or vertical lines) are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Custodian:  
Army - ME

Preparing activity:  
Army - ME

Review activity:  
DLA - CS

Project 4730-A729

User activity:  
Army - CE

## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

## INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

<b>RECOMMEND A CHANGE</b>		1. DOCUMENT NUMBER MIL-F-52618D(ME)	2. DOCUMENT DATE (YYMMDD) 29 Jun 90
3. DOCUMENT TITLE Fittings, Pipe, Aluminum-Alloy (Threaded), 150-Pound			
4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)			
5. REASON FOR RECOMMENDATION			
6. SUBMITTER'S NAME (Include Title)		7. ORGANIZATION	
8. ADDRESS (Include Zip Code)		9. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	10. DATE SUBMITTED (YYMMDD)
8. PREPARING ACTIVITY			
a. NAME		b. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON	
c. ADDRESS (Include Zip Code) US Army Belvoir RDE Center ATTN: STRBE-TSE Ft. Belvoir, VA 22060-5606		(703) 664-5717 354-5717	
		IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	