

Instruction Manual

ITEM: DIAPHRAGM SEALS TYPE PRESSURE GAUGE

MODEL : P710 / P720 / P730 / P740 / P770



Model : P710



Model : P720



Model : P730

WISE[®] WISE Control Inc.
www.wisecontrol.com

Instructions for proper and safe operation

Please read instructions carefully prior to using the instrument for proper and safe operations.

Mishandling could cause device malfunctions and result in disastrous injuries or accidents.

WARNING

1. Do not exceed the pressure range allowed.

2. Do not use it to measure the pressure of corrosive fluid.

Damage or rupture of pressure gauge may cause release of fluid which could lead to bodily injury or destroy surrounding area.

3. Do not apply excessive load, vibration or impact.

Damage or rupture of pressure gauge may cause release of fluid which could lead to bodily injury or destroy surrounding area.

4. Please use within the specified temperature ranges.

Exceeding the temperature range may cause disruption in nearby area due to damage to the temperature indicator.

5. Make sure to turn off the valve to prevent the measuring fluid leak when dismounting the gauge.

The measuring fluid leakage may destroy the surrounding area.

6. Use a pressure gauge with no oil in an environment with hydrocarbon or oxygen.

Oil contained in the gauge may react with oxygen which may be flammable or explosive.

7. Please always follow the mounting instructions in the manual in cases of field installation.

8. Do not make any modifications to the product or to add more functions.

Please consult with us for any repair.

9. Do not cut open the oil filler cap outside. .

Condensation may occur in rainy weather.

※ Always open the oil filler cap and depressurize when checking pressure.

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1. Overview

Diaphragm pressure gauge is designed to be used in processes involving coagulants of corrosive, highly viscous, high temperature or float solids in chemical plant, food processing industry or paper mill.

The diaphragm not only protect Burdon tube from the measuring fluid, but also transfers the pressure difference in displacement detected by the diaphragm accurately to Burdon tube by mineral or silicone oil filled between the Burdon tubes.

2. Product characteristic

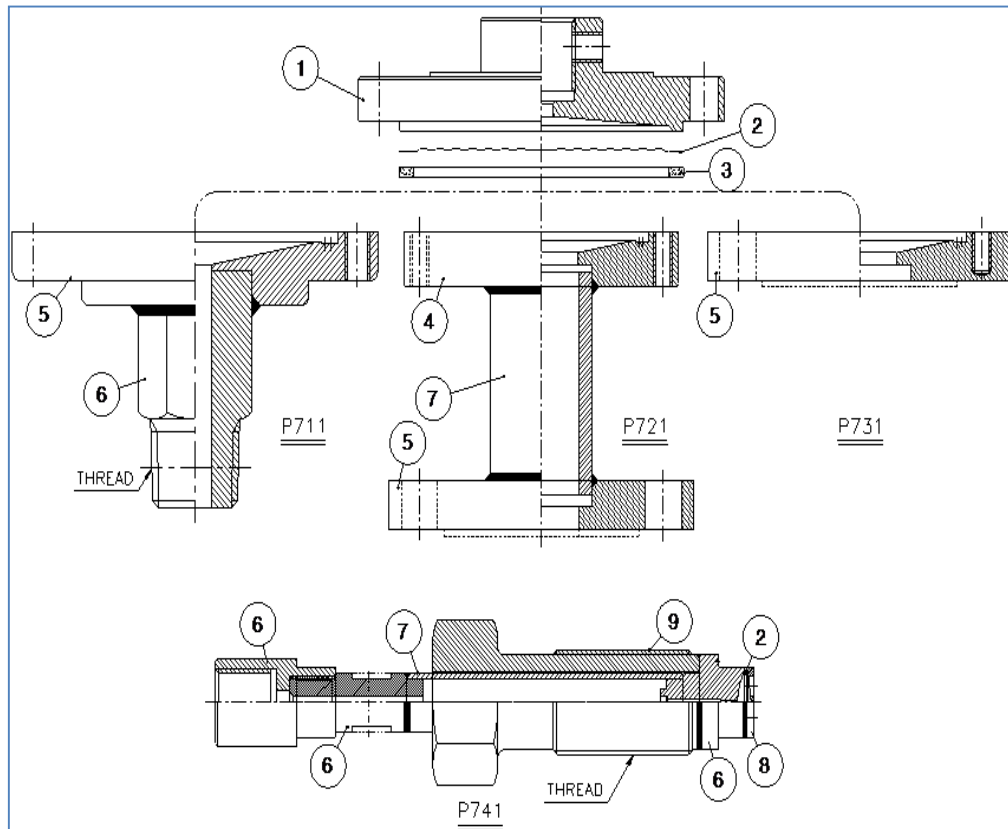
- 1) It is useful in areas with large amount of pulp or sludge.
- 2) Various diaphragm can be selected accordingly to corrosive fluid.
- 3) With selection of proper filling oil, it can be used in extremely hot environment or below freezing conditions.

