

**Ashcroft® Switches****PIP #: SW/PI-30E**

Applicable to:

**ASHCROFT SWITCH/DIAPHRAGM SEAL COMBINATION**

Most Ashcroft pressure and differential pressures switches may be used in conjunction with a diaphragm seal. The diaphragm seal protects the switch from a process that may:

- Clog the pressure element.
- Be corrosive to the available wetted materials with switches.
- Have temperatures outside of the switch diaphragm temperature limits.

A diaphragm seal is a device which is attached to the inlet connection of the switch to isolate the sensing element from the process fluid. The space between the top of the diaphragm and the pressure element is filled with a suitable liquid. (Refer to Table I & II). Displacement of this liquid fill through the movement of the diaphragm transmits pressure changes to the switch.

When specifying a switch/diaphragm seal combination, we recommend:

- Using either a Viton or Teflon (switch) diaphragm in conjunction with silicone (XCK) or Halocarbon (XCF).
- Viton-diaphragm or the 700 series seal must be used for inches of H<sub>2</sub>O range applications.
- Ethylene glycol/water (XCT) fill material must be used for inches of water or vacuum applications.
- Switch/seal combination be directly connected when possible.
- Remote mounting the switch when ambient temperatures exceed 150°F.
- Best results are obtained by ordering ½ NPT male pressure connection on switch (06 or X06) and ½ female connection on seal top housing (04T).
- To order a switch and seal assembled and filled, add the fill ordering code to both switch and seal.
- When ordering a snubber with the seal, be sure to order a “D” porosity designation so the fill can pass through with as little response delay as possible.
- When ordering a differential pressure switch, be sure to consider a diaphragm to consider a diaphragm seal for both high and low pressure connections.
- Make sure the diaphragm seal maximum pressure rating exceeds the range of the switch attached.

**GUIDLINES – TABLE I**

STYLE	DIRECT CONNECTION		REMOTE CONTROL		
	Diaphragm Seal	Filling Material	Diaphragm Seal	Filling Material	Maximum Capillary Length
<b>Pressure</b> 6 psi and above	100 Series 200 Series 300 Series Isolation Ring	All – See Table II Below		All – See Table II Below	50 feet
30.1" H <sub>2</sub> O to 164" H <sub>2</sub> O	300 Series Viton Diaphragm 700 Series	Ethylene Glycol and Water (XCT)	300 Series Viton Diaphragm 700 Series	Ethylene Glycol and Water (XCT)	10 feet
5" H <sub>2</sub> O to 30" H <sub>2</sub> O	300 Series Viton Diaphragm 700 Series	Ethylene Glycol and Water (XCT)	NOT RECOMMENDED		
<b>Vacuum</b> 1" Hg to 3" Hg	300 Series Viton Diaphragm	Ethylene Glycol and Water (XCT)	NOT RECOMMENDED		
3.1" Hg to 30" Hg	300 Series Viton Diaphragm 700 Series	Ethylene Glycol and Water (XCT)	300 Series Viton Diaphragm 700 Series	Ethylene Glycol and Water (XCT)	10 feet

**FILLING FLUID – TABLE II**

FILLING MATERIAL	SERVICE	CONNECTION TO INSTRUMENT	TEMPERATURE RANGE	ORDERING COD
Ethylene Glycol/ Water (50/50 Mixture)	Pressure/Vacuum	Direct/Remote	-25/250	CT
Glycerin	Pressure	Direct Only	0/400	CG
Silicone	Pressure/Vacuum	Direct/Remote	-40/600	CK
Halocarbon	Pressure/Vacuum in Presence of Strong Oxidizing Agent	Direct/Remote	-40/300	CF
Syltherm	High Temperature	Direct/Remote	-40/700	HA