

STR700 SmartLine Remote Diaphragm Seals Specification 34-ST-03-124, November 2016



Introduction

Part of the SmartLine® family of products, the STR700 is suitable for monitoring, control and data acquisition. STR700 products feature piezoresistive sensor technology combining pressure sensing with on chip temperature compensation capabilities providing high accuracy, stability and performance over a wide range of application pressures and temperatures.

The SmartLine family is also fully tested and compliant with Experion® PKS providing the highest level of compatibility assurance and integration capabilities. SmartLine easily meets the most demanding application needs for pressure measurement applications.

Best in Class Transmitter Features:

- Accuracies up to 0.075% Span standard
- Automatic static pressure & temperature compensation
- Rangeability up to 100:1
- Easy to use and intuitive display capabilities
- Intuitive External zero, span, & configuration capability
- Comprehensive on-board diagnostic capabilities
- Integral Dual Seal design for highest safety based on ANSI/NFPA 70-202 and ANSI/ISA 12.27.0
- World class overpressure protection
- Full compliance to SIL 2/3 requirements.

Remote Seal/Transmitter Span & Range Limits:

Model	URL psid (bar)	LRL psid (bar)	Max Span psid (bar)	Min Span psid (bar)
STR735D	100 (7.0)	-100 (-7.0)	100 (7.0)	0.9 (0.062)
Model	psig (bar)	psig (bar)	psig (bar)	psig (bar)
STR745G	500 (35.0)	-14.7 (-1.0)	500 (35.0)	5 (0.35)



Figure 1 – STR700 Remote Diaphragm Seal Unit

Typical Diaphragm Seal applications

- High Process Temperatures
- Viscous or Suspended Solids
- Highly Corrosive Process Materials
- Sanitary Applications
- Applications with Hydrogen Permeation Possibilities
- Level Applications with Maintenance Intensive Wet Legs
- Applications requiring remote Transmitter Mounting
- Tank Applications with Density or Interface Measurements

Communications/Output Options:

- HART® (version 7.0)

Description

The SmartLine family pressure transmitters are designed around a high performance piezo-resistive sensor. This one sensor actually integrates multiple sensors linking process pressure measurement with on-board static pressure (DP Models) and temperature compensation measurements.

Indication/Display Option

Standard LCD Display Features

- o Modular (may be added or removed in the field)
- o Supports HART protocol variant
- o 0, 90, 180, & 270 degree position adjustments
- o Configurable (HART only) and standard (Pa, KPa, MPa, KGcm2, Torr, ATM, mH₂O, bar, mbar, inH₂O, inHG, FTH₂O, mmH₂O, mm HG, & psi) measurement units.
- o Supports Flow engineering units
- o 2 Lines 6 digits PV (9.95H x 4.20W mm) 8 Characters
- o Square root output indication (√) and Write protect Indication
- o Built in Basic Device Configuration through Internal Buttons – Range/Engineering Unit/Loop Test /Loop Calibration/Zero /Span Setting

Diagnostics

SmartLine transmitters all offer digitally accessible diagnostics which aid in providing advanced warning of possible failure events minimizing unplanned shutdowns, providing **lower overall operational costs**

System Integration

- o SmartLine communications protocols all meet the most current published standards for HART.
- o All ST 700 units are Experion tested to provide the highest level of compatibility assurance

Configuration Tools

External Two Button Configuration Option

Suitable for all electrical and environmental requirements, SmartLine offers the ability to configure the transmitter and display, for all basic parameters, via two externally accessible buttons when a display option is selected. Zero/span capabilities are also optionally available via two external buttons with or without selection of the display option.

Internal Two Button Configuration Option

The Standard display has two buttons that can be used for Basic configuration such as re ranging, PV Engineering unit setting, Zero/Span settings, Loop testing and calibration functions.

Hand Held Configuration

SmartLine transmitters feature two-way communication and configuration capability between the operator and the transmitter. This is accomplished via Honeywell's field-rated Multiple Communication Configurator (MCT404).

The MCT404 is capable of field configuring HART Devices and can also be ordered for use in intrinsically safe environments. All Honeywell transmitters are designed and tested for compliance with the offered communication protocols and are designed to operate with any properly validated hand held configuration device.

Personal Computer Configuration

Field Device Manager (FDM) Software and FDM Express are also available for managing HART configurations.

Modular Design

To help contain maintenance & inventory costs, all ST 700 transmitters are modular in design supporting the user's ability to replace meter bodies, standard displays or electronic modules without affecting overall performance. Each meter body is uniquely characterized to provide intolerance performance over a wide range of application variations in temperature and pressure.

Modular Features

- Meter body replacement
- Add or remove standard displays
- Add or remove lightning protection (terminal connection)

With no performance effects, Honeywell's unique modularity results in lower inventory needs and lower overall operating costs.

Performance Specifications

Reference Accuracy (conformance to +/-3 Sigma)

Model	URL	LRL	Min Span	Maximum Turndown Ratio	Reference Accuracy ^{1,2} (% Span)
STR735D	100 psid/7.0 bar	-100 psi/-7.0bar	0.9 psi/.062bar	100:1	0.075
STR745G	500 psi/35 bar	-14.7 psi/-1.0 bar	5 psi/.035 bar	100:1	0.075

Zero and span may be set anywhere within the listed (URL/LRL) range limits

		Accuracy ^{1,2} (% of Span)				Temperature Effect ³ (% Span/50°F)		
Model	URL	Turn down greater than	A	B	C psi(bar)	D	E	F psi(bar)
STR735D	100 psi/7.0 bar	22:1	0.0250	0.050	4.52 (0.311)	0.275	1.200	9.0 (0.622)
STR745G	500 psig/35 bar	20:1	0.0250	0.050	25 (1.7)			
		Turn Down Effect $\pm \left[A + B \left(\frac{C}{\text{Span}} \right) \right]$ % Span				Temp Effect $\pm \left[D + E \left(\frac{F}{\text{Span}} \right) \right]$ % Span per 28°C (50°F)		

Accuracy at Specified Span, Temperature and Static Pressure: (conformance to +/-3 Sigma)

Total Performance (% of Span):

$$\text{Total Performance} = \pm \sqrt{(\text{Accuracy})^2 + (\text{Temp Effect})^2}$$

Total Performance Examples: (5:1 Turndown, up to 50 °F shift)

STR735D @ 20 psid: 1.48% of span

Typical Calibration Frequency:

Calibration verification is recommended every four (4) years

Notes:

1. Terminal Based Accuracy – Includes combined effects of linearity, hysteresis, and repeatability. Analog output adds 0.006% of span.
2. For zero based spans and reference conditions of 25°C (77°F), 0 psi static pressure for DP, >= 0 psia for GP, 10 to 55% R.H, and 316 Stainless Steel barrier diaphragms
3. Specification applies to transmitter with 2 balanced remote seals. Apply a factor of 1.5 for temperature effect of capillary lengths greater than 10 feet.

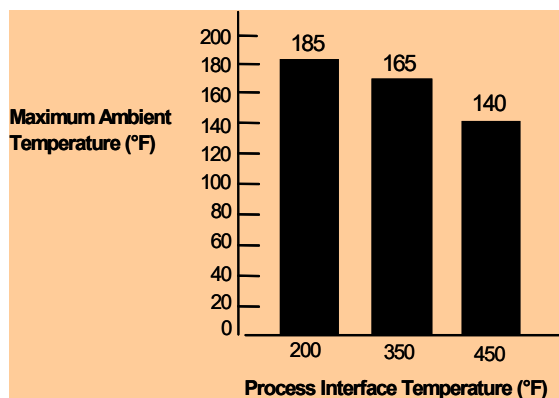
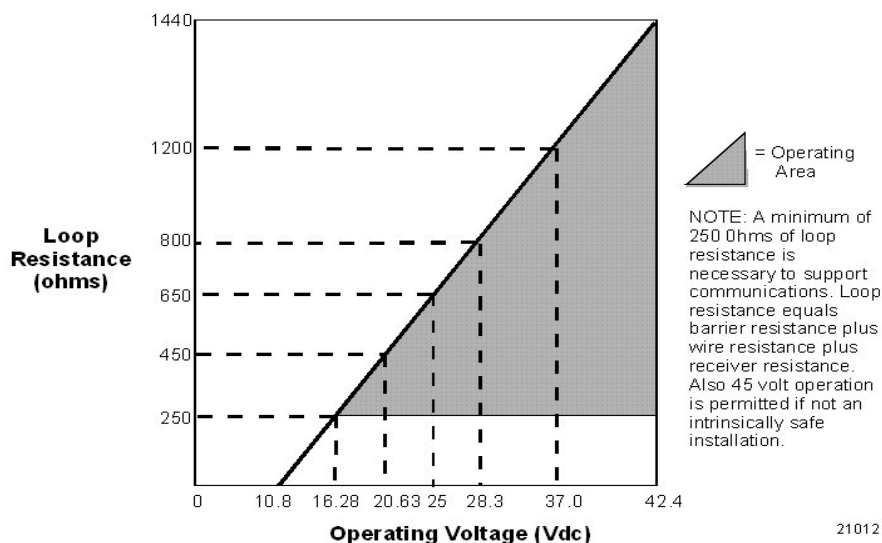
Operating Conditions – All Models

Parameter	Reference Condition (at zero static)		Rated Condition		Operative Limits		Transportation and Storage							
	°C	°F	°C	°F	°C	°F	°C	°F						
Ambient Temperature ¹	25±1	77±2	-	-	-	-	-55 to 90	-67 to 194						
Humidity %RH	10 to 55		0 to 100		0 to 100		0 to 100							
Vacuum Region, Minimum Pressure mmHg absolute	Atmospheric (See Figure 4 for vacuum limitation)													
Supply Voltage, Current, and Load Resistance	10.8 to 42.4 Vdc at terminals (IS versions limited to 30 Vdc) 0 to 1,440 ohms (as shown in Figure 2)													
Maximum Allowable Working Pressure (MAWP) ⁴ (ST 700 products are rated to Maximum Allowable Working Pressure. MAWP depends on Approval Agency and transmitter materials of construction.)	MAWP is minimum of Body Rating or Seal Rating (See Model Selection Guide for Seal MAWP) <table><tr><td>Body</td><td>MAWP</td></tr><tr><td>STR735D</td><td>750 psig (51.7 bar) Bolted Process Heads</td></tr><tr><td>STR745G</td><td>500 psig (35 bar)</td></tr></table>								Body	MAWP	STR735D	750 psig (51.7 bar) Bolted Process Heads	STR745G	500 psig (35 bar)
Body	MAWP													
STR735D	750 psig (51.7 bar) Bolted Process Heads													
STR745G	500 psig (35 bar)													

¹ Ambient Temperature Limit is a function of Process Interface Temperature. (See Figures 3 & 4)

LCD Display operating temperature -20°C to +70°C . Storage temperature -30°C to 80°C

⁴ Consult factory for MAWP of ST 700 transmitters with CRN approval.