3. Specifications and standards

- | | | |
|--------------------------------|---|--|
| 1) Specifications | : | P710 : Screw mounting type
P720 : Flange mounting type
P730 : Flange mounting type
P740 : for high temperature |
| 2) Operating pressure | : | Steady 75% of Full Scale
Over Range Protection : 130% of Full Scale |
| 4) Liquid end material | : | UPPER FLANGE - Stainless Steel 304SS, 316SS
DIAPHRAGM - 316LSS, Monel, Hastelloy-C
Titanium, Tantalum, Nickel
UNDER FLANGE - Stainless 304SS, 316SS, 316LSS
Monel, Hastelloy-C, Titanium, Nickel |
| 5) Contact part specifications | : | P710 - 1/4", 3/8", 1/2" PT, NPT & PF
P720, P730 - Flange to ANSI, JIS, KS, or other Standard
P740 - PF3/4" and PF1" Male Screw

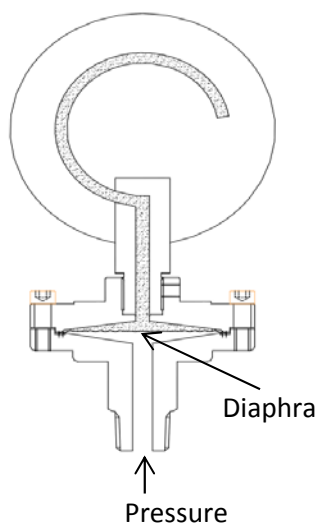
OPTIONAL : Teflon coating or Teflon lining |
| 6) FILLING LIQUID | : | Silicon oil KF96 (-20~200°C) |

4. Names and fundctions of parts



No.	Name	No.	Name	No.	Name
1	UPPER FLANGE	4	MIDDLE FLANGE	7	PIPE
2	DIAPHRAGM	5	UNDER FLANGE	8	RING
3	PACKING	6	CONNECTOR	9	PLUG

5. Operating principle



Diaphragm converts pressure to exaggerated displacement in rotating movement using internal devices.

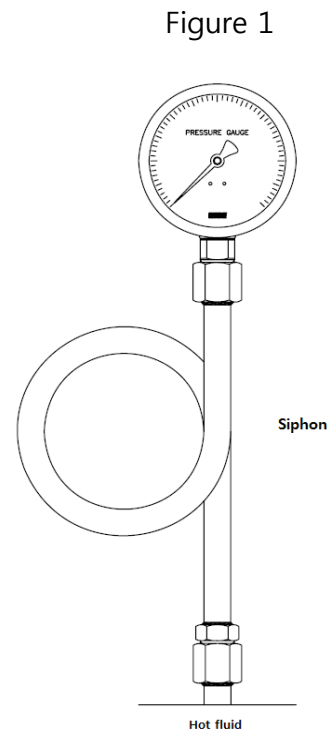
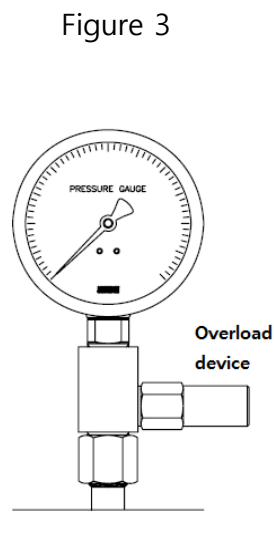
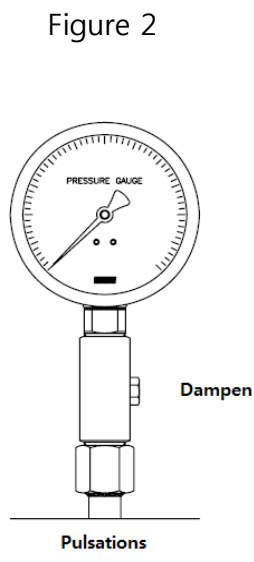
Internal devices consists of lever and gear which converts linear movement of diaphragm into rotating movements.

In general, displacement of diaphragm is approximately 3 to 4mm which is converted into 270° rotation to indicate the pressure.

