



SOUTHWEST GAS CORPORATION

® ENGINEERING STAFF

MATERIAL SPECIFICATION

Prepared By: Engineering Staff 

Approved By: Jerome T. Schmitz 

Section No:	MS B-19
Page No.:	1 of 9
Issue Date:	02/05/19
Superseded Date:	10/09/18

PIPE FITTINGS

Tube Fittings, Stainless Steel

1. SCOPE

This specification covers flareless stainless-steel tube fittings in sizes 1/4-inch, 3/8-inch and 1/2-inch used for joining instrument and control tubing. Also included are dielectric fittings used for insulating control tubing.

Tube fittings covered by this specification, when installed as a single component, may be installed without an installation pressure test.

2. APPLICABLE DOCUMENTS

- 2.1 American National Standards Institute (ANSI) B-1.20.1, "NPT American National Standard Taper Pipe Thread."
- 2.2 ASTM International (ASTM) A-182, "Standard Specification for Forged or Rolled Alloy and Stainless-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service."
- 2.3 ASTM International (ASTM) A-479, "Specification for Stainless and Heat-Resisting Steel Bars and Shapes for Use in Boilers and Other Pressure Vessels."
- 2.4 Southwest Gas Corporation Material Specification (MS) A-5, "Stainless Steel Tubing."
- 2.5 Title 49, Code of Federal Regulations (CFR), Title 49, Part 192, "Transportation of Natural and Other Gas by Pipeline; Minimum Safety Standards" (49 CFR 192).

NOTE: Unless otherwise specified, the editions of the documents 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.



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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 MANUFACTURE

- 4.1 Tube fittings will be flareless and manufactured from Type 316 stainless steel.
- 4.2 Tube fittings manufactured from steel forgings will meet the requirements of ASTM A-182.
- 4.3 Tube fittings manufactured from steel bar stock will meet the requirements of ASTM A-479.
- 4.4 All material used in tube fittings will be compatible with natural gas and agents commonly found in natural gas pipelines.
- 4.5 Tube fittings will be threaded in accordance with ANSI B-1.20.1.
- 4.6 Tube fittings will be free of burrs, dents and other injurious defects and imperfections.
- 4.7 Insulating tube fittings will have insulating material meeting the following requirements:
 - Dielectric strength of 400 volts per .001 inch (.0254 mm) of material.
 - A minimum of .002-inch (.0508 mm) of material.



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5. PERFORMANCE REQUIREMENTS

5.1 Tube fittings will not damage or weaken the tubing.

5.2 Tube fittings will have the following pressure ratings:

Size (Inches)	Minimum Pressure Rating (psig)
1/4	6,200
3/8	5,000
1/2	4,600

TABLE B-19.1

5.3 Tube fittings will not leak when subjected to vibration and pressures up to the maximum pressure rating.

5.4 Insulating tube fittings will meet the following requirements:

- Resistance across the insulating material of not less than 100,000 ohms.
- Resistance across the insulating material of not less than 1,000 ohms after immersion in tap water for 24 hours.
- No leakage when subjected to an air test of 150 psig after being temperature cycled over 120°F (49°C) range (i.e., 35°F – 155°F [1.67°C – 68.3°C]) three times.
- A maximum pressure rating of at least 2,000 psig.

5.5 All fittings will withstand a pressure test of 1,000 psig for at least one minute.

6. DIMENSIONS AND TOLERANCES

6.1 Tube fittings will meet the dimensional requirements as shown in Appendix A. Exceptions must be acceptable to and approved by SWG.

6.2 Tube fittings will be compatible with stainless steel tubing which meet the dimensional and tolerance requirements of SWG MS A-5.