



**SOUTHWEST GAS CORPORATION**

® ENGINEERING STAFF

**MATERIAL SPECIFICATION**

<b>Section No:</b>	MS B-25
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<b>Issue Date:</b>	07/05/18
<b>Superseded Date:</b>	12/14/15

**Prepared By:** Engineering Staff 

**Approved By:** Jerome T. Schmitz 

**PIPE FITTINGS**

Mechanical Tapping Tee, High Volume

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**1. SCOPE**

This specification covers high volume mechanical tapping tees for use in main installations. The sizes will include 2" IPS through 6" IPS main sizes by 2" IPS outlets.

Mechanical tapping tees may be installed as single components without pressure testing.

**2. APPLICABLE DOCUMENTS**

- 2.1 American Society for Testing and Material (ASTM) D-2513, "Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing and Fittings."
- 2.2 ASTM International (ASTM) F-1924, "Standard Specification for Plastic Mechanical Fittings for Use on Outside Diameter Controlled Polyethylene Gas Distribution Pipe and Tubing."
- 2.3 Title 49, Code of Federal Regulations, Part 192, "Transportation of Natural and Other Gas by Pipeline; Minimum Safety Standards" (49 CFR 192).

**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. In the event that a conflict exists between the applicable documents and/or this Material Specification, the requirements of 49 CFR 192 shall govern, and in the event of all other conflicts, the more stringent requirement shall govern.



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**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 SWG to determine if the product is suitable for use by SWG, unless specifically stated otherwise.

**4. MATERIALS AND MANUFACTURING**

- 4.1 Tees manufactured to this specification will meet the minimum requirements of DOT 49, CFR 192 and all additional requirements defined in this material specification.
- 4.2 The plastic materials from which the tees are manufactured must be approved by Southwest Gas. The manufacturer will provide Southwest with a complete specification of the materials and/or a Plastic Pipe Institute (PPI) listing number for each plastic material used in the manufacture of the tees.
- 4.3 All tees will be made from virgin material.
- 4.4 The plastic materials used in the tees will be uniform in physical and chemical properties, and all components will be free of cracks, holes, foreign inclusions or other injurious defects.
- 4.5 The tees will be clean and internally free of paint, dirt, sand and other debris.
- 4.6 The tees shall contain suitable ultraviolet inhibitors which are acceptable to Southwest Gas so that their physical properties will not be adversely affected by exposure to natural ultraviolet light in locations throughout Southwest's service area for at least 1 year from the date of manufacture.



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**4. MATERIALS AND MANUFACTURING (Cont'd)**

- 4.7 The material used for the cutter in the tapping tee will be steel.
- 4.8 The material for any O-rings used in the manufacture of the tapping tees will be either nitrile or Buna N.
- 4.9 The washers, screws and nuts will be manufactured from stainless steel, unless otherwise approved by Southwest.
- 4.10 A method for retaining the pipe coupon generated by the tapping process will be designed into the tee. Further, the tapping process and tee design will include a weep-hole to indicate a complete tap. The design of the weep-hole will be so that the complete coupon blocks the weep-hole, but a non-complete coupon will not block the weep-hole and will allow gas to pass. The coupon retention and the weep-hole design must be approved by Southwest Gas.
- 4.11 The tapping tee will utilize an approved coupling design on the service outlet.
- 4.12 The tee will be designed to avoid rotational or longitudinal movement on the main. This design feature can be designed into the tee or as an additional component to the tee.
- 4.13 The cap will utilize an O-ring to facilitate sealing the unit in order to avoid gas leakage.
- 4.14 All fittings manufactured in accordance with this specification must meet the requirements of ASTM F-1924.
- 4.15 All polyethylene pipe extensions (pups) must have the pipe manufactured date visibly indicated on the pipe by print line, label or another acceptable method that is clearly and completely readable.
- 4.16 Upon delivery, the manufacture date of any PE components will not have exceeded 24 months.