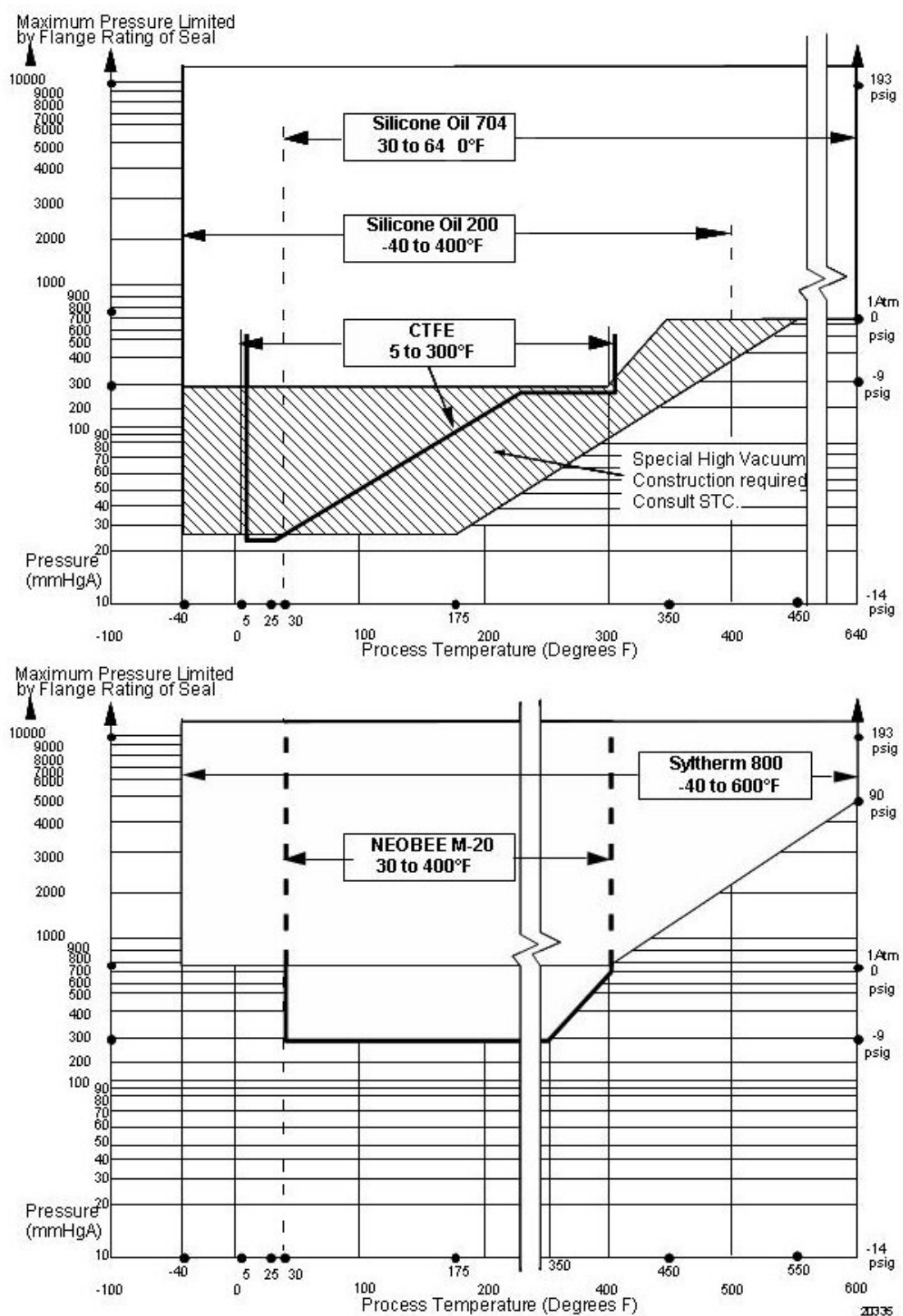


Figure 4 - STR700 Remote Seals operable limits for pressure vs. temperature

Performance Under Rated Conditions – All Models

Parameter	Description									
Analog Output	Two-wire, 4 to 20 mA									
Digital Communications:	HART 7 protocol									
HART Output Failure Modes	<table><tr><th></th><th>Honeywell Standard:</th><th>NAMUR NE 43 Compliance:</th></tr><tr><td>Normal Limits:</td><td>3.8 – 20.8 mA</td><td>3.8 – 20.5 mA</td></tr><tr><td>Failure Mode:</td><td>≤ 3.6 mA and ≥ 21.0 mA</td><td>≤ 3.6 mA and ≥ 21.0 mA</td></tr></table>		Honeywell Standard:	NAMUR NE 43 Compliance:	Normal Limits:	3.8 – 20.8 mA	3.8 – 20.5 mA	Failure Mode:	≤ 3.6 mA and ≥ 21.0 mA	≤ 3.6 mA and ≥ 21.0 mA
	Honeywell Standard:	NAMUR NE 43 Compliance:								
Normal Limits:	3.8 – 20.8 mA	3.8 – 20.5 mA								
Failure Mode:	≤ 3.6 mA and ≥ 21.0 mA	≤ 3.6 mA and ≥ 21.0 mA								
Supply Voltage Effect	0.005% span per volt.									
Transmitter Turn on Time (includes power up & test algorithms)	2.5 sec.									
Damping Time Constant	Adjustable from 0 to 32 seconds in 0.1 increments. Default: 0.50 seconds									
Electromagnetic Compatibility	IEC 61326-3-1									
Lightning Protection Option	Leakage Current: 10uA max @ 42.4VDC 93C Impulse rating: 8/20uS 5000A (>10 strikes) 10000A (1 strike min.) 10/1000uS 200A (> 300 strikes)									

Materials Specifications (see model selection guide for availability/restrictions with various models)

Parameter	Description
Process Interface	See Model Selection Guide for Material Options for desired seal type.
Seal Barrier Diaphragm	316L Stainless Steel, Monel®, Hastelloy® C, Tantalum
Seal Gasket Materials	Klinger C-4401 (non-asbestos) Grafoil®, Teflon®, Gylon 3510®
Mounting Bracket	Carbon Steel (Zinc-Chromate plated) or 304 Stainless Steel or 316 Stainless Steel.
Fill Fluid (Meter Body)	Silicone 200 S.G. @ 25°C = 0.94 CTFE (Chlorotrifluoroethylene) S.G. @ 25°C = 1.89
Fill Fluid (Secondary)	Silicone 200 S.G. @ 25°C = 0.94 CTFE (Chlorotrifluoroethylene) S.G. @ 25°C = 1.89 Silicone 704 S.G. @ 25°C = 1.07 Syltherm 800® S.G. @ 25°C = 0.90 NEOBEE M-20® S.G. @ 25°C = 0.93
Electronic Housing	Pure Polyester Powder Coated Low Copper (<0.4%)-Aluminum. Meets NEMA 4X, IP66, & P67. All stainless steel housing is optional.
Capillary Tubing	Material: Armored Stainless Steel or PVC Coated Armored Stainless Steel. Length: 5, 10, 15, 20, 25, and 35 feet (1.5, 3, 4.6, 6.1, 7.5, and 10.7 meters). A 2 inch (51 millimeter) S.S. close-coupled nipple is also available. See Model Selection Guide. Refer to Table 1 for guide to maximum capillary length vs. diaphragm diameter. Note: The minimum span is the higher of the higher of the value from the table above or the value defined under the Performance Conditions for the range transmitter.
Wiring	Accepts up to 16 AWG (1.5 mm diameter)
Mounting	See Figure 5
Dimensions	Transmitter: Figure 6 and Figure 7 Seal: Figure 8 through to Figure 13
Net Weight	Transmitter: 8.3 pounds (3.8 Kg). With Aluminum Housing. Total weight is dependent on seal

NOTE: Pressure transmitters that are part of safety equipment for the protection of piping (systems) or vessel(s) from exceeding allowable pressure limits, (equipment with safety functions in accordance with Pressure Equipment Directive 97/23/EC article 1, 2.1.3), require separate examination.

MINIMUM RECOMMENDED SPAN FOR STR735D TRANSMITTER WITH TWO SEALS

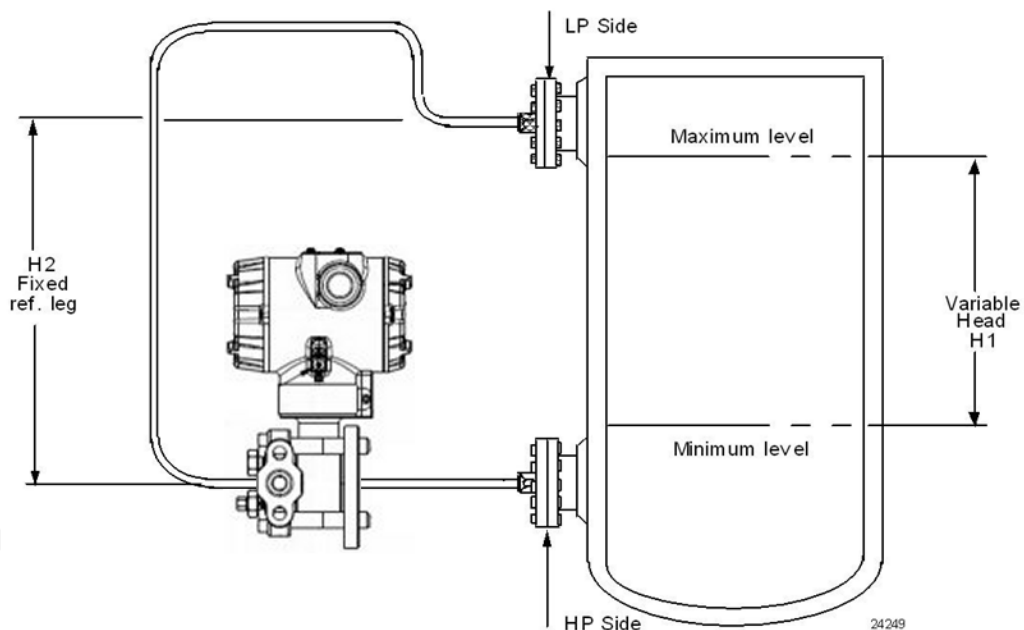
Diaphragm Size (Inch)	Capillary Length (Feet)						Maximum Capillary Length (Feet)
	5	10	15	20	25	35	
1.9	15 psi	20 psi	25 psi	-	-	-	15
2.4	5.4 psi	7.2 psi	9.0 psi	10.8 psi	12.6 psi	14.4 psi	35
2.9	1.8 psi	2.7 psi	3.6 psi	4.5 psi	5.4 psi	7.2 psi	35
3.5	0.9 psi	0.9 psi	0.9 psi	1.0 psi	1.2 psi	1.4 psi	35
4.1	0.9 psi	0.9 psi	0.9 psi	0.9 psi	0.9 psi	1.1 psi	35

MINIMUM RECOMMENDED SPAN FOR STR745G AND STR735D TRANSMITTER WITH ONE REMOTE SEAL

Diaphragm Size (Inch)	Direct Mount	Capillary Length (Feet)						Maximum Capillary Length (Feet)
		5	10	15	20	25	35	
1.9	25 psi	30 psi	40 psi	50 psi	-	-	-	15
2.4	10 psi	15 psi	20 psi	25 psi	30 psi	35 psi	50 psi	35
2.9	8 psi	9 psi	10 psi	11 psi	12 psi	13 psi	15 psi	35
3.5	2 psi	2 psi	3 psi	4 psi	5 psi	6 psi	8 psi	35
4.1	0.9 psi	0.9 psi	1 psi	2 psi	3 psi	3.5 psi	5 psi	35

Note: The minimum span is the higher of the higher of the value from the table above or the value defined under the Performance Conditions for the range transmitter.

