




ENGINEERING STAFF
MATERIAL SPECIFICATION

Prepared By: Engineering Staff 

Approved By: Jerome T. Schmitz 

Section No:	MS J-2
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Issue Date:	02/26/20
Superseded Date:	03/03/15

SECTION TITLE

Line Stopper Fittings

1. SCOPE


This specification covers line stopper fittings in sizes 3/4-inch through 12-inch and pressure ratings of 250 psig, 275 psig, 300 psig, 720 psig, 900 psig, 960 psig, and 1440 psig. The fittings covered by this specification include nipple and full encirclement-type fittings with threaded and flanged closures. Bottom-out and combination bottom/side-out fittings are included.


2. APPLICABLE DOCUMENTS

- 2.1 American National Standards Institute (ANSI) B-1.20.1, "Pipe Threads General Purpose."
- 2.2 American National Standards Institute (ANSI) B-16.3, "Malleable Iron Screwed Fitting, 150 and 300 Lb."
- 2.3 American National Standards Institute (ANSI) B-16.5, "Steel Pipe Flanges and Flanged Fittings."
- 2.4 American National Standards Institute (ANSI) B-16.11, "Forged Fittings, Socket-Weld and Threaded."
- 2.5 American Petroleum Institute (API) Standard 1104, "Welding of Pipelines and Related Facilities."
- 2.6 American Society of Mechanical Engineers (ASME) Boiler and Press Vessel Code, Section IX, "Welding Qualifications."
- 2.7 ASTM International (ASTM) A-105, "Specification for Forgings, Carbon Steel, for Piping Components."
- 2.8 ASTM International (ASTM) A-106, "Specification for Seamless Carbon Steel Pipe for High-Temperature Service."
- 2.9 ASTM International (ASTM) A-513, "Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing."



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2. APPLICABLE DOCUMENTS (Cont'd)

- 2.10 ASTM International (ASTM) A-516, "Specification for Pressure Vessel Plates, Carbon Steel, for Moderate- and Lower-Temperature Services."
- 2.11 United States Department of Transportation (DOT), Code of Federal Regulations (CFR), Title 49, Part 192, "Transportation of Natural and Other Gas by Pipeline; Minimum Safety Standards."

NOTE: Unless otherwise specified, the editions of the above document incorporated in whole or in part by 49 CFR 192 are applicable. The above documents, and parts of documents (including annexes), not incorporated by 49 CFR 192 are incorporated by this Material Specification and will be the most recent edition. If a conflict exists between the applicable documents and/or this Material Specification, the requirements of 49 CFR 192 shall govern, and if all other conflicts, the more stringent requirement shall govern.

3. TERMINOLOGY

3.1 General


- 3.1.1 "Southwest Gas", "Southwest" or "SWG" wherever used in this specification and other related documents will refer exclusively to Southwest Gas Corporation.
- 3.1.2 The terms "approved," "as approved", "satisfactory", "as directed", "or equal" or other similar terms wherever used in this specification and other related documents will mean "as determined by Southwest Gas", unless specifically stated otherwise.
- 3.1.3 "Product Information Package" or "PIP" wherever used in this specification and other related documents will mean the required technical product information that a manufacturer must submit to Southwest to determine if the product is suitable for use by Southwest, unless specifically stated otherwise.




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4. MATERIALS AND MANUFACTURING


- 4.1 The manufacturer will state the design factors from DOT 49 CFR192.111 that was used to determine the pressure rating.
- 4.2 The manufacturer must provide unit stress calculations in accordance with DOT 49 CFR 192.143 or verification of prototype testing in accordance with DOT 49 CFR 192.505d. Prototypes are defined as follows:
 - One fitting of a type and design may be used to represent fittings from 1/2 to 2 times the size of fittings of same type.
 - A fitting of a material grade and/or wall thickness may represent fittings of another material grade and/or wall thickness if the design is essentially the same and only the material grade and/or wall thickness are varied. Manufacturers must be able to verify the tensile strength used in accordance with the applicable material standard.
 - Fitting type differentiation will be approved by Southwest Gas.
- 4.3 All applicable requirements of ANSI B-1.20.1 shall apply, except as required to meet the performance specifications in paragraphs 5.1 and 5.2.
- 4.4 All flanges will be manufactured in accordance with ANSI B-16.5, except as required to meet the performance requirement in paragraph 5.1 of this specification.
- 4.5 Malleable iron caps and plugs will be manufactured in accordance with ANSI B-16.3, except as required to meet the performance requirement in paragraph 5.1 of this specification.
- 4.6 Steel caps and plugs will be manufactured in accordance with ANSI B-16.11, except as required to meet the performance requirement in paragraph 5.1 of this specification.
- 4.7 Nipples and sleeves will be manufactured in accordance with ASTM A-105, A-106, A-513, A-516 or other approved specification. Fitting surfaces will be weldable in accordance with Southwest=s procedures written to comply with API 1104.



