

WW-P-501E  
November 27, 1974  
SUPERSEDING  
Fed. Spec. WW-P-501D  
May 15, 1967

## FEDERAL SPECIFICATION

### PIPE FITTINGS, CAST IRON, SCREWED 125 AND 250 POUND

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

#### 1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers screwed fittings normally used with ferrous piping.

1.2 Classification. The fittings shall be of the following types and classes, as specified (see 6.2):

Type I - Black (not galvanized).  
Type II - Zinc-coated.

Class 125 - 125 pound.  
Class 250 - 250 pound.

#### 2. APPLICABLE DOCUMENTS

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

Federal Standard:

Fed. Std. No. 123 - Marking for Domestic Shipment (Civil Agencies).

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards, at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

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(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Dallas, Denver, San Francisco, Los Angeles, and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Specification:

MIL-V-3 - Valves, Fittings, and Flanges (Except for Systems Indicated Herein), Packaging of.

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.

MIL-STD-129 - Marking for Shipment and Storage.

(Copies of specifications and standards required by suppliers in connection with specific procurement functions should be obtained from the 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.

National Bureau of Standards (NBS)

Handbook H28 - Screw-Thread Standards for Federal Services.

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

American National Standards Institute Inc. (ANSI)

B 2.1 - Pipe Threads (Except Dryseal).

B16.4 - Cast Iron Screwed Fittings 125 and 250 Lbs.

(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)

A126 - Gray Iron Castings for Valves, Flanges and Pipe Fittings.

A153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

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

National Motor Freight Traffic Association, Inc., Agent

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Association, Inc., Tariff Order Section, 1616 P Street, N.W., Washington, DC 20036.)

Uniform Classification Committee, Agent

Uniform Freight Classification.

(Application for copies should be addressed to the Uniform Classification Committee, Tariff Publishing Officer, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

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.

### 3. REQUIREMENTS

3.1 Standards compliance. Except as otherwise specified herein, the fittings shall conform to the requirements of ANSI B16.4.

3.2 Material. Fittings shall be made of regular gray iron castings that conform to ASTM A126, class A or better.

3.3 Standard product. The pipe fittings shall be the regular commercial product of the manufacturer or his suppliers. The items furnished shall be new and unused.

\* 3.4 Design. The fittings shall be of the kinds specified in ANSI B16.4 (see 6.2).

3.4.1 Size. The size of the fittings shall be designated in terms of the nominal pipe size, as specified (see 6.2).

3.5 Dimensions. The dimensions of all fittings shall be the standard dimensions specified in ANSI B16.4.

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\* 3.6 Threads. All fittings shall be threaded with American Standard Taper Pipe Threads in accordance with NBS H28 or ANSI B2.1. Threads shall be right hand unless left-hand threads are specified (see 6.2).

\* 3.7 Zinc coating. Type II fittings shall be coated by the hot-dip process in accordance with ASTM A153, and shall be zinc-coated both inside and outside. The fittings shall be coated before threading.

3.8 Identification marking. The manufacturer's name or initial, or other mark by which he can be easily identified, shall be legibly cast or die-stamped on each fitting. Each fitting in class 250 shall be identified by the numerals "250" and the manufacturer's name or trademark.

3.9 Workmanship. Fittings shall be sound, smoothly cored, true to form, free from cold shots, blowholes, porosity, or any other defects which may affect their serviceability, and shall be thoroughly clean.

#### 4. QUALITY ASSURANCE PROVISIONS

\* 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 that supplies and services conform to prescribed requirements.

4.2 Inspection lot. All fittings of the same type and class offered for delivery at one time shall be considered a lot for purposes of inspection.

##### 4.3 Sampling.

4.3.1 Sampling for examination. A random sample of fittings shall be selected for examination from each lot in accordance with MIL-STD-105 at inspection level II. The Acceptable Quality Level (AQL) shall be 1.5 percent defective for major defects and 4.0 percent defective for minor defects.

4.3.2 Sampling for pressure test. When specified (see 6.2), a random sample of fittings shall be selected from each lot offered to the Government in accordance with MIL-STD-105 at inspection level S-4. The AQL shall be 1.0 percent defective.

