

## PULP AND PAPER DIAPHRAGM SEAL

Reotemp's Pulp and Paper Diaphragm Seals are designed to withstand the harsh and highly viscous process media associated with the Paper and Pulp manufacturing process. Reotemp offers three styles that can be purchased with weld spuds, for new applications, or as replacements designed to fit into existing industry standard process fittings.



TH Style



S2 Style

### FEATURES / BENEFITS

- Welded Diaphragm for Maximum Durability
- Standard sizes common within the Pulp and Paper industry
- Welded Diaphragm for Maximum Durability
- Easy Cleanout of Diaphragm Cavity without Compromising Filled System

### SPECIFICATIONS

<b>Diaphragm</b>	316/316L SS, Hast C-276
<b>Lower Housing</b>	316/316L SS, Hast C-276
<b>Gasket</b>	Viton (Style S1 and S2 Only), Klinger (Style TH Only)
<b>Upper Housing</b>	316L/316SS

#### Process Temperature Limits

		S1	S2	TH
Metallic Lower	Viton Gasket	-15/400°F	-15/400°F	-15/400°F
	Klinger Gasket	-110/400°F	-110/500°F	-110/400°F

**Ambient Temperature Limits** Determined by the pressure instrument.

#### Minimum Recommended Span

	S1	S2
2.5" & 3.5" Gauges	30 psi	30 psi
4", 4.5", & 6" Gauges	N/A	100 psi
Transmitter (Gauge Pressure)	15 psi	15 psi
Transmitter (Differential Pressure)	N/A	N/A
Differential Pressure Gauge (D40/42 Only)	N/A	N/A

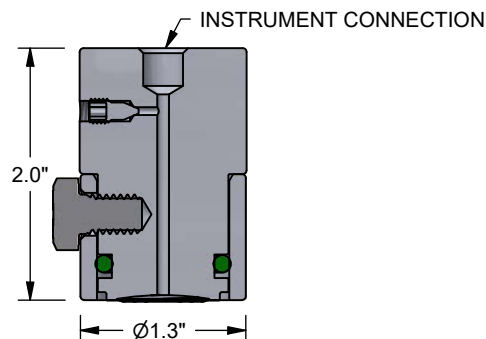
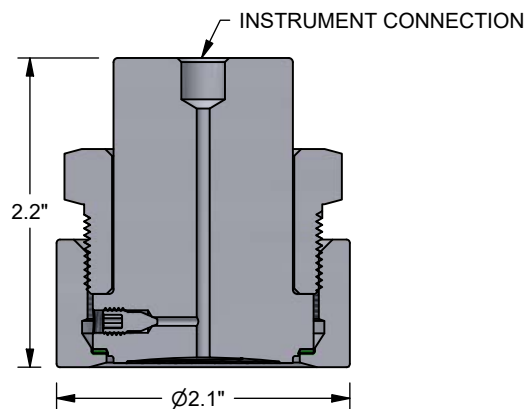
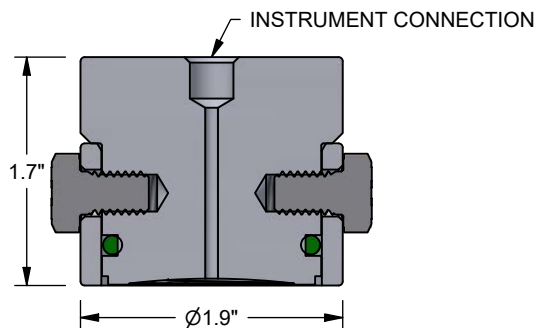
#### Weight

Note: Weights are approximate.

	Metallic Lower
S1	2.3 lbs
S2	3.5 lbs
TH	3.7 lbs

#### Maximum Working Pressure at 100°F:

S1	300 psi
S2	300 psi
TH	600 psi



## PULP AND PAPER DIAPHRAGM SEALS

**HOW TO ORDER:** Choose options to build a part number. For example: **DSPPS14SSWSV-DTD-AS-TS**

SEAL TYPE	STYLE	INSTRUMENT CONNECTION	BODY MATERIAL	DIAPHRAGM MATERIAL	WELD SPUD (LOWER)	GASKET
<b>DSPP</b> Pulp and Paper Seal	<b>S1</b> = 1" Flush Mount Sleeve; 1-Bolt Connection <b>S2</b> = 1.5" Flush Mount Sleeve Type; 2-Bolt Connection <b>TH</b> = 1.5" Flush Mount M44 x 1.25"; Threaded Connection	<b>2</b> = 1/2" Female NPT <b>4</b> = 1/4" Female NPT <b>W</b> = Low-Volume Connection for Smart Transmitters	<b>S</b> = 316SS <b>H</b> = Hast C-276	<b>S</b> = 316SS <b>H</b> = Hast C-276	<b>XX</b> = Weld Spud not included <b>WS</b> = 316SS Weld Spud Included <b>HS</b> = Hast C-276 Weld Spud	<b>V</b> = Viton (Style S1 and S2) <b>K</b> = Klinger C4401 (Style TH) <b>Y</b> = Gylon 3510