Table 1 – Typical Maximum capillary length and diaphragm size chart

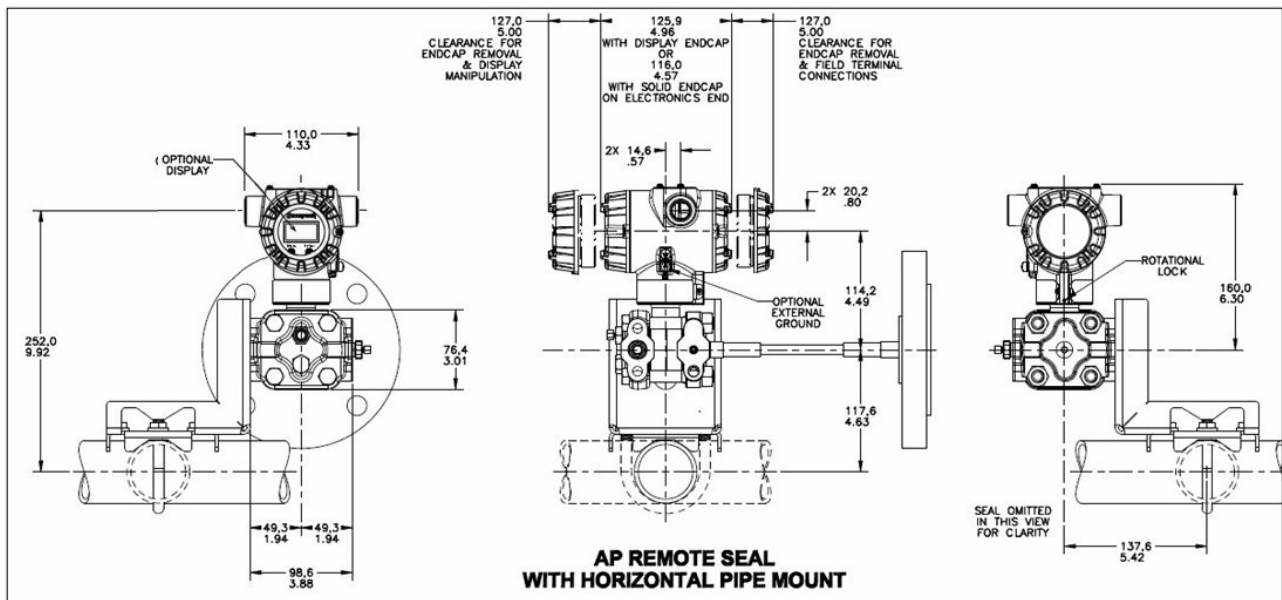
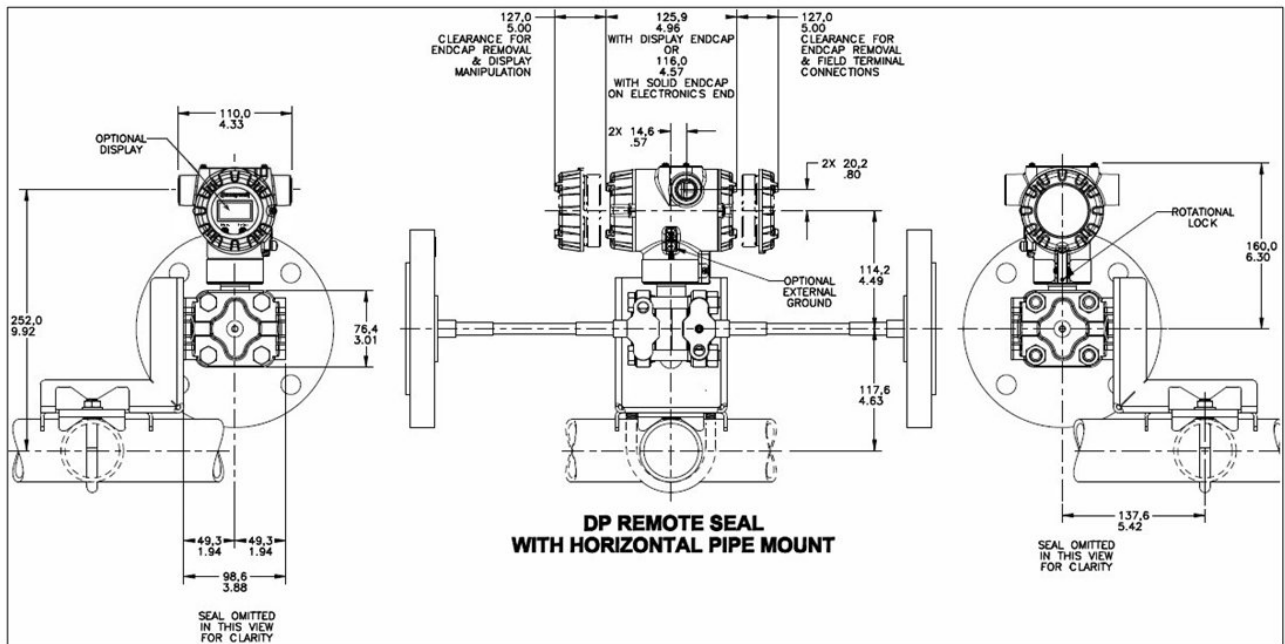


NOTE: Lower flange seal should not be mounted over 22 feet below or above the transmitter for silicone fill fluid (11 feet for CTFE fill fluid) with tank at one atmosphere. The combination of tank vacuum and high pressure capillary head effect should not exceed 9 psi vacuum (300 mmHg absolute).

Consult Honeywell for installation of STR735D

Figure 5 - STR700 transmitter with remote diaphragm seals shown mounted on a tank

Reference Dimensions Horizontal Mounting



Reference Dimensions Horizontal Mounting (cont'd)

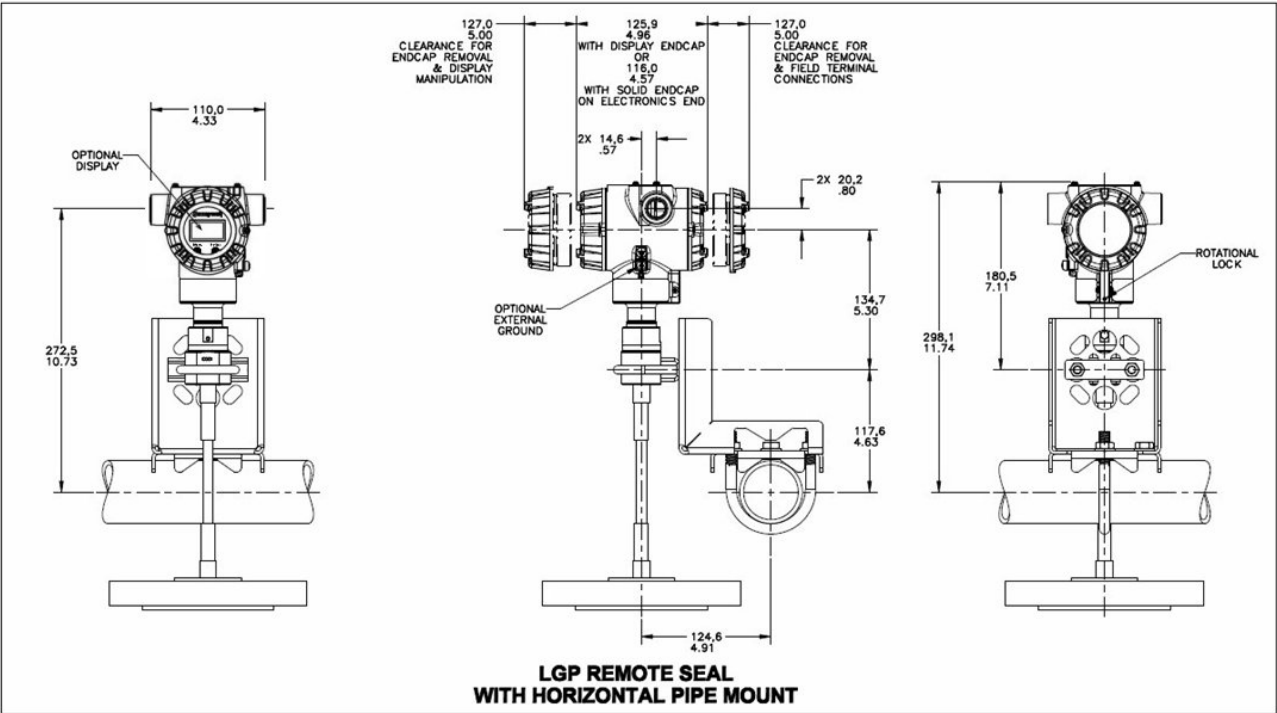
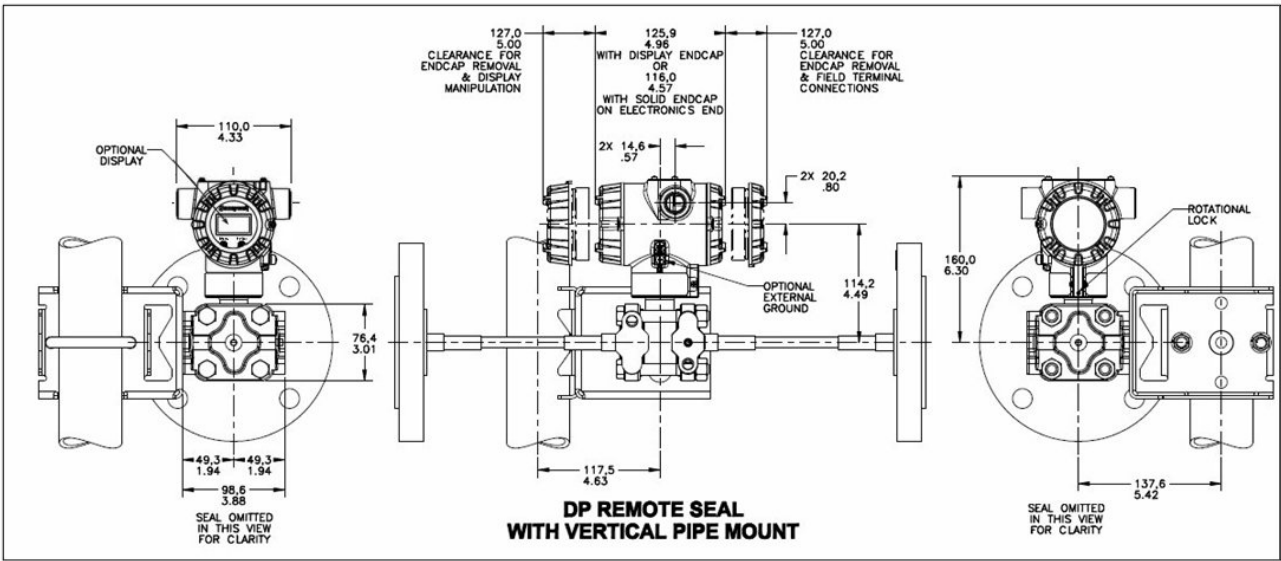


