

INTRODUCTION

Prochem diaphragm seals (or gauge isolators) are designed to enable standard construction pressure gauges and switches to be used on process lines carrying corrosive chemicals or sludges which would otherwise corrode or clog the sensing instruments. They operate by hydraulically isolating the pressure gauge or switch from the process stream via a diaphragm or sleeve. The process fluid exerts a pressure on the diaphragm which in turn transmits the pressure through to the sensing side of the seal which is solidly filled with water. This then transmits the pressure to the gauge or switch. Generally, a reduction in accuracy of approximately $1/2$ -1% is experienced when using a diaphragm seal. Prochem offers two distinct types of diaphragm seal these are:

CHEMICAL DIAPHRAGM SEALS

These are designed to handle essentially corrosive process fluids and are available in a wide range of engineering plastics with a variety of isolation diaphragm materials to suit most applications. The seals screw directly onto a tee branch or male nipple in the process line and are normally supplied complete with a standard 100mm gauge or single pole switch. Alternative gauges/switches can be fitted at additional cost. The seals can be supplied loose for on-site fitting but care is required to ensure that the units are correctly filled to eliminate reading inaccuracies. Full details of materials etc. are given in the following table.

BODY MATERIALS	DIAPHRAGM MATERIALS	STANDARD GAUGE	STANDARD P/SWITCH	PROCESS CONNECTION
PVC POLYPROP PVDF PTFE	EPDM VITON PTFE/VITON	100mm. DIA. 2% Accuracy 0-6 or 0-10 BarG.	100VA @ 240v N.O. or N.C. CONTACTS IP 65 (with boot)	$1/2$ " BSP Female or Flanged

NOTE: NORMAL MAXIMUM PRESSURE RATING IS 10 BarG.

ANNULAR SLEEVE SEALS

These seals are used primarily for handling slurries or sludges which would normally block or clog up small diameter gauge parts or pipes. They utilise a tubular sleeve which becomes part of the process pipeline as the separating diaphragm. The bodies are pvc or cast iron and a wide selection of sleeve elastomers is available to suit most applications. Details are given in the following table.

CONNECTION SIZES	BODY MATERIALS	SLEEVE MATERIAL	STANDARD P/GAUGE	STANDARD SWITCH
$3/4$ " - 1" - $1 1/4$ " SCREWED BSPF	CAST IRON	NAT. RUB	50mm DIA. 2% Accuracy 0-7 or 0-10 BarG. Combination gauges available.	100VA @ 240v N.O. or N.C. CONTACTS. IP65(with boot)
$1 1/2$ " - 8" FLANGED	CAST IRON			

NOTE: NORMAL MAXIMUM PRESSURE RATING IS 8 BarG.

STAINLESS STEEL GAUGE

Service Intended

Heavy duty, all stainless steel construction process pressure gauge. Suitable for almost all measuring mediums and operating conditions. Also suitable for corrosive environments.

Nominal Diameter Sizes

Standard 100mm, 63mm & 50mm available

Accuracy

± 1% FSD.

Ranges

30 lb/in² - 300 lb/in²

2 Bar - 20 Bar (others on request).

(All gauges normally supplied dual scale lb/in² and bar)

Pressure Connections

1/4" - 3/8" - 1/2" BSP, BSPT, NPT available. 3/8" BSP for Prochem diaphragm seals.

Pressure Element

316 Stainless Steel on 100mm gauges.

Cu-alloy on 63mm gauges & 50mm.

Case Material

304 stainless steel standard.

Blow Out Disk

Fitted as standard.

Window

Plastic or glass

Liquid Filling

99.5% glycerine. Others available.

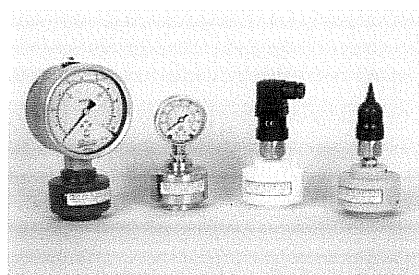
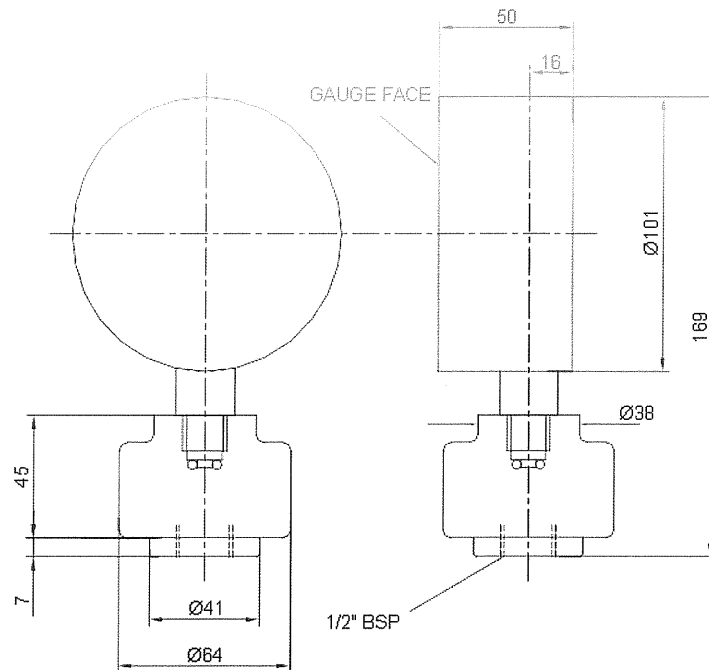
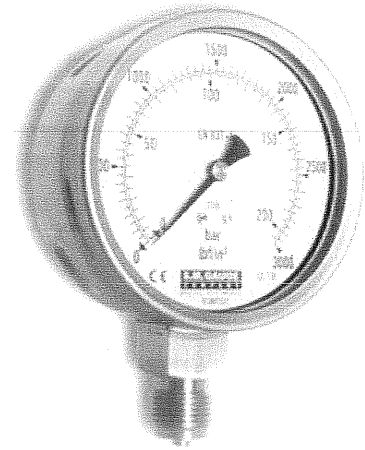
Weather Protection

