

Series ORB

RING SEAL FLANGED BOLT-THRU

The Reotemp Ring Seal Flanged Bolt-thru boasts an In-Line Flow-Thru design ideal for waste water, slurries, or abrasives. Mounted between pipe flanges or threaded in-line, it has a tough but sensitive elastomer lining. One unique feature of this seal is the ability to mount multiple instruments on one seal.



ORB

SPECIFICATIO	ONS							
Materials B	ody: Carbon St	eel, 316 SS						
Wetted Materials E D N	nd Flange: Car aphragm/Slee atural Rubber a	bon Steel, 316 S ve: Buna-N, PTI and more.	SS. FE EPDM,					
Process		Sloovo Matorial	Limit					
Temperature Limits		Bupa N	2250					
		Viton	220°F					
			400°F					
		FIFE	200%F					
		EPDIVI	300°F					
	Natural Rubber	212°F						
Maximum Working Pressure A	SME B16.5 Cla	ass 150# or 300	#					
Ambient Temperature Limits Determined by the pressure instrument								
Wetted Materials								
End Flanges	End	End Flanges						
		316L						
	Car	bon Steel	10"					
	Haste	Hastelloy C-276						
	Т	itanium	4"					
	A	lloy 20	4"					
	Ку	nar (VDF	4"					
	PTFE (25	% Glass Filled)	4"					
All Non-Metallic End Flanges Rated		PVC	4"					
to 150 PSIG Max		CPVC	4"					
Dianhragm/Sleeve								
Biapinaginoiceve	E	Buna N	10"					
	١	/iton A	10"					
		PTFE	10" (2" min)					
		EPDM	10"					
	Natu	ral Rubber	10"					

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REOTEMP

RING SEAL FLANGED BOLT-THRU



ANSI ASME Class	Nom Pipe Size (in)	Inner Dia. B (in)	Outer Dia. A (in)	Width C (in)	Bolt Circle BC (in)	Bolt Dia. BD (in)	No. of Bolt Holes	Approx. Weight (lbs)
	1	1.05	4.25	2.00	3.12	0.625	4	5.7
	1.5	1.61	5.00	2.00	3.88	0.625	4	7.9
	2	2.07	6.00	2.00	4.75	0.75	4	12.0
	3	3.07	7.50	2.00	6.00	0.75	4	18.4
150	4	4.03	9.00	1.50	7.50	0.75	8	18.6
	5	5.05	10.00	1.50	8.50	0.88	8	21.0
	6	6.07	11.00	1.50	9.50	0.88	8	23.9
	8	7.98	13.50	1.50	11.75	0.88	8	34.5
	10	10.02	16.00	1.50	14.25	1.00	12	44.5
	2	2.07	6.50	2.00	5.00	0.75	8	13.8
	3	3.07	8.25	2.00	6.62	0.88	8	22.0
	4	4.03	10.00	1.50	7.88	0.88	8	24.5
300	5	5.05	11.00	1.50	9.25	0.88	8	32.0
	6	6.07	12.50	1.50	10.62	0.88	12	34.9
	8	7.98	15.00	1.50	13.00	1.00	12	47.1
	10	10.02	17.50	1.50	15.25	1.13	16	58.8

Custom dimensions are available if your application requires. Choose -CD as option code. Alternate manufacturers dimensions may differ from above.

Liner/Sleeve Selection Chart											
Sleeve Material	Chemical Resistance	Max Temp.	Durability/Abrasion								
Buna N	Most common in Wastewater market. Limited chemical compatability.	225°F	Is an industry standard material that carries a medium/low abrasion resistance.								
Viton	Good chemical resistance that can be utilized in many applications. Limited chemical compatability.	400°F	Offers the best combination of temperature and high abrasion resistance.								
EPDM	Medium level of chemical resistance. Specialized material that performs very well in specific process medias.	300°F	Offers medium abrasion resistance.								
Natural Rubber	Often used in mining applications due to excellent wear properties, however, contains poor resistance to a variety of chemicals. Specialized material that performs very well in specific process medias.	212°F	Offers the highest resistance to abrasion out of the materials listed. NR is a tough material with a high durometer and stiffness.								
PTFE	Offers the best chemical resistance of all listed liners.	350°F	Soft material subject to plastic deformation and cold flow. Very low resistance to abrasion.								



