



SOUTHWEST GAS CORPORATION

ENGINEERING STAFF

MATERIAL SPECIFICATION

Prepared By: Engineering Staff 

Approved By: Jerome T. Schmitz 

Section No.:	MS Q-2
Page No.:	1 of 7
Issue Date:	03/01/16
Superseded Date:	02/25/15

ELECTRONIC MEASUREMENT

Thermowells

1. SCOPE

This specification covers thermowells for electronic temperature probes used for distribution and transmission facilities.

All thermowells 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, "Pipe Threads General Purpose (INCH)."
- 2.2 American National Standards Institute (ANSI) B-16.11, "Forged Fittings, Socket-Welding and Threaded."
- 2.3 ASTM International (ASTM) A-182, "Specification for Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High Pressure."
- 2.4 Manufacturers Standardization Society (MSS) SP-25, "Standard Marking System for Valves, Fittings, Flanges and Unions."
- 2.5 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.

3. TERMINOLOGY

General

- 3.1 "Southwest Gas," "Southwest" or "SWG" wherever used in this specification and other related documents will refer exclusively to Southwest Gas Corporation.
- 3.2 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.



SOUTHWEST GAS CORPORATION

ENGINEERING STAFF

MATERIAL SPECIFICATION

Prepared By: Engineering Staff 

Approved By: Jerome T. Schmitz 

Section No.:	MS Q-2
Page No.:	2 of 7
Issue Date:	03/01/16
Superseded Date:	02/25/15

ELECTRONIC MEASUREMENT

Thermowells

3. TERMINOLOGY (Cont'd)

3.1 "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 Thermowells manufactured to this specification shall be made of 304 or 316 stainless steel manufactured, as a minimum, in accordance with ANSI B-16.11 and ASTM A-182, and shall be threaded in accordance with ANSI B-1.20.1.

4.2 Thermowells manufactured to this specification will be designed for a minimum pressure rating of 3000 psig.

4.3 All fittings will be marked in accordance with MSS SP-25.

5. PERFORMANCE REQUIREMENTS

All thermowells under this specification will be capable of withstanding a leak test at a pressure level not less than 1.5 times the maximum operating pressure.

6. DIMENSIONS AND TOLERANCES

Dimensions and tolerances will be in accordance with Appendix A and C of this specification.

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.



SOUTHWEST GAS CORPORATION

ENGINEERING STAFF

MATERIAL SPECIFICATION

Prepared By: Engineering Staff 

Approved By: Jerome T. Schmitz 

Section No.:	MS Q-2
Page No.:	3 of 7
Issue Date:	03/01/16
Superseded Date:	02/25/15

ELECTRONIC MEASUREMENT

Thermowells

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. 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 thermowells covered under this document 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 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



SOUTHWEST GAS CORPORATION

ENGINEERING STAFF

MATERIAL SPECIFICATION

Prepared By: Engineering Staff 

Approved By: Jerome T. Schmitz 

Section No.:	MS Q-2
Page No.:	4 of 7
Issue Date:	03/01/16
Superseded Date:	02/25/15

ELECTRONIC MEASUREMENT

Thermowells

10. PRODUCT MARKING

All thermowells sold to Southwest will be marked with the manufacturer's name or trademark and the manufacturer's part number.

11. PACKAGING AND PACKAGE MARKING

All thermowells will be packaged in a manner to prevent damage during transportation and storage.

12. STOCK CLASSIFICATION DESCRIPTION

THERMOWELL, THREADED, _____ INCH LONG "U" DIMENSION (INSERTION LENGTH), (STRAIGHT, TAPERED OR STEPPED), _____ INCH NPT FEMALE INSTRUMENT CONNECTION AND _____ INCH NPT MALE PROCESS CONNECTION (304 OR 316 SS), FOR USE ON _____-INCH THROUGH _____ INCH PIPE.

APPROVED RANGES FOR INSERTION LENGTH

- 1.6-inch Straight Stem only for use with 2-inch pipe.
- 2.5-inch Straight Stem only for use with 4-inch to 6-inch pipe.
- 4.5-inch Straight Tapered or Stepped Stem only for use with 8-inch to 10-inch pipe.
- 7.5-inch Tapered or Stepped Stem only for use with 12-inch to 16-inch pipe.
- 10.5-inch Tapered or Stepped Stem only for use with 20-inch to 24-inch pipe.



