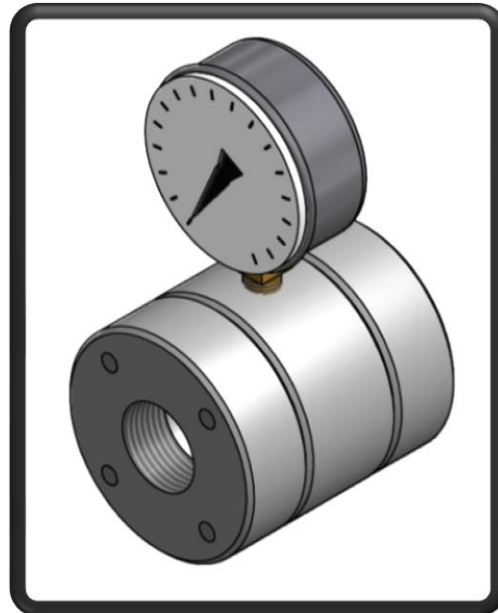
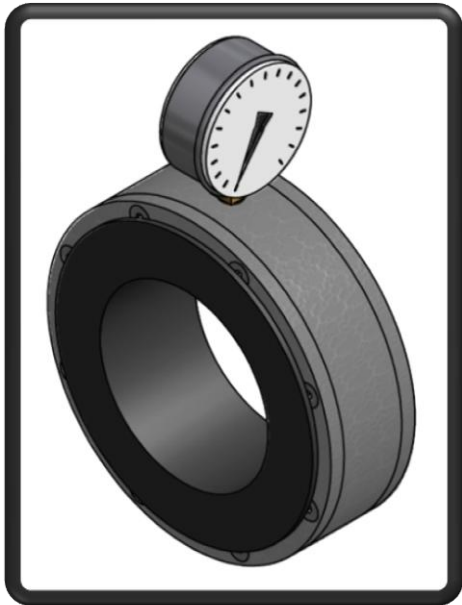


PRESSURE SENSORS

INSTALLATION, OPERATION, & MAINTENANCE INSTRUCTIONS



WAFER PRESSURE SENSOR (WPS)

THREADED PRESSURE SENSOR (TPS)

OPERATION

EVR pressure sensors consist of a moulded elastomer sleeve, which features an integral flange gasket. As a result, process fluids do not contact the sensor body or retaining rings; thus eliminating the requirement for special materials or alloys in corrosive situations.

This moulded elastomer sleeve acts to both isolate the process fluid from sensitive instrumentation and transmit the fluid pressure changes. The process fluid pressure is transmitted to a liquid sealed between the metal housing and the flexible elastomer element and measured using standard pressure measurement devices such as gauges, transmitter switches, and/or recorders.

EVR pressure sensor sleeves use an "O" Ring type of seal and allow metal to metal contact between retaining rings and the sensor body, which eliminates any sealing area susceptible to high pressure blow out and/or loss of fill liquid.

INSTALLATION

1. **Ensure that pipe lines are depressurized before installing, removing, or servicing a pressure sensor.**
2. Pressure sensors frequently handle reactive and abrasive fluids, which may cause the elastomer sleeve to wear out over a period of time. Sensor and gauge liquids (if supplied with a liquid filled gauge) must be compatible with the process fluid. Caution must be taken when handling these liquids. Mixing these liquids may cause a violent chemical reaction resulting in personal injury and/or equipment damage.
3. Instruments (transducers, pressure switches, etc.) must be pressure-rated within the desired operating conditions and be compatible with the sensing fluid. Consult the specific manufacturer's literature for correct design conditions and installation procedures.
4. Inspect the sensor before installation. While EVR takes steps to prevent shipment damage, such damage is possible and should be discovered and reported before the unit is installed.
5. **DO NOT INSTALL A DAMAGED PRESSURE SENSOR.** The pressure sensor should not show any indication of leakage. The elastomer sleeve should be free of any cracks, cuts and blisters and be replaced if necessary.
6. The operating pressures must be within the sensor rating and its instrument's specifications. The rubber compound must be compatible with both the chemical reactivity and temperature of the process fluid.
7. EVR pressure sensors can be installed with the flow in either direction. Install in a straight run of pipe.
8. If the pressure sensor is supplied with a gauge, the gauge may be rotated to face the most convenient direction for viewing. It is recommended that the gauge be rotated **CLOCKWISE** only up to three quarters of one revolution.
9. The pressure sensor is vacuum-transfer liquid filled at the factory to ensure the highest possible accuracy in the operation of the gauge or auxiliary instrumentation. **DO NOT DISASSEMBLE UNLESS NECESSARY FOR REPAIRS.**
10. EVR WPS pressure sensors should be mated with full face, flat faced, serrated face flanges to achieve optimum performance. The use of slip-on or raised face flanges can cut the rubber surface causing leakage.
 - Sandwich the pressure sensor between two flanges in the process pipeline.
 - Centre the pressure sensor as carefully as possible.
 - Insert the flange bolts.
 - No gasket is required.
 - Do not distort the rubber face of the WPS when inserting between flanges
 - Tighten flange bolts in a criss-cross pattern.
11. EVR TPS pressure sensors are designed to be installed between two threaded pipes. Ensure that an appropriate pipe sealant is used and do not over-tighten.

