





SOUTHWEST GAS CORPORATION

® ENGINEERING STAFF

MATERIAL SPECIFICATION

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Issue Date:	03/01/16
Superseded Date:	02/19/15

Prepared By: Engineering Staff 

Approved By: Jerome T. Schmitz 

SERVICE FITTINGS

Tee, Steel Weld, Service and Branch

1. SCOPE

This specification covers the following steel weld tees for service and branch connections in sizes 1/2" to 12":

- Steel tees for welding to the header and branch.
- Steel tees for welding to the header and a mechanical connection to a polyethylene branch.
- Steel tees with integral valves to stop the flow of natural gas into the branch. The alternate in-line curb valve design is welded into the branch piping and is not a true service tee.
- Some designs of the tees described above have integral devices for tapping the header. The remainders of the designs require the appropriate equipment to tap the main.
- The above designs have, in branch sizes up to 4", a threaded cap, in branch size 4", a threaded cap or flanged top and, in sizes up to 12", a flanged top.
- Pressure ratings vary from 60 psig to 1440 psig.
- Steel weld tees for service and branch connections may be installed as single components without pressure testing.

2. APPLICABLE DOCUMENTS

- 2.1 American National Standards Institute (ANSI) B-1.20.1, "Pipe Threads, General Purpose (INCH)."
- 2.2 American National Standards Institute (ANSI) B-16.3, "Malleable-Iron Screwed Fittings, 150 and 300 Lb."
- 2.3 American National Standards Institute (ANSI), B-16.11, "Malleable Iron Screwed Fitting, 150 and 300 Lb."
- 2.4 American Petroleum Institute (API) Standard 1104, "Welding of Pipelines and Related Facilities."
- 2.5 ASTM International (ASTM) A-105, "Specification for Flanges, Carbon Steel, for Piping Components."




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2. APPLICABLE DOCUMENTS (Cont'd)

- 2.6 ASTM International (ASTM) A-126, "Specification for Grey Iron Castings for Valves, Flanges and Pipe Fittings."
- 2.7 United States Department of Transportation (DOT), Code of Federal Regulations, Title 49, Part 192, "Transportation of Natural and Other Gas by Pipeline; Minimum Safety Standards."

NOTE: Unless otherwise specified, the editions of the above documents incorporated by DOT 49 CFR 192 are applicable. Documents not incorporated by DOT 49 CFR 192 will be the most recent edition.

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 information that a manufacturer must submit to SWG to determine if the product is suitable for use by SWG, unless specifically stated otherwise.

4. MATERIALS AND MANUFACTURING


- 4.1 Steel weld tees will consist of a pipe nipple to be welded to a pipeline or attached to a female threaded connection. The pipe nipple will have a branch connection that is suitable for connection by butt welding or socket welding to a steel branch piping or a mechanical connection to a polyethylene branch piping.
- 4.2 The steel weld tees will utilize an integral device to perforate the main after installation or be designed to utilize standard industry tapping equipment.



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4. MATERIALS AND MANUFACTURE (Cont'd)

- 4.3 Steel components of steel weld tees will be manufactured from steel that meets the requirements of ASTM A-105, A-126 or other approved specification and is compatible with SWG's welding procedures developed to meet the requirements of API Standard 1104.
- 4.4 Cast iron caps will be manufactured in accordance with ANSI B-16.3. Steel caps will be manufactured in accordance with ANSI B-16.11.
- 4.5 Service tees with mechanical connections on the outlet will be designed so that the connections are compatible with CTS or IPS pipe sizing and will meet the SDR specifications provided by SWG.
- 4.6 Thread design will be in accordance with ANSI B-1.20.1, unless deviation is required to allow the proper operation of the steel weld tee.
- 4.7 Tees with integral valves will have an integral shutoff device consisting of a plug that, when turned clockwise, will form a metal to metal seat and discontinue the flow of gas from the mainline into the branch connection. This device will turn clockwise to close.
- 4.8 The completion plug and cap will be designed to be compatible with the pressure rating for the service tee.
- 4.9 All materials used in steel weld service and branch tees will be compatible with the components in natural gas.

5. PERFORMANCE REQUIREMENTS

- 5.1 Service tees with integral tapping devices will be capable of tapping mains of up to standard wall thickness and 60,000 psig yield strength.
- 5.2 The service tees in which an integral perforation device is utilized will be designed to allow the perforation device to provide shutoff of gas from the main into the branch piping. Use of the perforator to tap the header will not result in release of gas to the atmosphere.
- 5.3 The tapping of service tees designed to use tapping equipment will not release gas into the atmosphere.
- 5.4 Curb valve tees will provide total shutoff in the closed position.
- 5.5 All steel weld tees will allow installation without damage from welding when installed according to the manufacturer's recommended procedure.




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5. PERFORMANCE REQUIREMENTS (Cont'd)

- 5.6 All steel weld tees will withstand a pressure test of at least 1.5 times the rated working pressure using either water or nitrogen as the test medium after installation.
- 5.7 Self-tapping punches will retain the coupon.

6. DIMENSIONS AND TOLERANCES

Dimensions and tolerances will be in accordance with Appendices A through F of this specification.

7. INSPECTION

- 7.1 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.
- 7.2 SWG retains the option to inspect the manufacture and testing of any and all materials, products or systems referenced in this specification that are sold to SWG.
- 7.3 SWG will make appropriate inspections and tests of any and 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's 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.
- 7.4 Any changes in the manufacturing of previously approved materials, products or systems described in 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.**




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8. CERTIFICATION

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

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

9. 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

10. PRODUCT MARKING

All fittings sold to Southwest 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

Southwest retains the right to require the fitting to be marked with Southwest's purchase order number and/or heat code identity.





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11. PACKAGING AND PACKAGE MARKING

All fittings will be packaged in a manner to prevent damage during transportation and storage.

12. STOCK CLASSIFICATION DESCRIPTION

TEE, ____-INCH _____ STEEL WELD SERVICE, (WELD OR THREADED) INLET x ____-INCH COMPRESSION OUTLET, .090 WALL PE TUBING WITH .500-INCH PUNCH, NO BEVEL.

TEE, ____-INCH X ____-INCH, STEEL WELD SERVICE, PLAIN OUTLET, WELD INLET, NO BEVEL.

TEE, ____-INCH X ____-INCH, STEEL WELD CURB VALVE, BUTT WELD OUTLET,
TEE, ____-INCH, STEEL 3-WAY WELD.

CAP, ____-INCH, STEEL, FITS ____-INCH CUT, 1440 MAOP, FOR USE AS A REPLACEMENT CAP OVER CURB VALVE TEES.