




SOUTHWEST GAS CORPORATION

® ENGINEERING STAFF

MATERIAL SPECIFICATION

Section No:	MS E-7
Page No.:	1 of 9
Issue Date:	02/05/19
Superseded Date:	02/08/17

Prepared By: Engineering Staff 

Approved By: Jerome T. Schmitz 

SERVICE FITTINGS

Mechanical Tapping Tee, Standard

1. SCOPE

This specification covers standard mechanical tees for use in service installations. The size will include 1 1/4-inch IPS through 6-inch IPS main sizes by 1/2-inch and 1-inch CTS service outlets. Mechanical Tapping Tees may be installed as single components without pressure testing.

2. APPLICABLE DOCUMENTS

- 2.1 ASTM International (ASTM) F1924, "Standard Specification for Plastic Mechanical Fittings for Use on Outside Diameter Controlled Polyethylene Gas Distribution Pipe and Tubing."
- 2.2 Title 49, Code of Federal Regulations, Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards" (49 CFR 192).

NOTE: Unless otherwise specified, the editions of the 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 in the event of all other conflicts, the more stringent requirement shall govern.

3. TERMINOLOGY

3.1 General

- 3.1.1 The terms "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.
- 3.1.2 "Southwest Gas," "Southwest" or "SWG" wherever used in this specification and other related documents will refer exclusively to Southwest Gas Corporation.



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® ENGINEERING STAFF

MATERIAL SPECIFICATION

Prepared By: Engineering Staff 

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Section No:	MS E-7
Page No.:	2 of 9
Issue Date:	02/05/19
Superseded Date:	02/08/17

SERVICE FITTINGS

Mechanical Tapping Tee, Standard

3. TERMINOLOGY (Cont'd)

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. MATERIAL AND MANUFACTURING

- 4.1 The plastic materials from which the tees are manufactured must be approved by SWG. The manufacturer will provide SWG with a complete specification of the materials and/or a Plastic Pipe Institute (PPI) listing number for each resin used in the manufacture of the fittings.
- 4.2 All fittings, made from PE, will be made from virgin material.
- 4.3 The plastic materials used in the fittings will be uniform in physical and chemical properties, and all components will be free of cracks, holes, foreign inclusions or other injurious defects.
- 4.4 The fittings will be clean and internally free of paint, dirt, sand and other debris.
- 4.5 The fittings shall contain suitable ultraviolet inhibitors so that their physical properties will not be adversely affected by exposure to natural ultraviolet light in locations throughout SWG’s service area for at least 1 year from the date of manufacture.
- 4.6 The material used for the cutter in the tapping tee will be steel.
- 4.7 The material for any O-rings used in the manufacture of the tapping tees will be either nitrile or Buna N.
- 4.8 The washers, screws and nuts will be manufactured from stainless steel unless otherwise approved by SWG.
- 4.9 Some method for retaining the pipe coupon generated by the tapping process will be designed into the tee and will be approved by SWG.
- 4.10 The tapping tee will utilize an approved coupling design on the service outlet.




SOUTHWEST GAS CORPORATION

® ENGINEERING STAFF

MATERIAL SPECIFICATION

Section No:	MS E-7
Page No.:	3 of 9
Issue Date:	02/05/19
Superseded Date:	02/08/17

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SERVICE FITTINGS

Mechanical Tapping Tee, Standard

4. MATERIALS AND MANUFACTURING (Cont'd)

- 4.11 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.
- 4.12 The cap will utilize an O-ring to prevent gas leakage.

5. PERFORMANCE REQUIREMENTS

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

MAIN SIZE Inches	OUTLET SIZE X WALL THICKNESS Inches
1 1/4	1/2 CTS X .090
1 1/4	1 CTS X .101
2	1/2 CTS X .090
2	1 CTS X .101
3	1/2 CTS X .090
3	1 CTS X .101
4	1/2 CTS X .090
4	1 CTS X .101
6	1/2 CTS X .090
6	1 CTS X .101

TABLE E-7.1




SOUTHWEST GAS CORPORATION

® ENGINEERING STAFF

MATERIAL SPECIFICATION

Section No:	MS E-7
Page No.:	4 of 9
Issue Date:	02/05/19
Superseded Date:	02/08/17