DIAPHRAGM SEALS

Series ORB

RING SEAL FLANGED BOLT-THRU



YYY = No Mount (Dry Seal)

Series OR

REOTEMP

CTA

CSR

CVR

CVO

SOR

INSTRUMENT-TO-PIPE MOUNT CODES

Single Instrument Orientations											
Horizontal Pipe Mounts	Vertical Pipe Mounts										
STS	SVL										
STA	SVR										
SSO	SVO										
SSR											
SSL											

STS SSO SSR SSR SVL SVL SVL SVL SVC SVO

CSOL

CSL

CVL

Custom Single Mount Per Customer dwg - Use Code "SCU"

Compact (2 Instrument Orientations)											
compact (2 mstruit											
Horizontal Pipe Mounts	Vertical Pipe Mounts										
CTS	CVL										
CTA	CVO										
CSR	CVR										
CSL											
CSOR											
CSOL											

Custom Dual Mount Per Customer dwg - Use Code "CCU"

Goalpost (2 Instrument Orientations)

Vertical Pipe Mounts

GVL

GVO

GVR

Horizontal Pipe Mounts

GTS

GTA

GSO

GSR GSL

GTS	GTA
GSC	
GVL GVL	GSR
	GVR
	S

Trident (3 Instrument Orientations)										
Horizontal Pipe Mounts	Vertical Pipe Mounts									
TTS	TVL									
TTA	TVO									
TSO	TVR									
TSR										
TSL										

Custom Triple Mount Per Customer dwg - Use Code "TCU"





SMART TRANSMITTER ATTACHMENT

W9FFWR31S-DWD-AS<mark>-RB</mark>

HOW TO ORDER: Unbalanced System Example

W9FFWR31S-B05-AS<mark>-RL</mark>

DIFFERENTIAL PRESSURE ASSEMBLY

Balanced System A complete assembly with one part number that includes two diaphragm seals, two capillaries, two fills, and one complete assembly calibration certificate.

Unbalanced DP System Where seal, mount, capillary, or fill is not identical. A complete assembly includes one diaphragm seal on the HP side AND one diaphragm seal on the LP side.





DIAPHRAGM SEAL ASSEMBLY TO SMART TRANSMITTERS

Reotemp specializes in the unique craft of assembling diaphragm seals to field transmitters for the purpose of measuring pressure, differential pressure, level, and flow. As a trusted supplier to many of the world's leading transmitter manufacturers, Reotemp can assemble a diaphragm seal system to virtually any make or model transmitter. Every transmitter mount includes the features below to ensure superior performance and durability for every assembly. Reotemp also offers repair, refurbishment or replacement of used transmitters with remote seals.





INSTRUMENT MOUNTING CONFIGURATIONS

DIRECT MOUNT

Direct Mounting a pressure gauge, switch, or transmitter is the most common diaphragm seal assembly.



Assembly Notes: Welded connection recommended for pressure exceeding 1,500 psi for purposes of leak prevention.

COOLING ELEMENTS

Used in either high temp or cold temp applications, Cooling Elements

mounted above diaphragm seals quickly normalize fluid temperature toward

ambient. This protects the pressure instrument while still maintaining the

convenience of a direct mount.

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hazardous or inconvenient location.

Code	Description
Α	Armored, Threaded, 2mm
В	Amored, Welded, 2mm
W	PVC, Threaded, 2mm
Р	PVC, Welded, 2mm
С	Armored, Threaded, 1mm
E	Armored, Welded, 1mm
F	PVC, Threaded, 1mm
G	PVC, Welded, 1mm
Н	Armored, Threaded, 0.55mm
J	Armored, Welded, 0.55mm
К	PVC, Threaded, 0.55mm
L	PVC, Welded, 0.55mm

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

Assembly Notes: 2mm, 1mm, and .55mm are capillary inner diameter. Ambient temperature limit of PVC coated armor is 250°F. Process temperature limit of threaded connections is 400°F. Standard instrument connection is threaded (Smart Transmitters are welded), unless specified by customer.

REMOTE MOUNT

Remote Mounting a pressure instrument using flexible capillary is a

common mounting method when the point of measurement is in a

TREE ASSEMBLIES

Tree Assemblies offer the ability to mount two pressure instruments onto one diaphragm seal, allowing the user to gain both a local indication and a remote signal without adding an additional pipe insertion.



-RIR		-5174				
Code	De	escription	Max. Temp			
-RTR	6" Cooling To	wer	750°F			
-STW	3" Cooling Sta	andoff	600°F			

Assembly Notes: Cooling elements are welded to diaphragm seal. Instruments are threaded to cooling element unless specified. All lengths are nominal.