IP65

Options

Liquid Filled.

Maximum Deflection Pointer



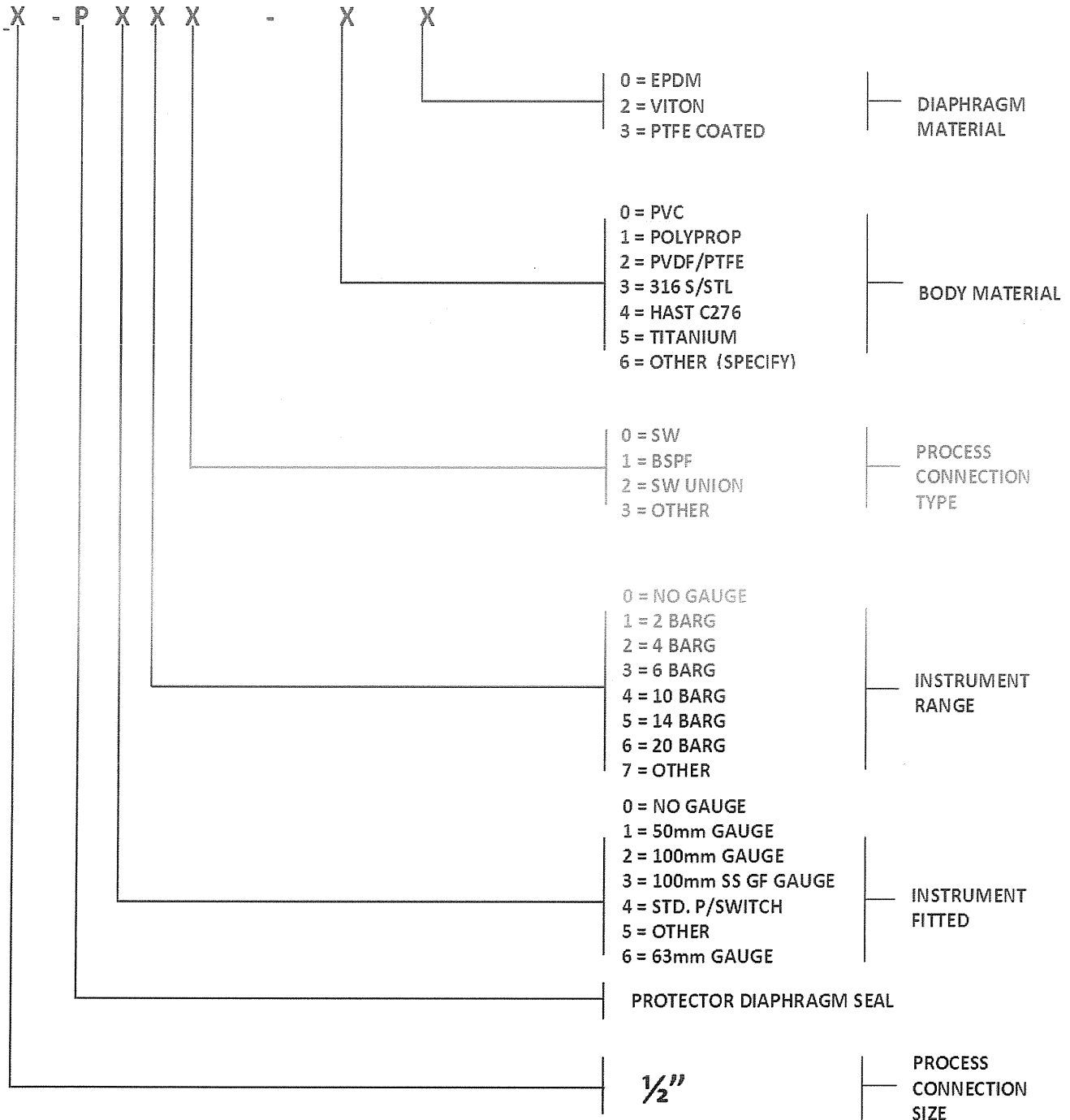
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EQUIPMENT
CHEMICAL & SLURRY DIAPHRAGM GAUGE ISOLATORS