SOUTHWEST GAS CORPORATION

ENGINEERING STAFF

MATERIAL SPECIFICATION

Prepared By: Engineering Staff

Approved By: Jerome T. Schmitz

Section No.:	MS Q-2
Page No.:	6 of 7
Issue Date:	03/01/16
Superseded Date:	02/25/15

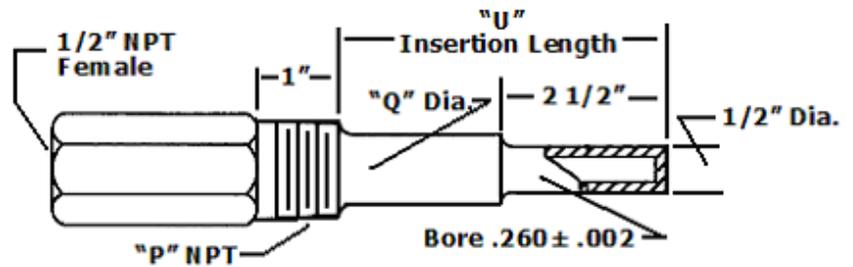
ELECTRONIC MEASUREMENT

Thermowells

APPENDIX A

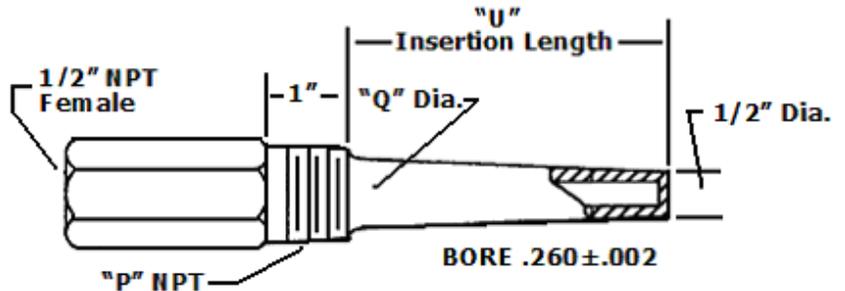
STEPPED STYLE

THE RMOWELL THREADED STEPPED	
Nominal Pipe Size 'P' Inches	Shank Diameter 'Q' Inches
1/2	5/8
3/4	3/4
1	7/8



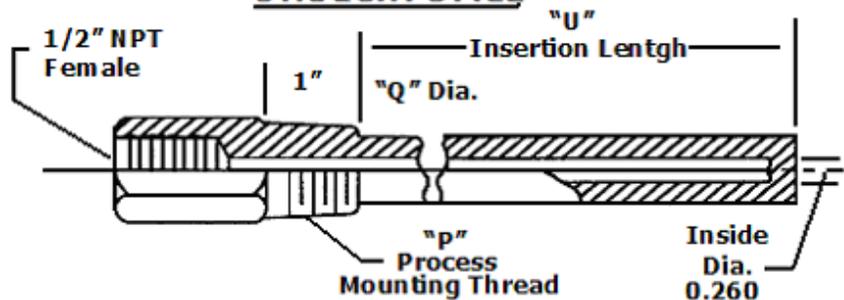
TAPERED STYLE

THE RMOWELL THREADED TAPERED	
Nominal Pipe Size 'P' Inches	Shank Diameter 'Q' Inches
3/4	7/8
1	1-1/16



STRAIGHT STYLE

THE RMOWELL THREADED TAPERED	
Nominal Pipe Size 'P' Inches	Shank Diameter 'Q' Inches
1/2	5/8
3/4	3/4
1	7/8





SOUTHWEST GAS CORPORATION

ENGINEERING STAFF

MATERIAL SPECIFICATION

Prepared By: Engineering Staff *[Signature]*

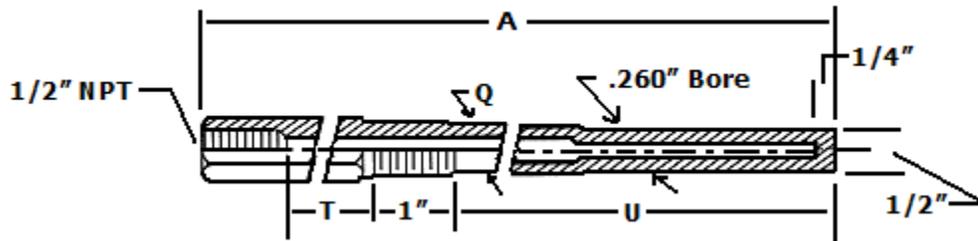
Approved By: Jerome T. Schmitz *[Signature]*

Section No.:	MS Q-2
Page No.:	7 of 7
Issue Date:	03/01/16
Superseded Date:	02/25/15

ELECTRONIC MEASUREMENT

Thermowells

APPENDIX B



STANDARD BI-MET THERMOWELLS								
External Thread P	Code Number	Stem Length A	Insert Length U	Lag Ext. T	Shank Diameter Q			
1/2" NPT	1/2" - BL260 -U 2 1/2 T3	6	2-1/2	2				
	-U 4 1/2 T3	9	4-1/2	3	5/8			
	-U 7 1/2 T3	12	7-1/2	3	5/8			
	-U 10 1/2 T3	15	10-1/2	3	5/8			
	-U 13 1/2 T3	18	13-1/2	3	5/8			
	-U 19 1/2 T3	24	19-1/2	3	5/8			