Figure 6 - Approximate Horizontal Mounting Dimensions for Remote Seal Transmitter

Reference Dimensions Vertical Mounting



Reference Dimensions Vertical Mounting (cont'd)

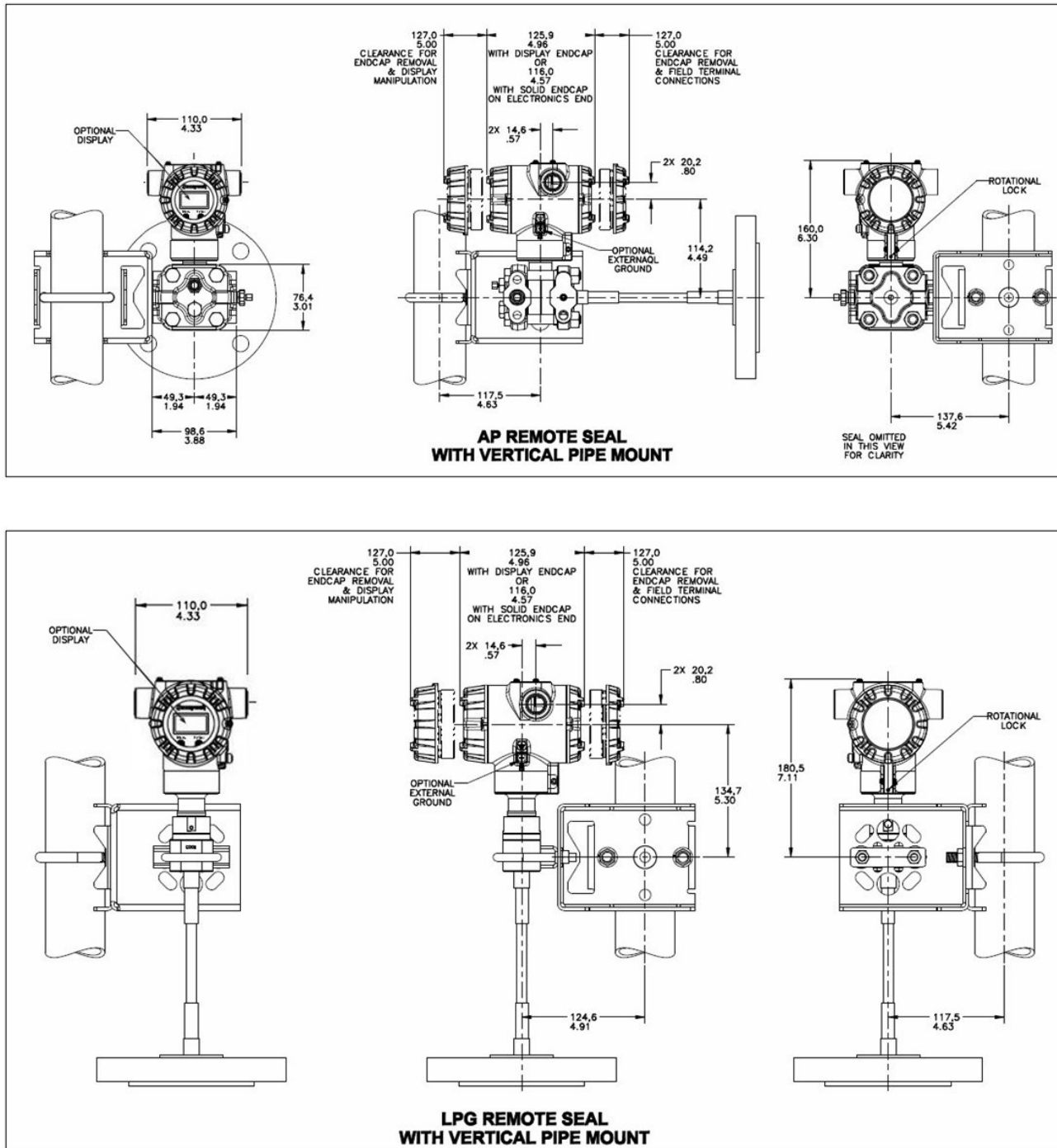
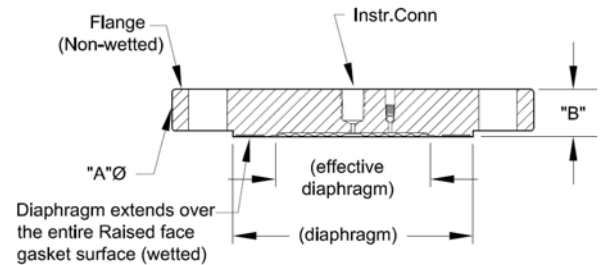


Figure 7 — Approximate vertical mounting dimensions for Remote Seal Transmitter

Reference Dimensions (cont'd)

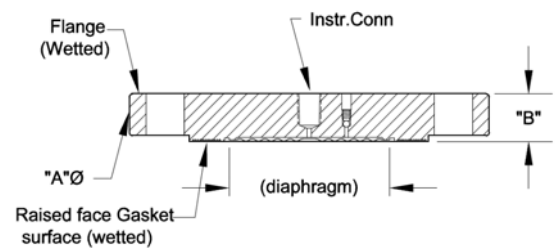
Flush Flanged Seal Dimensions

Type	ANSI/DIN Rating	Flange Material	Wetted Materials		Construction See figure	↔	
			Diaphragm	Body		A	B
Flush Flanged Seal	3" Class 150#	CS	SS	SS	D	7.5	1.37
			Hastelloy C	SS	C		
			Hastelloy C	Hastelloy C	D		
			Monel	Monel	D		
		SS	Tantalum	SS	C		
			SS	N/A	B		
	3" Class 300#	CS	Hastelloy C	SS	A	7.50	0.94
			Hastelloy C	Hastelloy C	D		1.37
			Monel	Monel	D		
			Tantalum	SS	C		
		SS	SS	N/A	B		1.12
			Hastelloy C	SS	A		
	3" Class 600#	CS	Hastelloy C	SS	D	8.25	1.56
			Hastelloy C	Hastelloy C	D		
			Monel	Monel	D		1.5
			Tantalum	SS	C		
		SS	SS	N/A	B		1.75
			Hastelloy C	SS	A		
DN80-PN40		CS	Hastelloy C	SS	D	7.87	1.32
			Hastelloy C	Hastelloy C	D		
			Monel	Monel	D		
			Tantalum	SS	C		
		SS	SS	N/A	B		0.94
			Hastelloy C	SS	A		



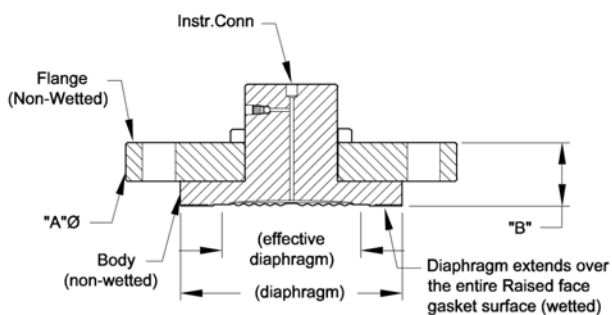
Configuration "HS"

Figure A



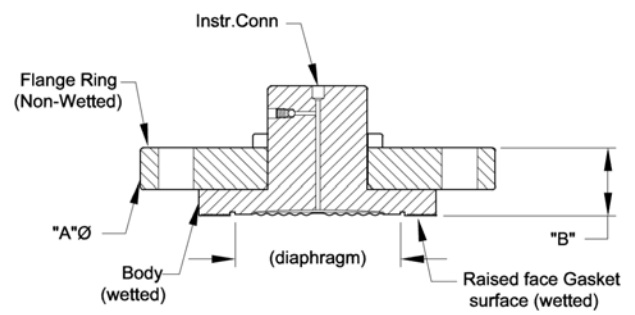
Configuration "HT"

Figure B



Configuration "IS"

Figure C



Configuration "IT"

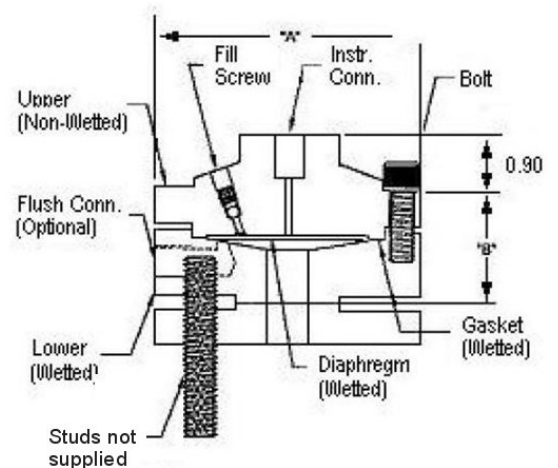
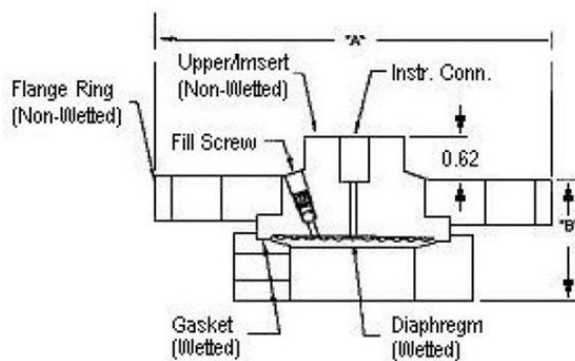
Figure D