**-DTD**

**-AS**

**-TS**

### INSTRUMENT MOUNT

### FILL FLUID

### OPTIONS

- Direct Mount*  
**-DTD** = Direct Mount, Threaded  
**-DWD** = Direct Mount, Welded  
**-RTR** = 6" Cooling Tower  
**-STW** = 3" Cooling Standoff  
*Remote Mount*  
**-A??** = Armored Capillary, Threaded  
**-B??** = Armored Capillary, Welded  
**-P??** = PVC Coated Armor, Threaded  
**-W??** = PVC Coated Armor, Welded

- AS** = Silicone DC200  
**-BH** = Silicone 704  
**-C8** = Syltherm 800  
**-XX** = No Fill Fluid  
*See 90 for Complete Fill Guide*

- TD** = Teflon Coated Diaphragm (PTFE)  
**-MR** = MTR - Mill Test Report  
**-TS** = SS Tag (1-10 Characters)  
**-PM** = Positive Material Identification Certification  
*See Page 146 for Additional Options*

Note: ?? = Length in feet (e.g. 05 = 5 feet)

**YYY** = Dry Seal, No Instrument

DIAPHRAGM SEALS

DIAPHRAGM SEALS

## FILL GUIDE

Diaphragm seals are designed to protect pressure instruments from hot process media and corrosive chemicals while minimizing any negative effect on instrument accuracy and durability. A well-made diaphragm seal can achieve this goal only if it is properly assembled, filled, and tested. Reotemp's highly trained technicians use state-of-the-art equipment so that every diaphragm seal assembly is filled and tested to assure optimal instrument performance:

- ✓ 24-hour Minimum Fluid De-gassing
- ✓ Evacuated Instrument Chamber Up to 10<sup>-8</sup> mbar Absolute
- ✓ Complete Fill Integrity Check
- ✓ Fill-port Leak Test
- ✓ Post-fill Static Test
- ✓ Verification of Instrument Calibration
- ✓ High-temp Pipe Sealant Option for Joints
- ✓ Tamper-proof (Inspection Seal) Lacquer used on All Threaded Joints
- ✓ Sturdy Diaphragm Packaging Protection

Part Number Code	Name	Description	Temperature Range (Vacuum Service <5psia)		Viscosity cst @ -77°F	Specific Gravity @ -77°F	Thermal Expansion cc/cc°C
<b>STANDARD FILL FLUID</b>							
AS	Silicone DC200 <sup>1</sup>	This is the standard fill fluid for most diaphragm seal applications.	-40°F to 400°F (-40°F to 250°F)	Yes	20	0.94	.00104
<b>HIGH TEMP SILICONE</b>							
BH	Silicone DC704 <sup>1</sup>	Standard for Smart Transmitters and capillary systems. Performs well in applications with high temperature and a deep vacuum.	0°F to 650°F (0°F to 450°F)	No	44	1.07	.00077
B1	Silicone DC710 <sup>1</sup>	Highest temperature rating; ideal for gauge seal assemblies. Too thick for capillary assemblies. Response time can become very slow in cold conditions.	50°F to 750°F (50°F to 400°F)	Yes	500	1.11	.00043
C8	Syltherm 800 <sup>2</sup>	Low viscosity allows it to perform well in both low and high temperatures. Not recommended for vacuum service or at high temperatures when under low static pressure.	-40°F to 750°F (-40°F to 150°F)	No	9.5	0.93	.00136
B5	Silicone DC705 <sup>1</sup>	Performs very well in high temperatures when under vacuum. The high viscosity and freezing point of this fluid makes it a poor choice for cold or outdoor installations without heat tracing.	50°F to 675°F (50°F to 550°F)	Yes	175	1.09	.00096
B2	Silicone DC550 <sup>1</sup>	Similar high temperature performance as DC705, however it performs better at lower temperatures.	-40°F to 575°F (-40°F to 400°F)	No	125	1.07	.00076
<b>FOOD GRADE</b>							
AG	Glycerin USP	This is the standard fill fluid for most gauge seal assemblies for food, beverage, and pharmaceutical applications. Its high viscosity will cause very slow response at times in low temperature and outdoor installations.	60°F to 450°F (Not Suitable)	Yes	1100	1.26	.00061
BN	NEOBEE M20 <sup>7</sup>	Low viscosity and a wide temperature range makes this the standard sanitary fill fluid for Smart Transmitters and capillary systems.	-10°F to 400°F (-10°F to 200°F)	No	10	0.92	.00101
BS	Food Grade Silicone	Highest temperature limit for food grade fluids. Because of its high viscosity it does not perform well in low temperatures.	20°F to 550°F (20°F to 250°F)	Yes	350	0.97	.00096
BP	Propylene Glycol	This is the fill fluid used when Glycol is called for on the customer specification. It has a very narrow temperature range.	0°F to 200°F (Not Suitable)	No	2.85	1.03	.00073
<b>INERT (TYPICALLY FOR CHLORINE AND OXYGEN APPLICATIONS OR IN SILICONE-FREE ENVIRONMENTS)</b>							
C1	Fomblin Y06 <sup>4</sup>	Ideal inert fluid for transmitter applications. Relatively high vapor pressure above 200°F. Not recommended for use in high temperature situations with low static pressure.	-40°F to 450°F (0°F to 250°F)	No	71	1.88	.00086
C2	Halocarbon 6.3 <sup>3</sup>	Standard inert fluid used in gauge seal assemblies.	-40°F to 400°F (-40°F to 200°F)	Yes	6.3	1.87	.00084
C3	Halocarbon 1.8 <sup>3</sup>	Typically used in low temperature applications because of its low viscosity.	-110°F to 220°F (-100°F to 100°F)	No	1.8	1.82	.00084
C4	Fluorolube FS-5 <sup>5</sup>	Similar performance to Halocarbon 6.3, however not suitable for vacuum service.	-40°F to 450°F (Not Suitable)	No	5	1.86	.00087
<b>SPECIALTY</b>							
CK	Krytox 1506 <sup>6</sup>	Specialty fill fluid, inert.	-40°F to 350°F (-40°F to 300°F)	No	62	1.88	.00095
BE	Ethylene Glycol	Occasionally used in annular (O-ring) seal assemblies.	-25°F to 320°F (Not Suitable)	No	30	1.10	.00062
CT	Syltherm XLT <sup>2</sup>	Used for very low process temperatures.	-150°F to 500°F (Not Suitable)	No	1.4	0.85	.00168

