



SOUTHWEST GAS CORPORATION

ENGINEERING STAFF

MATERIAL SPECIFICATION

Prepared By: Engineering Staff 

Approved By: Jerome T. Schmitz 

Section No:	MS O-27
Page No.:	1 of 7
Issue Date:	03/01/16
Superseded Date:	02/25/15

MISCELLANEOUS

Digital Pressure Standards

1. SCOPE

This specification covers Digital Pressure Gauges used as Standards with traceability to NIST and certified at periodic intervals. Devices within this specification use integral pressure transducers which respond to pressure and indicate numerically. These devices are typically used at Southwest Gas Corporation (SWG) by Measurement & Controls Technicians for pressure verification, calibration work and other field duties requiring the use of a precision pressure reference. This specification applies to:

- Primary Standards
- Shop Standards
- Field Operating Standards
- Differential Pressure Testers

2. APPLICABLE DOCUMENTS

- 2.1 ASME B40.100-2005 Pressure Gauges and Gauge Attachments, Part 7: Gauges: Pressure Digital Indicating. (B40.7)
- 2.1 United States Department of Transportation (DOT), Code of Federal Regulations (CFR), 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.

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.



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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 information that a manufacturer must submit to Southwest Gas to determine if the product is suitable for use by Southwest Gas, unless specifically stated otherwise.

4. MATERIALS AND MANUFACTURING

4.1 Connections

4.1.1 The device shall be fitted with a 1/4” MNPT or 1/8” MNPT connection(s) located at the bottom of the gauge.

4.1.2 The wetted components of the device shall be compatible with natural gas.

4.2 Power

4.2.1 The device shall be battery powered.

4.2.2 If supplied with a rechargeable battery type, a suitable battery charger to operate from a 110 VAC power source will be supplied.

4.3 Media and Location Use

4.3.1 The device shall operate properly in air and natural gas typical of that found in transmission and distribution systems.

4.3.2 The device shall have UL or FM approval for use in Class I, Division 2, Group D locations.



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5. PERFORMANCE REQUIREMENTS

- 5.1 The device shall be suitable for general field use and capable of withstanding normal amounts of vibration associated with vehicular travel.
- 5.2 The device shall operate satisfactorily under ambient temperature conditions from 30°F-130°F.
- 5.3 Must be capable of sustaining minimum overpressure valves without damage to the instruments at 130% of span for gauges up to 1000 psig and 110% for gauges over 1000 psig.

6. ACCURACY REQUIREMENTS

6.1 Pressure Standard (Gauge Pressure)

6.1.1 Primary:

- Accuracy Grade 5A:0.05%F (Full Scale).
- Calibration documentation traceable to NIST.

6.1.2 Shop:

- Accuracy Grade 4A:0.1%F (Full Scale).
- Certificate of Calibration by Manufacturer (NIST traceability not required).

6.1.3 Field:

- Accuracy Grade 3A: 0.25%F (Full Scale).
- Certificate of Calibration by Manufacturer (NIST traceability not required).



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6. ACCURACY REQUIREMENTS (Cont'd)

6.2 Accuracy Requirements for Differential Testers (Differential Pressure)

6.2.1 Primary:

- Accuracy Grade 2A:0.5% of Full Scale
- Calibration documentation traceable to NIST.

6.2.2 Shop:

- Accuracy Grade B: 1% of Full Scale
- Certificate of Calibration by Manufacturer (NIST traceability not required).

6.2.3 Field:

- Accuracy Grade B:2% of Full Scale
- Certificate of Calibration by Manufacturer (NIST traceability not required).

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 supplied to SWG under this specification.

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. The defective product will be replaced or returned for credit at the manufacturer's expense.



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7. INSPECTION (Cont'd)

7.4 Any changes in the manufacturing of previously approved products, 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 98510
Las Vegas, NV 89193-8510



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10. PRODUCT MARKING

All materials, products or systems sold to Southwest will be marked with the following:

- Manufacturer's name or trademark
- Manufacturer's part 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

GAUGE, DIGITAL, (OTHER INFORMATION), (ACCURACY RATING) PERCENT
ACCURACY, (PRESSURE RANGE) PSIG.