



# **SOUTHWEST GAS CORPORATION**

® ENGINEERING STAFF

## **MATERIAL SPECIFICATION**

*Prepared By:* Engineering Staff 

*Approved By:* Jerome T. Schmitz 

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<b>Issue Date:</b>	03/01/16
<b>Superseded Date:</b>	02/24/15

### **METERS**

Positive Displacement, Rotary

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#### **1. SCOPE**

This specification covers rotary-type displacement meters. The meters may be regular or temperature compensating.

#### **2. APPLICABLE DOCUMENTS**

- 2.1 American National Standards Institute (ANSI) B-1.20.1, "Pipe Threads, General Purpose (Inch)."
- 2.2 American National Standards Institute (ANSI) B-16.1, "Specification for Cast Iron Pipe Flanges and Flanged Fittings."
- 2.3 American National Standards Institute (ANSI) B-16.5, "Specification for Steel Pipe Flanges and Flanged Fittings."
- 2.4 American National Standards Institute (ANSI) B-109.3, "Specification for Gas Displacement Meters (500 cubic feet per hour capacity and under)."
- 2.5 American National Standards Institute (ANSI) Z-55.1, "Specification for Gray Finishes for Industrial Apparatus and Equipment."
- 2.6 United States Department of Transportation (DOT), Code of Federal Regulations, Title 49, Part 192, "Transportation of Natural 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.

#### **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.



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**3. TERMINOLOGY (Cont'd)**

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 The meters shall conform to ANSI B-109.3.

4.2 The meter shall be compatible with installation of an Itron ERT AMR device.

4.3 The inlet and outlet connections shall be flanges, conforming dimensionally to ANSI B-16.1 and ANSI B-16.5 or shall be threaded in accordance with ANSI B-1.20.1.

4.4 Taps will be provided for measurement of the differential pressure across the metering chamber.

4.5 The external components of the meter shall be made of, or protected by, materials resistant to attack by atmosphere, weather or sunlight and of agents used in meter repair and cleaning. The exteriors shall be capable of meeting or exceeding exterior performance requirements in ANSI B109.4.

4.6 Unless otherwise specified, all meters shall be coated with an Industrial Gray Coating No. 49 per ANSI Z-55.1. The paint application procedures and a description of the specific painting products to be used shall be submitted for approval.



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#### **5. PERFORMANCE REQUIREMENTS**

- 5.1 The case of each meter shall be tested to confirm that it does not leak when subjected to an internal pressure of 150 percent of its badged maximum allowable operating pressure for cast steel, cast or wrought aluminum and 200 percent of its badged maximum allowable operation pressure for cast and ductile iron.
- 5.2 Each assembled meter shall be tested to confirm that it does not leak when subjected to an internal pressure of 125 percent of its badged maximum allowable operating pressure.
- 5.3 Tests shall be made on each meter to confirm that it is accurate to 100 ±1 percent at flow rates, beginning at 10 percent of maximum rated flow.
- 5.4 Tests shall be made on each meter to establish its differential characteristics at 10 percent, 50 percent and 100 percent of flow rate. Using air at 1/4 psig, this differential shall not exceed 1.8 inches water column.
- 5.5 Tests shall be made on each meter to confirm that the minimum differential necessary to start rotation does not exceed 0.1 inches water column.

#### **6. DIMENSIONS AND TOLERANCES**

Positive displacement rotary meters manufactured to this specification will meet the dimension and tolerance requirements of ANSI B-109.3.

#### **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 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'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. Department. 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 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 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 98512  
Las Vegas, NV 89193-8510



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**10. PRODUCT MARKING**

The meters shall be supplied with a 5-digit digital counter, unless otherwise specified on the purchase order. The following options are approved for purchase:

- Instrument Drive
- Temperature Compensating
- Temperature Compensating with Instrument Drive
- Pulse Output
- Transmitter Output

**11. PACKAGING**

All products covered in this specification will be packaged to prevent damage during shipping.

**12. STOCK CLASSIFICATION DESCRIPTION**

METER, ROTARY, \_\_\_\_\_ (SIZE), \_\_\_\_\_ (INSTRUMENT DRIVE OR DIGITAL COUNTER), \_\_\_\_\_ (SIDE OR TOP) INLET POSITION (MANUFACTURER).