Figure 8 - Seal Dimensions (Flush Flanged)

Reference Dimensions (cont'd) Flush Flanged Seal with Lower

Type	ANSI/DIN Rating	Size	Dimension	2.4" Diaph. Dia. (in.)	2.9" Diaph. Dia. (in.)	4.1" Diaph. Dia. (in.)
Flush Flanged Seal with Lower	Class 150#	1/2"	A	3.50	4.00	5.25
			B0	1.72	1.72	1.84
			B1	1.72	1.72	1.84
			B2	2.22	2.22	2.34
		1"	A	4.25	4.00	5.25
			B0	1.12	1.72	1.84
			B1	1.62	1.72	1.84
			B2	1.98	1.72	2.34
		1-1/2"	A	5.00	5.00	5.25
			B0	2.50	2.50	1.78
			B1	3.00	3.00	2.12
			B2	3.50	3.40	2.12
		2"	A	6.00	6.00	6.00
			B0	2.50	2.50	2.12
			B1	3.00	3.00	2.12
			B2	3.50	3.40	2.12
		3"	A	7.50	7.50	7.50
			B0	2.58	2.88	2.80
			B1	2.88	2.88	3.00
			B2	3.50	3.40	3.40
	Class 300#	1"	A	4.88	4.00	5.25
			B0	2.50	1.72	1.88
			B1	3.00	1.72	2.12
			B2	3.50	2.22	2.12
		1-1/2"	A	6.12	6.12	5.25
			B0	2.50	2.50	2.12
			B1	3.00	3.00	2.12
			B2	3.50	3.40	2.12
		2"	A	6.50	6.50	6.50
			B0	2.50	2.50	2.70
			B1	3.00	3.00	3.00
			B2	3.50	3.40	3.50
		3"	A	8.25	8.25	8.25
			B0	3.48	3.48	3.20
			B1	3.48	3.48	3.60
			B2	4.10	4.00	4.00
	Class 600#	1"	A	4.88	4.50	5.25
			B0	2.50	2.15	2.26
			B1	3.00	2.15	2.26
			B2	3.50	2.40	2.50
		1-1/2"	A	6.12	6.12	5.25
			B0	2.50	1.53	2.50
			B1	3.00	2.09	3.00
			B2	3.50	2.49	3.50
		2"	A	6.50	6.50	6.50
			B0	3.10	3.10	3.30
			B1	3.60	3.60	3.60
			B2	4.10	4.00	4.10
		3"	A	8.25	8.25	8.25
			B0	3.48	3.48	3.20
			B1	3.48	3.48	3.60
			B2	4.10	4.00	4.00

B0 Without Flush
 B1 B Dimension with 1/4 NPT Flushing Connection
 B2 B dimension with 1/2 NPT Flushing Connection



Flush Flanged Seal with Lower

Flush Flanged Seal with Lower

Note: 0.90 dimension is 0.70 for 4.1" Dia Diaphragm

Figure 9 - Seal Dimension (Flush Flanged)

Reference Dimensions (cont'd)

Flanged Seal with Extended Diaphragm

Type	ANSI/DIN Rating	Dimension	2.8" Diaphragm Dia. (in.)	3.5" Diaphragm Dia. (in.)
Flanged Seal with Extended Diaphragm	3" Class 150#	A	7.50	-
		B	0.94	-
		C	2.80	-
	3" Class 300#	A	8.25	-
		B	1.12	-
		C	2.80	-
	DIN DN80-PN40	A	7.87	-
		B	0.94	-
		C	2.80	-
	4" Class 150#	A	-	9.00
		B	-	0.94
		C	-	3.70

Designed to meet with schedule 40 pipe

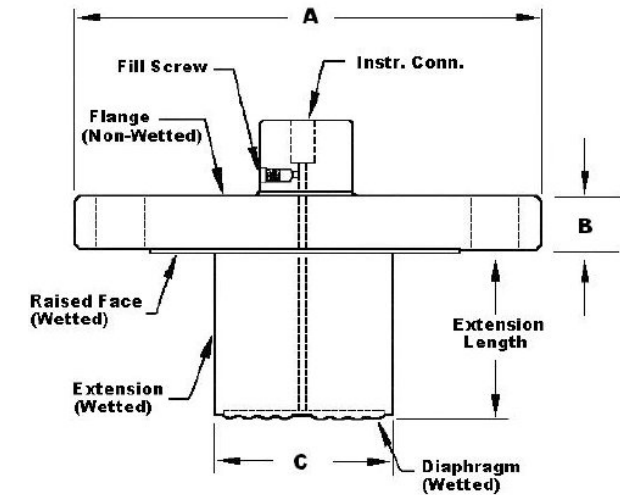


Figure 10 — Seal Dimensions (Extended Diaphragms)

Pancake Seal

Type	ANSI/DIN	Dimension	3.5" Diaph. (in.)
Pancake Seal	Class 150#, 300#, 600# DN80-PN40	A	5.00
		B	1.08

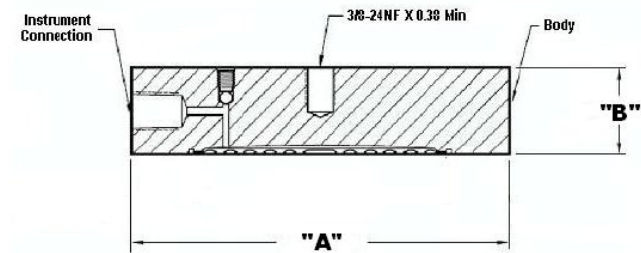


Figure 11 — Seal Dimensions (Pancake)

Seal with Threaded Process Connection

Type	Size	Dimension	2.4" Diaphragm Dia. (in.)	2.9" Diaphragm Dia. (in.)	4.1" Diaphragm Dia. (in.)
Threaded Process Conn. Seal	1/4" or 1/2"	A	3.50	4.00	5.25
		B0	1.66	1.66	1.79
		B1	1.66	1.66	1.79
		B2	2.18	2.16	2.14
	3/4" or 1"	A	3.50	4.00	5.25
		B0	1.66	1.66	1.79
		B1	1.66	1.66	1.79
		B2	2.25	2.16	2.14

B0 Without Flush

B1 B Dimension with 1/4 NPT Flushing Connection

B2 B dimension with 1/2 NPT Flushing Connection

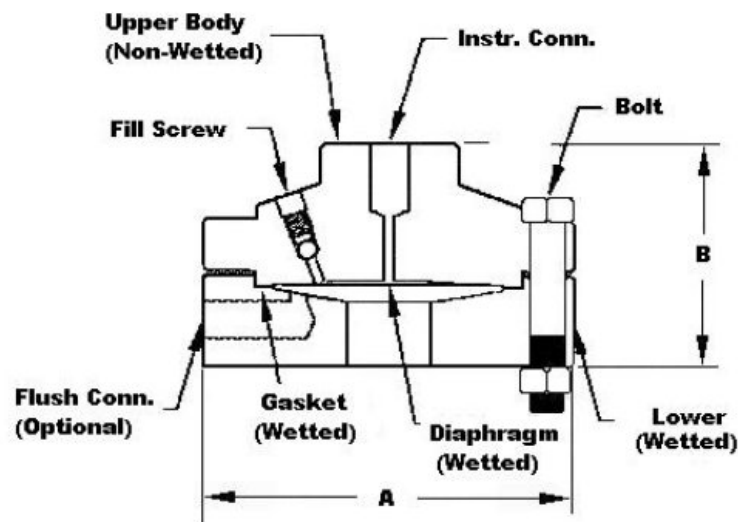


Figure 12— Seal Dimensions (Threaded Process Connection Seals)

Calibration Ring

Type	Size	Rating	Dimension	1/4 NPT	1/2 NPT
Calibration Ring	3"	150# / 800#	A	5.00	5.00
			B	1.00	1.50
			C	3.00	3.00

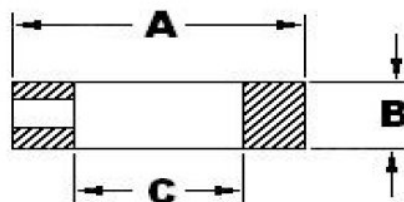


Figure 13— Calibration Ring

Communications Protocols & Diagnostics

HART Protocol

Version:

HART 7

Power Supply

Voltage: 10.8 to 42.4Vdc at terminals

Load: Maximum 1440 ohms. See [Figure 2](#).

Minimum Load: 0 ohms. (For handheld communications a minimum load of 250 ohms is required)

Standard Diagnostics

ST 700 top level diagnostics are reported as either critical or non-critical and readable via the DD/DTM tools or integral display as shown below.

Critical Diagnostics

HART DD/DTM Tools	Standard Display
Electronic Module DAC Failure	Fault Comm EI
Meter Body NVM Corrupt	Fault Mtrbody
Config. Data Corrupt	Fault Comm EI
Electronic Module Diag Failure	Fault Comm EI
Meter Body Critical Failure	Fault Mtrbody
Sensor Comms Timeout	Fault Mbd Com

Non-Critical Diagnostics

HART DD/DTM Tools
Display Failure
Electronic Module Comm Failure
Meter Body Excess Correct
Sensor Over Temperature
Fixed Current Mode
PV Out of Range
No Factory Calibration
LRV Set Error – Zero Config. Button
URV Set Error – Zero Config. Button
AO Out of Range
Loop Current Noise
Meter Body Unreliable Comm
No DAC Calibration
Sensor Supply Voltage Low

Refer to ST 700 manuals for additional level diagnostic information.