4.4 Examination. Each of the sample fittings selected in accordance with 4.3.1 shall be examined to verify compliance with this specification. Examination shall be conducted as specified in table I.

Table I. Classification of defects

Categories	Defects
Major	
101	Type and class of fitting not as specified.
102	Size not as specified.
103	Surface coating not as specified.
104	Threads not as specified.
105	Nonconformity with dimensions and tolerances.
106	Blow holes present.
Minor	
201	Identification barking not as specified.
202	Sand or scale on surface.
203	Rust on piece.

#### 4.5 Test methods.

4.5.1 Air pressure. When specified (see 6.2 and 6.4), fittings selected in accordance with 4.3.2 shall be subjected to at least 60 pounds per square inch (psi) air pressure while under water. Any visible leakage of air shall be cause for rejection.

4.5.2 High pressure test. Sample fittings may be subjected to the following hydrostatic test pressure for 1 minute. For class 125, 125-pound fittings; 250 psi. For class 250, 250-pound fittings; 500 psi. Under the hydrostatic pressure, the fittings shall not show visible leakage or weeping at any part of the surface.

4.6 Inspection of preparation for delivery. The packaging, packing, and marking of the fittings shall be inspected to determine conformance with the applicable requirements of section 5 of this specification.

### 5. PREPARATION FOR DELIVERY

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

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

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5.1.2 Level C. The fittings shall be packaged in accordance with the supplier's standard practice.

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

5.2.1 Level A. The fittings shall be packed in accordance with the applicable level A requirements of MIL-V-3.

5.2.2 Level B. The fittings shall be packed in accordance with the applicable level B requirements of MIL-V-3.

5.2.3 Level C. The fittings shall be packed in a manner which will insure arrival at destination in satisfactory condition and be acceptable to the carrier at lowest rates. Containers and packing shall comply with Uniform Freight Classification rules or National Motor Freight Classification rules.

5.3 Marking. (see 6.2).

5.3.1 Civil agencies. In addition to any special marking required by the contract or order, packages and shipping containers shall be marked in accordance with Fed. Std. No. 123.

5.3.2 Military agencies. In addition to any special marking required by the contract or order, packages and shipping containers shall be marked in accordance with MIL-STD-129.

## 6. NOTES

6.1 Intended use.

6.1.1 Class 125, 125-pound (standard) fittings are normally used for saturated steam service pressures up to 125 psi, and for hydraulic service pressures, including shock, up to 175 psi at or near the ordinary range of air temperature.

6.1.2 Class 250, 250-pound (extra heavy) fittings are normally used for saturated steam service pressures up to 250 psi, and for hydraulic service pressures, including shock, up to 400 psi at or near the ordinary range of air temperature.

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 and class required (see 1.2).

- (c) Design and size of fittings required (see 3.4 and 3.4.1).
- (d) When left-hand threads are required (see 3.6).
- (e) When pressure test is required (see 4.3.2, 4.5.1, and 6.4).
- (f) Selection of applicable level of preservation and packaging,  
and level of packing required (see 5.1 and 5.2).
- (g) Marking required (see 5.3).

6.3 This specification contemplates the purchase of fittings by the piece. It is recommended that bids be requested on that basis.

6.4 Cast iron pipe fittings are not required to be pressure tested. If found necessary, then the options in 4.5 should be exercised.

\* 6.5 The margins of this specification is marked with asterisks to indicated where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was 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 irrespective of the marginal notations and relationship to the last previous issue.

#### MILITARY CUSTODIANS:

Army - ME  
Navy - YD  
Air Force - 82

#### Preparing activity:

Navy - YD  
Project No. 4730-0256

#### User activities:

Army CE, WC  
Navy - CG, MC

#### CIVIL AGENCY COORDINATING ACTIVITIES:

GSA-FSS  
GSA-PCD  
HEW-FEC  
COM-NBS  
USDA-AFS

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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 copies and other documents referenced herein. Price 20 cents each.