Prepared By: Engineering Staff 

Approved By: Jerome T. Schmitz 

SERVICE FITTINGS

Mechanical Tapping Tee, Standard

5. PERFORMANCE REQUIREMENTS (Cont'd)

5.5 The fittings 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	
	120°F (Ft. Lbs.)	49°C (N*m)
1 1/4	30	40.67
2	50	67.79
3	50	67.79
4	50	67.79
6	50	67.79

TABLE E-7.2

5.6 All mechanical fittings purchased by Southwest Gas will, at a minimum meet the requirements of ASTM F1924, Category 1.

6. DIMENSIONS AND TOLERANCES

6.1 The fittings will be designed for installation on both coiled and straight lengths of polyethylene pipe having the following outside dimensions:

NOMINAL PIPE SIZE Inches	O.D.	
	AVERAGE Inches	TOLERANCE Inches
1 1/4	1.660	±0.012
2	2.376	±0.012
3	3.500	±0.015
4	4.500	±0.015
6	6.625	±0.035

NOTE: Unless otherwise indicated, all dimensions are in inches.

TABLE E-7.3




SOUTHWEST GAS CORPORATION

® ENGINEERING STAFF

MATERIAL SPECIFICATION

Prepared By: Engineering Staff 

Approved By: Jerome T. Schmitz 

Section No:	MS E-7
Page No.:	5 of 9
Issue Date:	02/05/19
Superseded Date:	02/08/17

SERVICE FITTINGS

Mechanical Tapping Tee, Standard

6. DIMENSIONS AND TOLERANCES (Cont'd)

6.2 All approved tapping tees will produce a gas-tight seal to polyethylene pipe having the outside dimensions as stated in Section 6.1 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, products and systems referenced in this specification that are sold to SWG.

7.3 SWG will make appropriate inspections and test 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'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 and products 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.**



SOUTHWEST GAS CORPORATION

® ENGINEERING STAFF

MATERIAL SPECIFICATION

Section No:	MS E-7
Page No.:	6 of 9
Issue Date:	02/05/19
Superseded Date:	02/08/17

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SERVICE FITTINGS

Mechanical Tapping Tee, Standard

8. CERTIFICATION

The manufacturer's or supplier's certification will 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 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 the 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-581
P.O. Box 98510
Las Vegas, NV 89193-8510

10. PRODUCT MARKING

10.1 Marking on plastic fittings will comply with the marking requirements of ASTM F-1924. 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 "F-1924," material classification, serial number, manufacture date and temperature rating.

10.2 The temperature rating marking will be in accordance with ASTM F-1924, which consists of, at a 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.



SOUTHWEST GAS CORPORATION

® ENGINEERING STAFF

MATERIAL SPECIFICATION

Section No:	MS E-7
Page No.:	7 of 9
Issue Date:	02/05/19
Superseded Date:	02/08/17

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SERVICE FITTINGS

Mechanical Tapping Tee, Standard

10. PRODUCT MARKING (Cont'd)

- 10.3 A third code letter may be included which signifies the melt index. The first code letter must have a minimum of "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 pressure rating of 60 psig at 140°F (60°C).**
- 10.4 All polyethylene pipe extensions (pups) must have the pipe manufactured date visibly indicated on the pipe by the print line, label or another acceptable method that is clearly and completely readable.

11. PACKAGING AND PACKAGE MARKING


- 11.1 Seller will adequately prepare all 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 SWG will store the fittings indoors until they are transferred to the various gas crew trucks.



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MATERIAL SPECIFICATION

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Section No:	MS E-7
Page No.:	8 of 9
Issue Date:	02/05/19
Superseded Date:	02/08/17

SERVICE FITTINGS

Mechanical Tapping Tee, Standard

12. STOCK CLASSIFICATION DESCRIPTION

TEE, TAPPING, MADE WITH PLASTIC MATERIAL FOR SERVICE USE, BOLT-ON SADDLE STYLE INSTALLATION, _____-INCH IPS MAIN SIZE X _____-INCH CTS SRVICE SIZE WITH APPROVED COUPLING OUTLET AND _____-INCH CUTTER (MANUFACTURER NAME).