



SOUTHWEST GAS CORPORATION

® ENGINEERING STAFF

MATERIAL SPECIFICATION

Prepared By: Engineering Staff 

Approved By: Jerome T. Schmitz 

Section No:	MS M-12
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Issue Date:	03/01/16
Superseded Date:	02/25/15

METERS

Spools, Pre-Fabricated

1. SCOPE

This specification covers supplier-provided pre-fabricated Meter Set Assembly (MSA) spools in all sizes. All pre-fabricated spools covered by this specification are pre-qualified at the factory and may be installed as a single component 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 Petroleum Institute (API) Specification 5L, "Specification for Line Pipe."
- 2.3 American Petroleum Institute (API) Standard 1104, "Welding Pipelines and Related Facilities."
- 2.4 ASTM International (ASTM) A-53, "Standard Specification for Welded and Seamless Steel Pipe."
- 2.5 ASTM International (ASTM) A-105, "Specifications for Forged or Rolled Steel Pipe Flanges, Forged Fittings and Valves and Parts for High-Temperature Service."
- 2.6 ASTM International (ASTM) A-106, "Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service."
- 2.7 ASTM International (ASTM) A-181, "Specifications for Forged or Rolled Steel Pipe Flanges, Forged Fittings and Valves and Parts for General Service."
- 2.8 ASTM International (ASTM) G-6, "Standard Test Method for Abrasion Resistance of Pipeline Coatings."
- 2.9 Southwest Gas Corporation Design Standard (DS) C-3, "Materials Approved For Use: Pipe Coatings."
- 2.10 Southwest Gas Corporation Material Specification (MS) A-1, "Pipe & Tubing: Pipe, Line, API Specification 5L."
- 2.11 Southwest Gas Corporation Material Specification (MS) A-4, "Pipe & Tubing: Pipe, Steel, ASTM A-53 (Black)."
- 2.12 Southwest Gas Corporation Material Specification (MS) A-9, "Pipe & Tubing: Pipe, Steel, ASTM A-106, Grade B."



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2. APPLICABLE DOCUMENTS (Cont'd)

- 2.13 Southwest Gas Corporation Material Specification (MS) B-1, "Pipe Fittings: Flanges, Steel."
- 2.14 Southwest Gas Corporation Material Specification (MS) B-2, "Pipe Fittings: Fittings Butt-Welded Steel."
- 2.15 Southwest Gas Corporation Material Specification (MS) B-3, "Pipe Fittings: Fittings Forged Steel, Socket Weld."
- 2.16 Southwest Gas Corporation material Specification (MS) B-4, "Pipe Fittings: Pipe Nipples, Threaded and Weld End."
- 2.17 Southwest Gas Corporation Material Specification (MS) B-7, "Pipe Fittings: Forged Branch Outlet Fittings."
- 2.18 Southwest Gas Corporation Material Specification (MS) B-8, "Pipe Fittings: Swage Nipples and Bull Plugs."
- 2.19 Southwest Gas Corporation Material Specification (MS) H-6, "Gaskets and Sealants: Pipe Thread Compound."
- 2.20 Southwest Gas Corporation Material Specification (MS) O-32, "Miscellaneous: Epoxy Polyamide Primer."
- 2.21 Southwest Gas Corporation Operations manual, Welding Procedures.
- 2.22 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.



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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 information that a manufacturer must submit to SWG to determine if the product is suitable for use by SWG, unless specifically stated otherwise.
- 3.1.4 "Holidays," as defined by ASTM G-6, will mean small faults or pinholes which permit current drainage through protective coating on steel pipe.
- 3.1.5 The terms "pipe" or "tubing" will mean "pipe and tubing" unless specifically stated otherwise.

4. MATERIALS AND MANUFACTURING

- 4.1 Materials and manufacture of the spools are to be in accordance with the design drawing provided by Southwest. Material Specifications including approved suppliers for each item listed on the drawing will be provided by Southwest and are to be adhered to. Southwest Gas Engineering Staff approval is required for any substitutions. A general guideline of the Material Specifications is provided in Table M-12.1.
- 4.2 Steel piping used for flanged end spools will meet the requirements of SWG MA A-1 for API 5L or MS A-9 for ASTM A-106 pipe.



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4. MATERIALS AND MANUFACTURING (Cont'd)

- 4.3 Steel piping used for threaded end spools will meet the requirements of SWG MS B-4 using ASTM A-106, ASTM A-53 or API 5L pipe as indicated in MS B-4.
- 4.4 Threaded ends will be threaded in accordance with ANSI B-1.20.1.
- 4.5 Pipe thread compound and tape used on threaded connections will meet the requirements of SWG MS H-6.
- 4.6 Butt-welded steel ells, tees, reducers or caps will meet the requirements of SWG MS B-2.
- 4.7 Socket-weld steel couplings, half-couplings, ells, tees, crosses, caps and reducer inserts will meet the requirements of SWG MS B-3.
- 4.8 Steel swage nipples and bull plugs will meet the requirements of SWG MS B-8.
- 4.9 The spool will be primer coated and painted in accordance with SWG DS C-3 and MS O-32 or approved equivalent. Flange facings shall not be coated.
- 4.10 Flanges purchased to this specification will be manufactured, at a minimum, in accordance with SWG MS B-1. Materials shall be limited to ASTM A-105 and A-81. The required ANSI rating shall be specified on the supplied drawing of the particular spool.
- 4.11 Fabricated spools with flanges will have flanges aligned perpendicularly to the pipe and bolt holes will have standard horizontal alignment.
- 4.12 Forged branch outlet fittings, commonly referred to as "thread-o-lets," shall meet the requirements of SWG MS B-7. Installation on spools and other fittings shall be perpendicular to the fitting at the location specified.
- 4.13 Welding must meet the requirements of API 1104. All welds must meet the visual acceptance criteria of API 1104 and SWG Operations Manual Welding Procedures. SWG reserves the right to require manufacture welders be qualified and requalified by SWG personnel according to SWG procedures, which meet or exceed the requirements of API 1104.



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4. MATERIALS AND MANUFACTURING (Cont'd)

4.14 The fabricated spools manufactured under this specification are to be pre-qualified. Pre-qualification consists of subjecting each initial spool prototype size and configuration to a pressure test. Pressure testing requirements vary depending upon the pressure rating of the fittings in each particular spool. The lowest level of pre-qualification under this specification is the equivalent of an ANSI 150 rating which requires a minimum pressure test of 413 psig and a maximum pressure test of 425 psig. The pressure shall be held for a minimum duration of four hours using a chart. Unless specified otherwise, spools will be pre-qualified in accordance with this testing requirement. Records of the pre-qualification test shall be maintained indefinitely by the manufacturer. Once a pre-qualification test has been completed on a particular spool piece configuration, and changes to the manufacturing process or design of the fitting will be subject to re-qualification to these pre-qualification requirements.

5. PERFORMANCE REQUIREMENTS

The coating on the pipe will pass a jeep test performed by the manufacturer on the prototype and approved by SWG.

6. DIMENSIONS AND TOLERANCES

SWG will provide the spool designs to the supplier on or before placement of purchase order.

7. INSPECTION

7.1 Successful review of the 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.



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7. INSPECTION (Cont'd)

- 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 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 material 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.**

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) 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

Each spool shall be marked with the manufacturer's name or symbol, the SWG Item ID number and the date of manufacture and/or lot number.

11. PACKAGING AND PACKAGE MARKING

All products covered in this specification will be packaged in a manner to prevent damage during transportation and storage.

12. STOCK CLASSIFICATION DESCRIPTION

SPOOL, METER SET, PRE-FABRICATED