Approval Certifications:

AGENCY	TYPE OF PROTECTION	FIELD PARAMETERS	AMBIENT TEMP (Ta)
FM Approvals™	Explosionproof: Class I, Division 1, Groups A, B, C, D; Dust Ignition Proof: Class II, III, Division 1, Groups E, F, G; Class I, Zone 0/1, AEx d IIC Ga/Gb Class II, Zone 21, AEx tb IIIC Db T 95°C	Note 1	T5: -50 °C to 85°C T6: -50 °C to 65°C
	Intrinsically Safe: Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; Class I, Zone 0, AEx ia IIC Ga		T4: -50 °C to 70°C
	Nonincendive: Class I, Division 2, Groups A, B, C, D Class I, Zone 2, AEx nA IIC Gc	Note 1	T4: -50 °C to 85°C
	Enclosure: Type 4X/ IP66/ IP67	All	-
Canadian Standards Association (CSA)	Explosion Proof: Class I, Division 1, Groups A, B, C, D; Dust Ignition Proof: Class II, III, Division 1, Groups E, F, G; Ex d IIC Ga Ex tb IIIC Db T 95°C	Note 1	T5: -50 °C to 85°C T6: -50 °C to 65°C
	Intrinsically Safe: Class I, II, III, Division 1, Groups A, B, C, D, E, F, G; Ex ia IIC Ga		T4: -50 °C to 70°C
	Nonincendive: Class I, Division 2, Groups A, B, C, D; T4 Ex nA IIC Gc	Note 1	T4: -50 °C to 85°C
	Enclosure: Type 4X/ IP66/ IP67	All	-
ATEX	Flameproof: II 1/2 G Ex d IIC Ga/Gb II 2 D Ex tb IIIC Db T 95°C	Note 1	T5: -50 °C to 85°C T6: -50 °C to 65°C
	Intrinsically Safe: II 1 G Ex ia IIC Ga		T4: 50 °C to 70°C
	Nonincendive: II 3 G Ex nA IIC Gc	Note 1	T4: -50 °C to 85°C
	Enclosure: IP66/ IP67	All	-

Approval Certifications: (Continued)

IECEX (World)	Flameproof : Ex d IIC Ga/Gb Ex tb IIIC Db T 95°C	Note 1	T5: -50 °C to 85°C T6: -50 °C to 65°C
	Intrinsically Safe: Ex ia IIC Ga		T4: -50 °C to 70°C
	Nonincendive: Ex nA IIC Gc	Note 1	T4: -50 °C to 85°C
	Enclosure: IP66/ IP67	All	-
NEPSI (China)	Flameproof: Ex d IIC Ga/Gb Ex tb IIIC Db T 85°C	Note 1	T5: -50 °C to 85°C T6: -50 °C to 65°C
	Intrinsically Safe: Ex ia IIC Ga		T4: -50 °C to 70°C
	Nonincendive: Ex nA IIC Gc	Note 1	T4: -50 °C to 85°C
	Enclosure : IP 66/67	All	-

Notes:

1. Operating Parameters:

Voltage= 11 to 42 V DC

Current= 4-20 mA Normal

= 10 to 30 V (FF)

= 30 mA (FF)

Other Certification Options**SIL**

SIL 2/3 Certification	IEC 61508 SIL 2 for non-redundant use and SIL 3 for redundant use according to EXIDA and TÜV Nord Sys Tec GmbH & Co. KG under the following standards: IEC61508-1: 2010; IEC 61508-2: 2010; IEC61508-3: 2010.
------------------------------	---

Materials

- NACE MR0175, MR0103, ISO15156

Application Data

Liquid Level: Closed Tank

Determine the minimum and maximum pressure differentials to be measured ([Figure 14](#))

$$\begin{aligned} P_{\text{Min}} &= (SG_p \times a) - (SG_f \times d) \\ &= \text{LRV when HP at bottom of tank} \\ &= -\text{URV when LP at bottom of tank} \end{aligned}$$

$$\begin{aligned} P_{\text{Max}} &= (SG_p \times b) - (SG_f \times d) \\ &= \text{URV when HP at bottom of tank} \\ &= -\text{LRV when LP at bottom of tank} \end{aligned}$$

Where:

minimum level at 4mA
maximum level at 20 mA

a = distance between bottom tap and minimum level

b = distance between bottom tap and maximum level

d = distance between taps

SG_f = Specific Gravity of capillary fill fluid (See [page 6](#) "Material Spec" for values.)

SG_p = Specific Gravity of process fluid

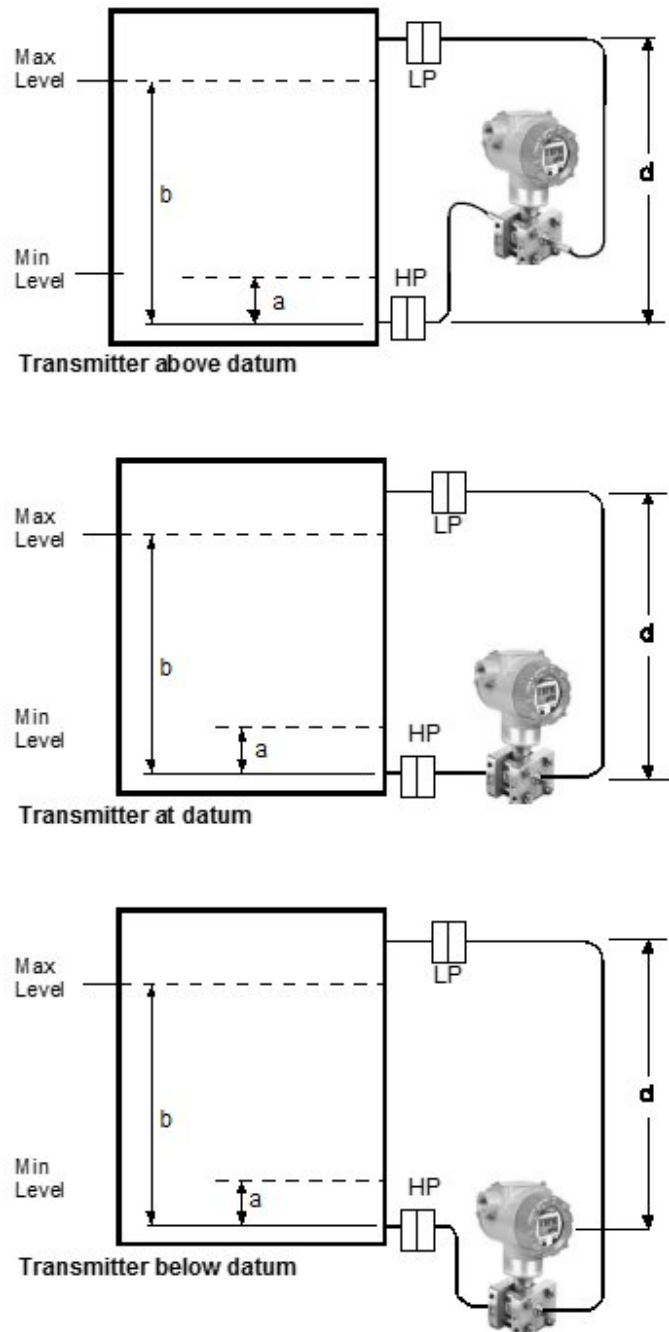


Figure 14—Closed tank liquid level measurement distance

Application Data (Cont'd)

Density or Interface*

Calculate the minimum and maximum pressure differentials to be measured. (Figure 15)

$P_{\min} = (SG_{\min} - SG_f) \times (d)$
 minimum density, 4mA output

$P_{\max} = (SG_{\max} - SG_f) \times (d)$
 maximum density, 20mA output

Where:

d = distance between the taps

$SG_{\max}$ = maximum Specific Gravity

$SG_{\min}$ = minimum Specific Gravity

SG_f = Specific Gravity of capillary fill fluid (See page 6 "Material Specifications" for values.)

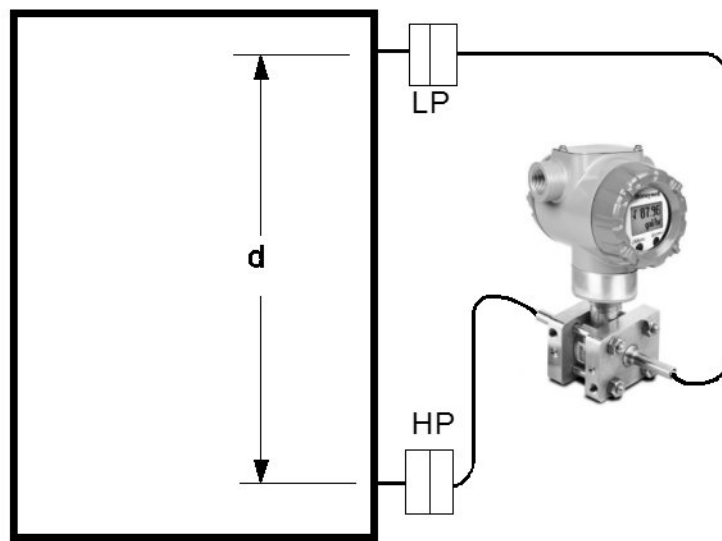


Figure 15- Density, direct acting transmitter configuration

Seal Configurations



Figure 16—Flush Flange Seals and with Left Lower

Flush Flange Seals can be used with differential, gauge and absolute pressure transmitters and are available with 3" ANSI Class 150, ANSI Class 300 and DIN DN80-PN40 process connections. Flush flange seals can also be provided with Lowers. Lowers are essentially calibration rings, which allow flushing connections if needed.



Figure 17—Pancake Seals

Pancake Seals can be used with differential, gauge and absolute pressure transmitters and are available with 3" ANSI Class 150, 300 and 600 process connections

Seal Configurations (cont'd)



Figure 18 — Flange Seal with Extended Diaphragm

Flange Seal with Extended Diaphragm can be used with differential, gauge and absolute pressure transmitters and are available with 3" and 4" ANSI Class 150, ANSI Class 300, DIN DN80-PN40 and DIN DN100-PN40 process connections. 2", 4" and 6" extension lengths are available



Figure 21 — Stainless Steel Armor and PVC Coated Stainless Steel Armor Capillaries

Stainless Steel Armor and PVC Coated Stainless Steel Armor Capillaries are available with Honeywell Remote Seal Solutions.



Figure 19— Seals with Threaded Process Connections

Seals with Threaded Process Connections can be used with differential, gauge and absolute pressure transmitters and are available with 1/2", 3/4" and 1" NPT Female process connections.



Figure 22 — 2" Stainless Steel Nipples

2" Stainless Steel Nipples are available for Close-Coupled remote seal solutions



Figure 20 — Calibration Rings

Calibration Rings are available with Flush Flange Seals and Pancake Seals. Flushing ports (1/4" or 1/2") are available with calibration rings.



Figure 23 — Welded Meter Body for All-Welded Remote Seal Solution

Welded Meter Body for All-Welded Remote Seal Solution. The welded ST 700 meter body is an important part of an All-Welded Remote Seal Solution, which is commonly used in Vacuum applications.

Model Selection Guide

Model Selection Guides are subject to change and are inserted into the specifications as guidance only.
Prior to specifying or ordering a model check for the latest revision Model Selection Guides which are published at:

www.honeywellprocess.com/en-US/pages/default.aspx

Model STR700 (DP, GP) Remote Seals

Model Selection Guide
34-ST-16-124 Issue 1

Instructions

- Select the desired Key Number. The arrow to the right marks the selection available.
- Make selections from each Table (I, II and IX) using the column below the proper arrow.
- A (●) denotes unrestricted availability. A letter denotes restricted availability.
- Restrictions follow Table IX.

Key Number	I	II	III	IV	V	VI	VII	VIII	IX
STR7 ____	-	-	-	-	-	-	-	-	+ 0000

KEY NUMBER	URL	LRL	Max Span	Min Span	Units	Selection	Availability
Measurement	100 (7)	-100 (-7)	100 (7)	0.9 (0.062)	psi (bar)	STR735D	↓
Range Std	500 (35)	-14.7 (-1.0)	500 (35)	5 (0.35)	psi (bar)	STR745G	↓
Accuracy							

Note: Remote seal system pressure rating is body rating or seal rating, whichever is less.