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4. MATERIALS AND MANUFACTURING (Cont'd)

- 4.8 Welding completed during the manufacturing process will be in accordance with API 1104 or Section IX (Boiler and Press Vessel Code).
- 4.9 Gaskets and o-rings will be manufactured from materials that are compatible with the constituents in natural gas.
- 4.10 The maximum carbon equivalency (CE) value will be 0.43. The International Institute of Welding (IIW) formula found in API 5L will be used to determine the CE.

5. PERFORMANCE REQUIREMENTS

- 5.1 All component designs will allow the designated operations of the fitting in accordance with the procedures provided by the manufacturer.
- 5.2 Each line stopper fitting will be able to withstand a test with nitrogen or water at a pressure 1.5 times its rated working pressure.
- 5.3 All fittings will be designed to be compatible with tapping, plugging and completion machines manufactured by Mueller, T.D. Williamson or Qualitech.
- 5.4 The minimum yield strength should be no less than 36,000 psig in accordance with ASTM A-105.

6. INSPECTION


- 6.1 Successful review of the Product Information Package (PIP), as well as any future reference by SWG to the Seller's part number or internal code number in any future contract or purchase, will mean only that no conflict with the specification was found, and will not relieve the Seller from meeting all the requirements of this specification.
- 6.2 SWG retains the option to inspect the manufacture and testing of line stopper fittings sold to SWG.



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6. INSPECTION (Cont'd)

6.3 SWG will make appropriate inspections and tests of all materials, products or systems supplied to this specification. SWG will have the right, at their option, to reject any material which fails to conform to this specification. Any such rejection may take place at the manufacturer facility; the supplier's warehouse or any subsequent delivery location, before or after SWG assumes possession. Notice of the rejection will be made promptly to the supplier by SWG. The defective product will be replaced or returned for credit at the manufacturer's expense.

6.4 Any changes in the manufacturing of previously approved Line Stopper Fittings covered under this specification for sale to SWG must be approved by SWG's Engineering Staff. **Failure to obtain SWG's approval may be cause for rejection and disqualification as an approved supplier.**

7. CERTIFICATION

The manufacturer's or supplier's certification shall be furnished to Southwest. This certification shall state that samples representing each lot have been manufactured, tested and inspected in accordance with this specification and that requirements have been met. When requested or specified in the purchase order or contract, a report of test results will be provided.

For components with material yield strength grades of 42,000 (X42) or greater and with nominal diameters of greater than 2 inches, testing documentation demonstrating the physical characteristics of the components which include, at a minimum, diameter, yield strength, ultimate tensile strength, wall thickness, seam type and chemical composition shall be provided to Southwest in accordance with 49 CFR 192.


Upon the request of Southwest, the certification of an independent third-party indicating conformance to the specification may be considered at Southwest's expense.




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8. SAFETY DATA SHEETS

In accordance with law, the seller will supply Safety Data Sheets for all applicable items supplied under this specification to the following:

- 1) The Receiving Location
- 2) Engineering Staff
- 3) Southwest Gas Corporation
Corporate Safety
Mail Station LVA-120
P.O. Box 98510
Las Vegas, NV 89193-8510

9. PRODUCT MARKING

All line stopper fittings will be marked with the following:

- Manufacturer's name or trademark
- Manufacturer's part number
- Material identification
- Nominal pipe size
- Schedule or nominal wall thickness

10. PACKAGING AND PACKAGE MARKING

Line stopper fittings will be individually wrapped and packaged in a manner to prevent damage during transportation and storage. Installation instructions will be packaged with each shipment.

11. STOCK CLASSIFICATION DESCRIPTION

_____ (LINE STOPPER, BOTTOM-OUT, BOTTOM-OUT/SIDE-OUT, EXTENSION)
FITTINGS, _____ WELD, _____ INCH, _____ PSIG.