Code	Description	Max. Temp
-TRE	Goal Post, Low Pressure Assembly (Max. 150 psi)	400°F
-TRX	Goal Post, Heavy Duty (Max. 3,000 psi)	600°F
-TRM	Compact Tree Assembly (Max. 3,000 psi)	600°F

Assembly Notes: Threaded joints are fully welded for consistent instrument orientation. Instrument connections are threaded unless specified by customer. Diaphragm seal must displace enough fluid to drive both instruments.



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:

Tomporaturo

- ~ 24-hour Minimum Fluid De-gassing
 - ✓ Evacuated Instrument Chamber Up to 10-8 ✓
- ✓ 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)	Pulse+	Viscosity cst @ ~77°F	Specific Gravity @ ~77°F	Thermal Expansion cc/cc/ºC
		STANDARD FILL FLUID					
AS	Silicone DC2001	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
		HIGH TEMP SILICONE					
вн	Silicone DC704 ¹	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 ¹	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 ²	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 ¹	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 DC5501	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
		FOOD GRADE					
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 M207	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
	INE	RT (TYPICALLY FOR CHLORINE AND OXYGEN APPLICATIONS C	OR IN SILICONE-	FREE ENVI	RONMENTS)	
C1	Fomblin Y06⁴	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 6.3³	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 1.8³	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-5⁵	Similar performance to Halocarbon 6.3, however not suitable for vacuum service.	-40°F to 450°F (Not Suitable)	No	5	1.86	.00087
		SPECIALTY					
СК	Krytox 15066	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
СТ	Syltherm XLT ²	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 Ho Company 4 Trademark ALISIMONT S P.A 6 Trademark Th	ooker Chemical Compa	ny 7	Trademark Ste	pan Specialty	Products

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

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DIAPHRAGM SEAL OPTIONS

		MS4 MS6 MS8	W5 W6 W7	T5 T6 V5	W9FF W9FR W9RD	W9XT	W9FP	DSTC75	DSTC15 AND LARGER	DSTF05	DSTF75 AND LARGER	DSPP	OR	DXFR
	PULSATION P	ROTEC	TION (VAILABL	E WITH I	REOTEM	P PRESSU	RE GAUGE	MOUNTED	TO SEAL)			
-PP	Pulse Plus™	✓	✓	✓	✓	✓	N/A	N/A	~	N/A	✓	~	✓	N/A
					DIA	PHRAG		NG						
-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	\checkmark	~	\checkmark	✓	✓	N/A	N/A
	FILL													
-FW	Fill Port Welded Closed	STD ¹	~	~	✓	\checkmark	✓	\checkmark	✓	\checkmark	✓	✓	N/A	N/A
-VF	Fill for Vacuum Service	N/A	~	N/A	✓	✓	✓	N/A	✓	N/A	✓	✓	N/A	N/A
CLEANING AND FINISH														
-DG	Degreased, Shipped in Sealed Bag	✓	✓	✓	✓	✓	✓	~	✓	✓	✓	~	N/A	✓
-ох	Cleaned for Oxygen Service per ASME B40.1		~	N/A	~	~	✓	~	~	~	~	~	N/A	\checkmark
-OY	Cleaned for Oxygen Service per MIL-STD-1330D	~	~	N/A	~	~	✓	~	~	~	~	~	N/A	~
	PLUG FOR FLUSH PORT													
-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	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	N/A	✓
-GH	1/4" Hast C Plug Installed	\checkmark	\checkmark	~	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\checkmark
-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	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	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	N/A	✓
						TAG O	PTION							
-TS	Stainless Steel Tag (1-10 Characters)								✓					
-TM	Stainless Steel Tag (11-80 Characters)								\checkmark					
-TP	Paper Tag								\checkmark					
					CER	TIFICATI		ONS						
-NC	Certificate of NACE Compliance	✓	~	N/A	✓	✓	✓	N/A	N/A	✓	✓	✓	N/A	✓
-CM	General Material Conformance	✓	~	~	✓	✓	✓	\checkmark	✓	\checkmark	✓	✓	✓	\checkmark
-MR	MTR - Mill Test Report Certificate	\checkmark	~	~	✓	✓	✓	\checkmark	✓	\checkmark	✓	\checkmark	N/A	\checkmark
-РМ	PMI - Positive Material Identification Certificate	~	~	~	~	~	✓	~	~	1	~	~	N/A	~
-HT	Hydrostatic Test per ASME B31.3	~	~	~	~	~	✓	\checkmark	~	\checkmark	~	~	N/A	N/A
-HL	Helium Leak Test Certificate	~	~	N/A	~	✓	~	~	~	~	~	~	N/A	N/A
✓	Indicates that the option is available								1 g	Standard on N	/IS8, available	e on MS4 &	MS6.	
N/A Indicates the option is not available														