TABLE I	Description			Selection			
Meter Body & Capillaries	a. Number of Seals	1 Remote Seal (High Side) 2 Remote Seals 1 Remote Seal (Low Side)		1 _____ 2 _____ 3 _____		• • •	•
	b. Primary Fill Fluid (Meter body)	Silicone Oil 200 Fluorinated Oil CTFE		1 _____ 2 _____		• 2	• 2
	c. Construction	Non-Wetted Adapter Head Materials					
	In-Line Gauge	316 SS Bonnet 316 SS Bonnet for Close-Couple		A _____ B _____			• 3
	Dual Head DP	316 SS (bolt-on heads) 316 SS for Close-Couple 316 SS with all-welded meter body		C _____ D _____ E _____		• 3 4	
	d. Bolts and Nuts for Transmitter Heads	None Carbon Steel Bolts and Nuts 316 SS Bolts and Nuts A286 SS (NACE) Bolts and 304 SS (NACE) Nuts		0 _____ C _____ S _____ N _____		22 • • •	•
	e. Secondary Fill Fluid (capillary & seal)	No Fill Fluid Silicone Oil 200 Fluorinated Oil CTFE Silicone Oil 704 Neobee® M20 ¹¹ Syltherm® 800 ¹²		0 _____ 1 _____ 2 _____ 3 _____ 4 _____ 5 _____		5 • • • • •	5 • • • • •
	f. Connection of Remote Seal to Meter Body	No Capillary, No Nipple (Specify for VAM Unit Only)		0 _____		5	5
		Capillary Length	5 feet 1.5 m	SS Armor	A _____	•	•
			10 feet 3.0 m		B _____	•	•
			15 feet 4.5 m		C _____	•	•
			20 feet 6.1 m		D _____	•	•
			25 feet 7.5 m		E _____	•	•
			35 feet 10.7 m		F _____	•	•
			5 feet 1.5 m	PVC Coated SS Armor	G _____	•	•
			10 feet 3.0 m		H _____	•	•
			15 feet 4.5 m		J _____	•	•
			20 feet 6.1 m		K _____	•	•
			25 feet 7.5 m		L _____	•	•
			35 feet 10.7 m		M _____	•	•
	g. Seal Option	2 inch long SS nipple close-coupled		2 _____		6	6
		None		0 _____		•	•
		Teflon Coated Seal Diaphragm - only for anti-sticking		4 _____		7	7

¹¹ Limited vacuum availability.

¹² Minimum static pressure requirement. No vacuum allowed. See Specifications 34-ST-03-88 Figure 15



In-Line Gauge



Dual Head DP



All welded

STR745G
STR735D

Note: When selecting required seal, you must specify only the 9 selections within the required seal type.

Selection

TABLE II	Description					
Seals	No Seal Attached to Core Transmitter (Specify for VAM Unit Only)				0 0 0 0 0 0 0 0	21 21
	 Flush Flanged Seal	Diaphragm Diameter	Flange Size	Flange Pressure Rating ¹	Selection	
				ANSI Class 150	AFA _____	• •
				ANSI Class 300	AFC _____	• •
			80mm	DIN DN80-PN40	AFM _____	• •
		Wetted Material	Diaphragm	Upper Insert	Selection	
				316L SS	____AA____	• •
			Hastelloy® C-276	316L SS	____AB____	• •
			Hastelloy® C-276	Hastelloy® C-276	____AC____	• •
			Monel 400®	Monel 400®	____AE____	8 8
			Tantalum ⁵	316L SS	____AF____	8 8
		Non-Wetted Material (upper)		CS (Nickel Plated)	____1____	• •
		Seal-Capillary Connection		316L SS	____2____	• •
		Calibration Rings		Center Seal	____1____	• •
				Side Seal	____2____	9 9
				None	____A____	• •
				316L SS	____B____	10 10
				Hastelloy® C-276	____C____	10 10
				Monel 400®	____D____	10 10
	Flushing Connections and Plugs ⁴ (Metal plug material will be the same as Cal. ring material if metal plug is chosen)		None		____0____	• •
			One 1/4" with plastic plug		____H____	11 11
			One 1/4" with metal plug		____J____	11 11
			Two 1/4" with plastic plugs		____M____	11 11
			Two 1/4" with metal plugs		____N____	11 11
			One 1/2" with plastic plug		____P____	11 11
			One 1/2" with metal plug		____Q____	11 11
			Two 1/2" with plastic plugs		____R____	11 11
			Two 1/2" with metal plugs		____S____	11 11

Table II continued next page

¹ Standard facing 125-250 AARH RF (raised face) serrated surface finish.

⁴ Plastic Plugs are TEMPORARY ONLY to protect threads and MUST be REMOVED before installation

⁵ Tantalum Upper insert has Tantalum wetted parts and 316 SS or CS non-wetted parts

Note: Remote seal system pressure rating is body rating or seal rating, whichever is less.

STR745G

STR735D

TABLE II		Description				Selection		
	Seal Type	Diaphragm Diameter	Flange Size	Flange Pressure Rating ¹	Const. - See Spec. Figure 34-ST-03-104	Construction - See Spec. Figure 34-ST-03-104		
Seals (continued)  Flush Flanged Seal with Lower		2.4"	1"	ANSI 150 ANSI 300	22 22	BCA _____ BCC _____	• •	• •
			1-1/2"	ANSI 150 ANSI 300	22 22	BGA _____ BGC _____	• •	• •
			2"	ANSI 150 ANSI 300	22 22	BDA _____ BDC _____	• •	• •
			3"	ANSI 150 ANSI 300	22 22	BFA _____ BFC _____	• •	• •
		2.9"	1/2"	ANSI 150	23	CAA _____	•	•
			1"	ANSI 150 ANSI 300	23 23	CCA _____ CCC _____	• •	• •
			1-1/2"	ANSI 150 ANSI 300	22 22	CGA _____ CGC _____	• •	• •
			2"	ANSI 150 ANSI 300	22 22	CDA _____ CDC _____	• •	• •
		4.1"	1/2"	ANSI 150	22	DAA _____	•	•
			1"	ANSI 150 ANSI 300	23 23	DCA _____ DCC _____	• •	• •
			1-1/2"	ANSI 150 ANSI 300	23 23	DGA _____ DGC _____	• •	• •
			2"	ANSI 150 ANSI 300	23 22	DDA _____ DDC _____	• •	• •
			3"	ANSI 150 ANSI 300	22 22	DFA _____ DFC _____	• •	• •
		Wetted Material	Diaphragm		Lower	Selection		
			316L SS		316L SS	BA _____		•
			Hastelloy® C-276		316L SS	BB _____		•
			Hastelloy® C-276		Hastelloy® C-276	BC _____		•
			Monel 400®		Monel 400®	BE _____		8
			Tantalum		316L SS	BF _____		8
			Tantalum		Hastelloy® C-276	BG _____		8
			Tantalum		Tantalum Clad	BH _____		13
		Non-Wetted Material (upper, upper insert)	Upper		Upper Insert	Selection		
			316L SS		316L SS	4 _____		•
		Bolts ⁶	No Selection			0 _____		•
			None			0 _____		•
		Connections and Plugs ⁴ (Metal plug material will be the same as Lower material, if metal plug is chosen - (SS Plug for CS Lower and Tantalum Clad)	One 1/4" with plastic plug			H _____		•
			One 1/4" with metal plug			J _____		•
			Two 1/4" with plastic plugs			M _____		•
			Two 1/4" with metal plugs			N _____		•
			One 1/2" with plastic plug			P _____		•
			One 1/2" with metal plug			Q _____		•
			Two 1/2" with plastic plugs			R _____		•
			Two 1/2" with metal plugs			S _____		•
		Gasket	Klinger® C-4401 (non-asbestos)			K _____		•
			Grafoil®			G _____		•
			Teflon®			T _____		•
			Gylon® 3510			L _____		15

Table II continued next page

¹ Standard facing 125-250 AARH RF (raised face) serrated surface finish.⁶ Bolt material will be same as Upper Material. However, if Table I bolts/nuts material is NACE, seal bolt material will be 304 SS NACE.⁴ Plastic Plugs are TEMPORARY ONLY to protect threads and MUST be REMOVED before installation.

Note: Remote seal system pressure rating is body rating or seal rating, whichever is less.

STR745G
STR735D

TABLE II	Description							
Seals (continued)	Seal Type	Diaphragm Diameter	Flange Size	Flange Pressure Rating ¹	Selection			
		2.8"	3" (2.8" OD extension)	ANSI Class 150 ANSI Class 300 DIN DN80-PN40	EFA _____	•	•	
					EFC _____	•	•	
					EFM _____	•	•	
		3.5"	(3.70" OD extension)	ANSI Class 150 ANSI Class 300 DIN DN100-PN40	FGA _____	•	•	
					FGC _____	•	•	
					FGP _____	•	•	
		Flange Seal with Extended Diaphragm	Wetted Material	Diaphragm	Ext. Tube	Selection		
				316L SS	316L SS	EA _____	•	•
				Hastelloy® C-276	316L SS	EB _____	•	•
				Hastelloy® C-276	Hastelloy® C-276	EC _____	•	•
Non-Wetted Material (flange)	CS (Nickel Plated) 316L SS		7 _____	•	•			
			8 _____	•	•			
Bolts	No Selection		0 _____	•	•			
Extension Length	2"		2 _____	•	•			
	4"		4 _____	•	•			
	6"		6 _____	•	•			
No Selection	No Selection	No Selection		0 _____	•	•		

Table II continued below

STR745G
STR735D

TABLE II		Description								
Seals (continued)	Seal Type	Diaphragm Diameter	Flange Size	Flange Pressure Rating Dependent on Customer Flange ¹	Selection					
	 Pancake Seal	3.5"	3"	ANSI Class 150/300/600	GFA _____	•	•			
		Wetted Material		Diaphragm	Body					
				316L SS	316L SS	_____ GA _____	•	•		
				Hastelloy® C-276	316L SS	_____ GB _____	•	•		
				Hastelloy® C-276	Hastelloy® C-276	_____ GC _____	•	•		
				Monel 400®	Monel 400®	_____ GE _____	8	8		
				Tantalum	Tantalum ⁷	_____ GG _____	8	8		
		Non-Wetted Material		No Selection		_____ 0 _____	•	•		
		Bolts		No Selection		_____ 0 _____	•	•		
		Calibration Rings		None		_____ A _____	•	•		
				316L SS		_____ B _____	10	10		
				Hastelloy® C-276		_____ C _____	10	10		
				Monel 400®		_____ D _____	10	10		
				Flushing Connections and Plugs ⁴		None		_____ 0 _____	•	•
				(Metal plug material will be the same as Cal. Ring material, if metal plug is chosen)		One 1/4" with plastic plug		_____ H _____	11	11
		One 1/4" with metal plug				_____ J _____	11	11		
Two 1/4" with plastic plugs		_____ M _____	11			11				
Two 1/4" with metal plugs		_____ N _____	11			11				
One 1/2" with plastic plug		_____ P _____	11			11				
One 1/2" with metal plug		_____ Q _____	11			11				
Two 1/2" with plastic plugs		_____ R _____	11			11				
Two 1/2" with metal plugs		_____ S _____	11			11				

Table II continued next page

¹ Standard facing 125-250 AARH RF (raised face) serrated surface finish.