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**5. PERFORMANCE REQUIREMENTS**

- 5.1 The tees will be designed for use in gas distribution systems in all class locations, at pressures up to 100 psig (689 kPa) and temperatures up to 140°F (60°C), either underground or in casing installations. All tees designed must be capable of operating at 60 psig and 140°F (60°C), simultaneously. All product features must be approved by SWG.
- 5.2 The tees will be designed so that no harmful or hazardous substances will be released into the gas and/or ground as a result of installation, tapping or other processes and procedures.
- 5.3 The tees will be designed so that liquids and other agents and debris commonly found in natural gas pipelines will not adversely affect the product serviceability.
- 5.4 Unless otherwise indicated, this specification covers the following fitting sizes:

Main Size	Outlet Size
2" IPS	2" IPS
4" IPS	2" IPS
6" IPS	2" IPS

**TABLE B-25.5.4**

- 5.5 The tees will be designed to meet the following minimum rotational torque requirements. The minimum torque must be maintained for a minimum of seven hours at 120°F (49°C).

Main Size (Inches)	Minimum Rotational Torque at 120°F (ft. lbs.)	Minimum Rotational Torque at 49°C (mm)
2	50	67.79
4	50	67.79
6	50	67.79

**TABLE B-25.5.5**

- 5.6 All mechanical fittings purchased by Southwest Gas will, at a minimum, meet the requirements of ASTM D 2513, Category 1.



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**6. DIMENSIONS AND TOLERANCES**

6.1 The tees will be designed for installation on coiled as well as straight lengths of polyethylene pipe having the following outside dimensions:

Nominal Pipe Size (Inches)	O.D. (Inches)	
	Average	Tolerance
PS	2.375	±0.006
4 IPS	4.500	±0.009
6 IPS	6.625	±0.011

**TABLE B-25.6**

6.2 All approved tapping tees will be expected to produce a gas-tight seal to polyethylene pipe having the above referenced outside dimensions. For a list of approved tees, see Section 13 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 all materials and products referenced in this specification that are sold to SWG.
- 7.3 SWG will make appropriate inspections and test 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 or products covered under this document 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**

When specified in the purchase order or contract, 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 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 89193-85

**10. PRODUCT MARKING**

Marking on plastic fittings will comply with the marking requirements of ASTM D-2513-87. The marking method will provide permanent identification of the fitting, enabling access to quality and manufacturing records at any time and will include manufacturer's name or trademark (or both), size, the ASTM standard designation "D-2513," material classification, serial number, manufacture date and temperature rating.



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**10. PRODUCT MARKING** (Cont'd)

The temperature rating marking will be in accordance with ASTM D-2413-87, which consists of, at minimum, a two-letter coding (i.e., "CE"). The first code letter is to identify the high temperature rating and the second code letter is to identify the HDB rating at that high temperature rating. A third code letter may be included which signifies the melt index. The first code letter must have a minimum of a "C" rating which signifies a temperature rating of 140°F (60°C). The second code letter pertaining to the HDB rating must be sufficient to meet the performance requirements of this specification which requires a design rating of 60 psig at 140°F (60°C).

**11. PACKAGING & PACKAGE MARKING**

- 11.1 Seller will adequately prepare all of the goods for shipment. Seller will furnish and install necessary covers to protect the goods from sunlight, excessive heat, photochemical smog, rain, hail, wind, dust, etc. Goods will be adequately sealed and protected during shipment to prevent entrance of foreign matter and possible damage from rough handling during transit. Packaging will facilitate its safe handling and its reshipment between the stocking and user locations. Each fitting and a set of installation instructions will be individually wrapped with transparent plastic.
- 11.2 Southwest Gas will store the fittings indoors until they are transferred to the various gas crew trucks.
- 11.3 Package sizes will be determined by Southwest Gas Corporate Purchasing Department.

**12. STOCK CLASSIFICATION DESCRIPTION**

TEE, HIGH VOLUME TAPPING, MADE WITH RILSAN 11 MATERIAL FOR MAIN BRANCH USE, BOLT-ON SADDLE STYLE INSTALLATION, \_\_\_\_\_-INCH IPS MAIN SIZE BY \_\_\_\_\_-INCH IPS OUTLET SIZE WITH APPROVED COUPLING OUTLET AND \_\_\_\_\_-INCH CUTTER (MANUFACTURER NAME).