SLEEVE REPLACEMENT

1. Remove pressure sensor from process line.
2. Remove any instruments (gauge etc.), but be careful not to damage the equipment.
3. Remove the drain plug and drain the sensing fluid from the pressure sensor.
4. Peel back outer rubber sleeve flange to expose counter sunk screws (WPS).
5. Remove the counter sunk screws from end plates.
6. Remove end plates (2 per body).
7. To remove the sleeve, collapse and pull through the body.
8. Clean all components thoroughly. Flush out gauge.
9. Collapse new sleeve and pull through body and work seal lips into body groove.
10. Peel over sleeve flanges and reinstall end plates. Do not pinch seal lips.
11. Fasten screws in criss-cross pattern.
12. Replace gauge and/or other instruments.
13. Fill with sensing liquid. *See Fill Procedure.*
14. Replace drain plug.
15. Reinstall pressure sensor in line, making sure that the mating flanges are free of any sharp edges which may cut the sensor sleeve (WPS).

FILL PROCEDURE

Conventional Filling

1. With the gauge (or any other instruments) attached to the sensor, invert the sensor body (fill port up).
2. Support the instruments adequately so-as not to damage them during the filling process.
3. Use a syringe or similar instrument to slowly pour sensing liquid into the sensor body. Approximate fluid volumes are included in Figure 1.
4. Allow as much air to escape as possible.
5. With the sensor still inverted, replace the drain plug and knead the inside rubber surface to force out trapped air bubbles.
6. Remove the drain plug and slowly pour in some more sensing liquid until full.
7. Repeat steps 5 & 6 until liquid level remains unchanged.
8. Replace the drain plug & tighten.

Vacuum Filling

Since vacuum filling eliminates air pockets in gauge or auxiliary instrumentation, this is the preferred method of filling and insuring the highest possible accuracy in gauge reading. For vacuum filling, use any commercially available electric vacuum pump.

Additional Notes

1. All pipe threads must be covered with thread sealer (i.e. TFE tape).
2. All hardware must be tight and checked at regular intervals for looseness due to pipe vibration.

MAINTENANCE

EVR pressure sensors should be periodically inspected for wear or aging of the elastomer sleeve. The pressure sensor may be supplied with instruments (transducers, pressure switches, etc.). Consult the specific manufacturer's literature for proper maintenance procedures.

APPROXIMATE SENSING FLUID VOLUMES

	WPS	TPS
Size (in)	Volume (ml)	Volume (ml)
1/2		10
3/4		10
1	15	10
1 1/2	25	20
2	35	35
2 1/2	40	
3	60	
4	70	
5	50	
6	75	
8	85	
10	165	

Figure 1

STORAGE

1. EVR spare pressure sensors and sensor replacement sleeves must be kept in a cool, dark place. Exposure to heat, extreme cold, or sunlight will damage the sleeve.
2. DO NOT STORE THE SENSOR near active electrical equipment. If the sensor will be in storage for a long period, it is advisable to coat the face and inside of the sleeve twice yearly with silicone spray or liquid.
3. For Control Instruments, refer to instrument maintenance manuals for the proper storage procedures.

WARRANTY

All products manufactured by Elasto-Valve Rubber Products Inc. (EVR) are guaranteed against defects resulting from faulty workmanship or materials for one (1) year from date of shipment to Buyer. If any such product is found to be defective by reason of faulty workmanship or materials, then upon written notice and return of the product, and at EVR's sole discretion, the defective product will be replaced or repaired by EVR free of charge at EVR's factory. Claims for labour costs and other expenses required to replace and/or transport such defective product or to repair damage resulting from the use thereof will not be allowed by EVR. Our liability does not include consequential damages and is limited to the price paid for the defective product.

EVR shall not be bound by any other warranty other than the above set forth unless such warranty shall be agreed in writing by EVR.

All EVR literature is published in good faith and is believed to be reliable at time of print; however, due to product design changes, EVR reserves the right to make alterations from published materials at any time. Formal approval drawings are available to confirm individual products upon request at time of order.

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