⁴ Plastic Plugs are TEMPORARY ONLY to protect threads and MUST be REMOVED before installation

⁷ Tantalum Body has Tantalum wetted parts and 316 SS non-wetted parts

Note: Remote seal system pressure rating is body rating or seal rating, whichever is less.

TABLE II		Description					STR745G		STR735D	
		Seal Type	Diaphragm Diameter	Threaded Process Connection Size (NPT Female)	Pressure Rating		Selection			
CS Bolts	304 SS Bolts									
Seals (continued)		Seal with Threaded Process Connection	2.4"	1/2 NPT	2,500 psi	1,250 psi	JJG _____	•	•	
				3/4 NPT			JKG _____	•	•	
				1 NPT			JLG _____	•	•	
				2.9"	1/2 NPT	2,500 psi	1,250 psi	KJG _____	•	•
					3/4 NPT			KKG _____	•	•
					1 NPT			KLK _____	•	•
				4.1"	1/2 NPT	1,500 psi	750 psi	LJG _____	•	•
					3/4 NPT			LKG _____	•	•
					1 NPT			LLG _____	•	•
			Wetted Material		Diaphragm	Lower	Selection			
					316L SS	Carbon Steel	____ JA ____	•	•	
					316L SS	316L SS	____ JB ____	•	•	
					Hastelloy® C-276	316L SS	____ JC ____	•	•	
					Hastelloy® C-276	Hastelloy® C-276	____ JD ____	•	•	
					Monel 400®	Monel 400®	____ JE ____	8	8	
					Tantalum	316L SS	____ JF ____	8	8	
					Tantalum	Hastelloy® C-276	____ JG ____	8	8	
Non-Wetted Material (upper)		CS (Nickel Plated) 316 Stainless Steel		____ A ____ ____ C ____	• 17	• 17				
Bolts ⁸		Carbon Steel 304 SS		____ C ____ ____ D ____	• •	• •				
Flushing Connections and Plugs ⁴ (Metal plug material will be the same as Lower material, if metal plug is chosen - (SS Plug for CS Lower and Tantalum Clad)		None		____ 0 ____	•	•				
		One 1/4" with plastic plug		____ H ____	•	•				
		One 1/4" with metal plug		____ J ____	•	•				
		Two 1/4" with plastic plugs		____ M ____	•	•				
		Two 1/4" with metal plugs		____ N ____	•	•				
		One 1/2" with plastic plug		____ P ____	18	18				
		One 1/2" with metal plug		____ Q ____	18	18				
		Two 1/2" with plastic plugs		____ R ____	18	18				
Two 1/2" with metal plugs		____ S ____	18	18						
Gasket		Klinger® C-4401 (non-asbestos)		____ K ____	•	•				
		Grafoil®		____ G ____	•	•				
		Teflon®		____ T ____	•	•				
		Gylon® 3510		____ L ____	15	15				

Table II continued next page

⁴ Plastic Plugs are TEMPORARY ONLY to protect threads and MUST be REMOVED before installation

⁸ If Table I Bolts and Nuts material option is NACE, Bolts and Nuts will ship with Alloy Steel NACE and MAWP may change.

Note: Remote seal system pressure rating is body rating or seal rating, whichever is less.

STR745G
STR735D

TABLE III	Agency Approvals (see data sheet for Approval Code Details)
Approvals	No Approvals Required FM Explosion proof, Intrinsically Safe, Non-incendive, & Dustproof CSA Explosion proof, Intrinsically Safe, Non-incendive, & Dustproof ATEX Explosion proof, Intrinsically Safe & Non-incendive IECEx Explosion proof, Intrinsically Safe & Non-incendive NEPSI Explosion proof, Intrinsically Safe & Non-incendive

0	•	•
A	•	•
B	•	•
C	•	•
D	•	•
G	•	•

TABLE IV	TRANSMITTER ELECTRONIC SELECTIONS		
a. Electronic Housing Material & Connection Type	Material	Connection	Lightning Protection
	Polyester Powder Coated Aluminum	1/2 NPT	None
	Polyester Powder Coated Aluminum	M20	None
	Polyester Powder Coated Aluminum	1/2 NPT	Yes
	Polyester Powder Coated Aluminum	M20	Yes
	316 Stainless Steel (Grade CF8M)	1/2 NPT	None
	316 Stainless Steel (Grade CF8M)	M20	None
	316 Stainless Steel (Grade CF8M)	1/2 NPT	Yes
	316 Stainless Steel (Grade CF8M)	M20	Yes
b. Output/ Protocol	Analog Output		Digital Protocol
	4-20mA dc		HART Protocol
c. Customer Interface Selections	Indicator	Ext Zero, Span & Config Buttons	Languages
	None	None	None
	None	Yes (Zero/Span Only)	None
	Standard (w/internal Zero, Span & Conf Buttons)	None	English
	Standard (w/internal Zero, Span & Conf Buttons)	Yes	English

A	__	•	•
B	__	•	•
C	__	•	•
D	__	•	•
E	__	•	•
F	__	•	•
G	__	•	•
H	__	•	•

_ H _	•	•
-------	---	---

__ 0	•	•
__ A	•	•
__ S	•	•
__ T	•	•

TABLE V	CONFIGURATION SELECTIONS		
a. Application Software	Diagnostics		
	Standard Diagnostics		
b. Output Limit, Failsafe & Write Protect Settings	Write Protect	Fail Mode	High & Low Output Limits ³
	Disabled	High > 21.0mA dc	Honeywell Std (3.8 - 20.8 mA dc)
	Disabled	Low < 3.6mA dc	Honeywell Std (3.8 - 20.8 mA dc)
	Enabled	High > 21.0mA dc	Honeywell Std (3.8 - 20.8 mA dc)
	Enabled	Low < 3.6mA dc	Honeywell Std (3.8 - 20.8 mA dc)
c. General Configuration	Factory Standard		
	Custom Configuration (Unit Data Required from customer)		

1	__	•	•
---	----	---	---

_ 1 _	•	•
_ 2 _	•	•
_ 3 _	•	•
_ 4 _	•	•
__ S	•	•
__ C	•	•

TABLE VI	CALIBRATION & ACCURACY SELECTIONS		
Accuracy and Calibration	Accuracy	Calibrated Range	Calibration Qty
	NA	None	None
	Standard	Factory Std	Single Calibration
	Standard	Custom (Unit Data Required)	Single Calibration

0	21	21
A	23	23
B	23	23

³ NAMUR Output Limits 3.8 - 20.5mA dc can be configured by the customer or select custom configuration Table Vc

STR745G
STR735D

TABLE VII	ACCESSORY SELECTIONS	
a. Mounting Bracket	Bracket Type	Material
	None	None
	Angle Bracket	Carbon Steel
	Angle Bracket	304 SS
	Angle Bracket	316 SS
	Flat Bracket	Carbon Steel
	Flat Bracket	304 SS
	Flat Bracket	316 SS
b. Customer Tag	Customer Tag Type	
	No customer tag	
	One Wired Stainless Steel Tag (Up to 4 lines 26 char/line)	
	Two Wired Stainless Steel Tag (Up to 4 lines 26 char/line)	
c. Unassembled Conduit Plugs & Adapters	Unassembled Conduit Plugs & Adapters	
	No Conduit Plugs or Adapters Required	
	1/2 NPT Male to 3/4 NPT Female 316 SS Certified Conduit Adapter	
	1/2 NPT 316 SS Certified Conduit Plug	
	M20 316 SS Certified Conduit Plug	

0	---	•	•
1	---	•	•
2	---	•	•
3	---	•	•
5	---	•	•
6	---	•	•
7	---	•	•

0	---	•	•
1	---	•	•
2	---	•	•

A0	•	•
A2	n	n
A6	n	n
A7	m	m

TABLE VIII	OTHER Certifications & Options : (String in sequence comma delimited (XX, XX, XX,...))
Certifications & Warranty	None - No other options
	NACE MR0175; MR0103; ISO15156 Process wetted parts only
	NACE MR0175; MR0103; ISO15156 wetted and non-wetted parts
	EN10204 Type 3.1 Material Traceability
	Certificate of Conformance
	Calibration Test Report & Certificate of Conformance
	Certificate of Origin
	FMEDA (SIL 2/3) Certification
	Over-Pressure Leak Test Certificate (1.5X MAWP)
	Cert Clean for O ₂ or CL ₂ service per ASTM G93

00	*	*
FG	•	•
F7	c	c
FX	•	•
F3	•	•
F1	•	•
F5	•	•
FE	j	j
TP	•	•
OX	e	e

b

b

TABLE IX	Manufacturing Specials
Factory	Factory Identification

0000	•	•
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MODEL RESTRICTIONS

Restriction Letter	Available Only With		Not Available With	
	Table	Selection(s)	Table	Selection(s)
b	Select only one option from this group			
c	Id	___ 0, N, ___		
e	I	_ 2 _ 2 _		
j	IVb		Vb	_ 1,2 _
m	IVa	B, D, F, H _		
n	IVa	A, C, E, G _		
2	Ie	___ 0 _		
		___ 2 _		
		___ 4 _		
3	If	___ 2 _	Ia	2 _ _ _ _
4	I	2 _ 0 _		
5	II	000000000	VIII	FG, F7, FX, OX, TP, F1
6	I	___ B,D _ _	Ia	2 _ _ _ _
7			II	___ AF _ _
				___ BF _ _
				___ BG _ _
				___ BH _ _
				___ GG _ _
				___ JF _ _
8			VIII	___ JG _ _
				FG, F7
9	II	___ AA2 _		
		___ AB2 _		
10			II	___ 0
11			II	___ A _
13	II	___ 0 _	II	___ T
			VIII	FG, F7
15	II	___ BF _ _		
		___ BG _ _		
		___ BH _ _		
		___ JF _ _		
		___ JG _ _		
17			II	___ JA _ _
18			II	___ JJG _ _ _
				___ JKG _ _ _
				___ JLG _ _ _
21	I	___ 000		
22	Ic	___ E _ _		
23			II	000000000

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