DATE
27/06/2013

DIAPHRAGM SEAL DESIGNATIONS



NOTES:

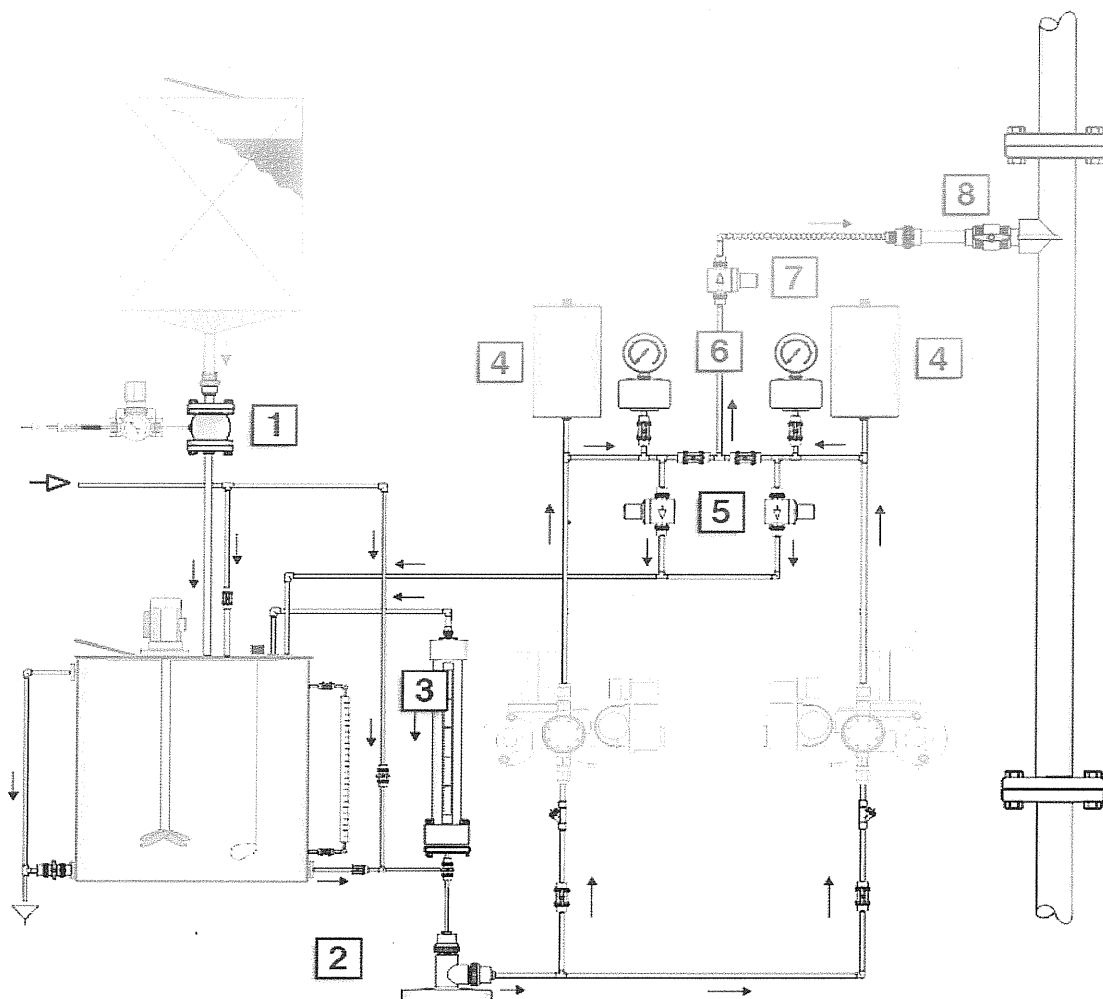
- 1) STANDARD PROCESS CONNECTION IS 1/2" BSP FEMALE AND STANDARD GAUGE CONNECTION IS 3/8" BSP MALE.
- 2) IF SEALS ARE SUPPLIED WITHOUT GAUGE OR PRESSURE SWITCH THEN THE INSTRUMENT CONN. MUST BE SPECIFIED.

QUOTATION INFORMATION

In order to provide a quotation for Prochem chemical or slurry seals the following information is required.

1. Details of fluid to be handled (and flow rate if slurry seal required).
2. What is line pressure and pressure range required.
3. Type of seal (chemical or slurry) and if pressure gauge seal or switch type seal required.
4. If chemical seal what process line connection is required?
5. If slurry type seal what is main line size and connection type.
6. If non standard gauge or switch to be fitted what is the sensor connection required?

DOSING SYSTEM SCHEMATIC



- 1) Pinch Valve. 2) Suction Demand Valve. 3) Calipot 4) Pulstion Damper. 5) Pressure Relief Valve
6) Diaphragm Seal. 7) Pressure Loading Valve. 8) Withdrawable Injection Lance.