



SOUTHWEST GAS CORPORATION

® ENGINEERING STAFF

MATERIAL SPECIFICATION

Section No:	MS B-13
Page No.:	1 of 7
Issue Date:	05/31/18
Superseded Date:	12/11/15

Prepared By: Engineering Staff 

Approved By: Jerome T. Schmitz 

PVC FITTINGS

Fittings, PVC

1. SCOPE

This specification covers polyvinylchloride (PVC) socket-type plastic fittings in sizes ½” through 2 inches in diameter in Schedule 40 and Schedule 80 dimensions. A separate pressure test is not required when installing these fittings.

2. APPLICABLE DOCUMENTS

- 2.1 ASTM International (ASTM) D1784, “Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.”
- 2.2 ASTM International (ASTM) D1785, “Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and 120.”
- 2.3 ASTM International (ASTM) D2466, “Standard Specification for Poly (Vinyl chloride) (PVC) Plastic Pipe Fittings, Schedule 40.”
- 2.4 ASTM International (ASTM) D2467, “Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.”
- 2.5 ASTM International (ASTM) D2513-87, “Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing and Fittings.”
- 2.6 Southwest Gas Corporation Operations Manual, “Pipe and Component Testing Procedure.”
- 2.7 Southwest Gas Corporation Material Specification SWG MS H-10, “PVC Solvent Cement and Cleaner.”
- 2.8 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 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. 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 Southwest to determine if the product is suitable for use by Southwest, unless specifically stated otherwise.

4. MATERIALS AND MANUFACTURING

- 4.1 The fittings shall be made of PVC Class 12454-B, 12454-C, 11443-B, or 114333-D plastic material. This material was formerly known as Type I, Grade 1; Type I, Grade 2; Type I, Grade 3; or Type II, Grade 1.
- 4.2 The fittings shall meet all the appropriate requirements of ASTM D1784, ASTM D1785, ASTM D2513, ASTM D2466 and ASTM D2467.
- 4.3 The fittings shall be homogeneous throughout and free of cracks, holes, foreign inclusions or other defects.
- 4.4 The fittings shall be uniform in chemical properties, color, opacity, density and other physical properties.
- 4.5 The fittings shall be clean and internally free of paint, dirt, sand and other debris.
- 4.6 The fittings shall be suitable for cement solvent joining with PVC cement and solvent as specified in SWG MS H-10.




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4. MATERIALS AND MANUFACTURING (Cont'd)

- 4.7 All polyethylene pipe extensions (pups) must have the pipe manufacture date visibly indicated on the pipe by print line, label or another acceptable method that is clearly and completely readable.
- 4.8 Upon delivery, the manufacture date of any PE components will not have exceeded 24 months.

5. PERFORMANCE REQUIREMENTS

- 5.1 The fittings will be designed for use in gas distribution systems in all class locations, at pressures up to 56 psig and at temperatures up to 140°F (60°C), either underground or in cased installations. All fittings must be capable of operating at 56 psig and 140°F (60°C) simultaneously.
- 5.2 The fittings will be designed so that no harmful or hazardous substances will be released into the gas and/or the ground.
- 5.3 All fittings considered for qualification by Southwest will be tested using the requirements outlined in ASTM D2513. Specifically, the following will be observed:
 - 5.3.1 Tests will include minimum hydrostatic burst pressure and sustained pressure.
 - 5.3.2 Each of the tests will be conducted on six specimens of each type and size of fitting.
 - 5.3.3 Failure on any test of two or more specimens for each classification will constitute a failure to meet this material specification for that fitting.
 - 5.3.4 Failure of a single specimen on any test will result in a retest of the classification.
 - 5.3.5 A failure in the retest group will result in the failure of the material per this specification.




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5. PERFORMANCE REQUIREMENTS (Cont'd)

5.4 The calculated minimum burst pressure at 73.4°F shall be as listed in Table B-13.1.

Calculated Minimum Burst Pressures at 73.4°F for PVC Schedule 40 and Schedule 80 Socket Fittings		
Diameter (Inches)	Schedule 40 (PSIG)	Schedule 80 (PSIG)
1/2	1490	2120
3/4	1210	1720
1	1130	1580
1 1/4	920	1300
1 1/2	830	1180
2	690	1010

TABLE B-13.1

6. DIMENSIONS AND TOLERANCES

The dimensions of the fittings shall meet the requirements of ASTM D2466 for Schedule 40 fittings and ASTM D2467 for Schedule 80 fittings.

7. INSPECTION

7.1 Successful review of the Product Information Package (PIP) as well as any future reference by Southwest 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 supplied to this specification at the manufacturer's facility.



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7. INSPECTION (Cont'd)

7.3 SWG will have the right, at their option, to reject 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 supplier's expense.

7.4 Any changes in design or manufacturing of previously approved materials, products or systems described in this material specification for sale to SWG must be approved by Southwest Engineering Staff. **Failure to obtain Southwest approval may be cause for rejection and disqualification as an approved supplier.**

8. 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.

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




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10. PRODUCT MARKING

Markings on the fittings will comply with the marking requirements of ASTM D2513-87. 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
- Material classification
- Serial number
- Manufacture date
- Temperature rating

11. PACKAGING AND PACKAGE MARKING

- 11.1 Seller will adequately prepare all fittings for shipment. Seller will furnish and install necessary covers to protect the fittings from sunlight, excessive heat, photochemical smog, rain, hail, wind, dust, etc.
- 11.2 Fittings will be adequately sealed and protected during shipment to prevent entrance of foreign matter and possible damage from rough handling during transit.
- 11.3 Packaging will facilitate safe handling and reshipment of the fittings between the stocking and user locations.
- 11.4 Pallet and package sizes will be determined and/or approved by Southwest Gas Corporate Purchasing Department.

12. STOCK CLASSIFICATION DESCRIPTION

CAP, POLYVINYLCHLORIDE, _____ INCH, SCHEDULE _____, SOCKET TYPE.

COUPLING, POLYVINYLCHLORIDE, STANDARD SOCKET, SCHEDULE _____, _____ INCH.

COUPLING, POLYVINYLCHLORIDE EXTRUDED EXTRA DEEP SOCKET, SCHEDULE _____, _____ INCH.