1 Trademark Dow Corning

3 Trademark Halocarbon Product Corporation

5 Trademark Hooker Chemical Company

7 Trademark Stepan Specialty Products

2 Trademark The Dow Chemical Company

4 Trademark AUSIMONT S.P.A

6 Trademark The Chemours Company FC, LLC

Note: PulsePlus™ fill fluids may have different physical properties than specified. Chemical composition and temperature ranges do not vary.

## DIAPHRAGM SEAL OPTIONS



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- ✓ Configure Part #
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DIAPHRAGM SEALS

		MS4 MS6 MS8	W5 W6 W7	T5 T6 V5	W9FF W9FR	W9XT	W9FP	DSTC75	DSTC15 AND LARGER	DSTF05	DSTF75 AND LARGER	OR	DXFR
<b>PULSATION PROTECTION (ONLY AVAILABLE WITH REOTEMP PRESSURE GAUGE MOUNTED TO SEAL)</b>													
-PP	Pulse Plus™	✓	✓	✓	✓	✓	N/A	N/A	✓	N/A	✓	✓	N/A
<b>DIAPHRAGM COATING</b>													
-AU	Gold Plated Diaphragm	N/A	✓	N/A	✓	✓	✓	✓	✓	✓	✓	N/A	N/A
-TC	Teflon Coated Diaphragm PTFE	N/A	✓	N/A	✓	✓	✓	N/A	✓	N/A	✓	N/A	N/A
-EP	Electropolished Diaphragm	N/A	N/A	N/A	N/A	N/A	N/A	✓	✓	✓	✓	N/A	N/A
<b>FILL</b>													
-FW	Fill Port Welded Closed	STD <sup>1</sup>	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A	N/A
-VF	Fill for Vacuum Service	N/A	✓	N/A	✓	✓	✓	N/A	✓	N/A	✓	N/A	N/A
<b>CLEANING AND FINISH</b>													
-DG	Degreased, Shipped in Sealed Bag	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A	✓
-OX	Cleaned for Oxygen Service per ASME B40.1	✓	✓	N/A	✓	✓	✓	✓	✓	✓	✓	N/A	✓
-OY	Cleaned for Oxygen Service per MIL-STD-1330D	✓	✓	N/A	✓	✓	✓	✓	✓	✓	✓	N/A	✓
<b>PLUG FOR FLUSH PORT</b>													
-GS	1/4" SS Plug Installed	STD	STD	STD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	✓
-JS	1/2" SS Plug Installed	N/A	STD	STD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	✓
-GH	1/4" Hast C Plug Installed	✓	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	✓
-JH	1/2" Hast C Plug Installed	N/A	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	✓
-GM	1/4" Monel Plug Installed	N/A	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	✓
-JM	1/2" Monel Plug Installed	N/A	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	✓
<b>TAG OPTION</b>													
-TS	Stainless Steel Tag (1-10 Characters)								✓				
-TM	Stainless Steel Tag (11-80 Characters)								✓				
-TP	Paper Tag								✓				
<b>CERTIFICATION OPTIONS</b>													
-NC	Certificate of NACE Compliance	✓	✓	N/A	✓	✓	✓	N/A	N/A	✓	✓	N/A	✓
-CM	General Material Conformance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
-MR	MTR - Mill Test Report Certificate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A	✓
-PM	PMI - Positive Material Identification Certificate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A	✓
-HT	Hydrostatic Test per ASME B31.3	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	N/A	N/A
-HL	Helium Leak Test Certificate	✓	✓	N/A	✓	✓	✓	✓	✓	✓	✓	N/A	N/A

✓ Indicates that the option is available  
 N/A Indicates the option is not available

<sup>1</sup> Standard on MS8, available on MS4 & MS6.