6. Maintenance and precautions

- 1) Select proper diaphragm or flange material to be protected if fluid is corrosive.
- 2) Remote reading diaphragm type should have the diaphragm and the gauge installed in the same horizontal plane. If not, calibrate after installation.
- 3) There is filler fluid in Bourdon tube. Please do not disassemble or loosen it.
- 4) If distant diaphragm is more than 10m away, small deviation might occur depending on the surrounding temperature or viscosity of the fluid.
Please keep the capillary tube warm.

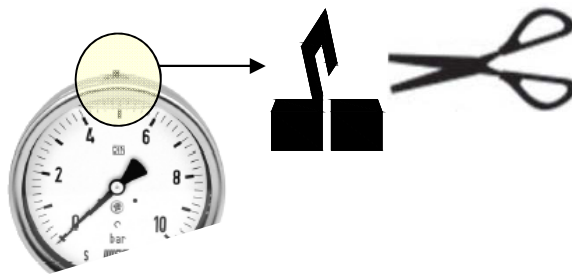
- 5) If fluid of high temperature is used, make sure the inlet fluid into the pressure gauge is proper temperature by installing siphon tube (**Fig. 1**).
- 6) Please avoid sudden pressure increase or decrease.
- 7) If there is chances of pulsating pressure or impact pressure use overpressure preventive devices such as a dampener or gauge protector (**Figures 2 & 3**).



- 8) Inspect once or twice regularly in 6 month to check contact operation or attempt.
- 9) If installed outside, do not cut the oil filler cap and release pressure on a regular basis.

Condensation may occur in rainy weather.

If the oil filler cap has to be cut, do not cut completely but cut rather half way as shown below.

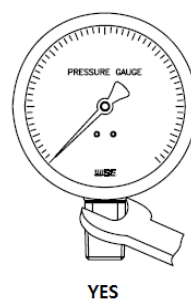
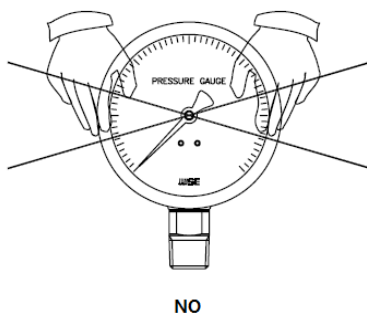


7. Installation

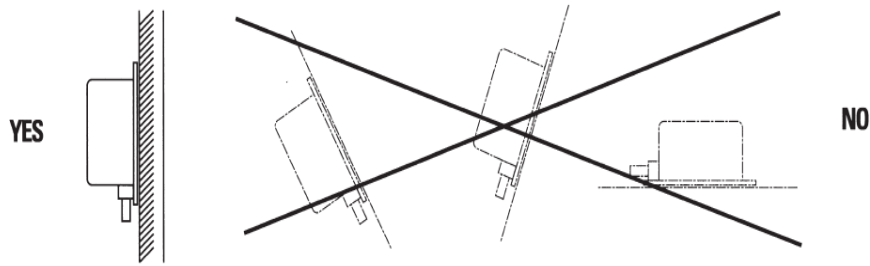
- 1) Install in a place devoid of moisture, vibration, dust or corrosive gas.
- 2) Avoid areas that might exceed the temperature ranges specified in this manual.
- 3) Make sure to protect from lightning or steam.
- 4) Avoid areas with direct sun light.
- 5) Use M5 nut if installed on a panel or wall using mounting groove.

If mounting bracket is used, install it firmly.

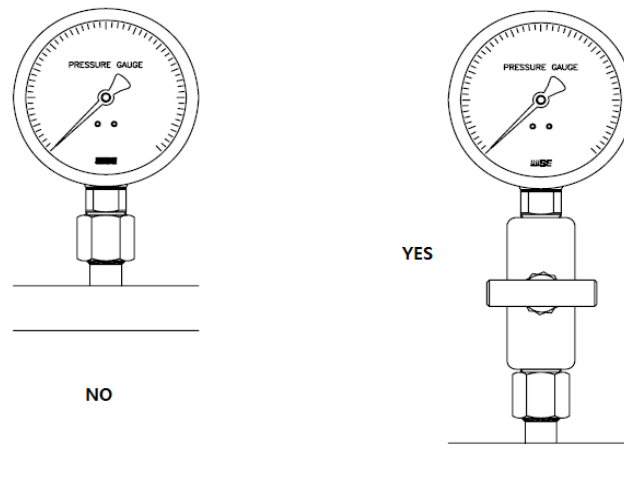
- 6) Use flexible tube in impulse pipes not to stress the pressure gauge.
- 7) Do not hold the casing to turn. Always use specified wrench.



- 8) The pressure gauge operates in vertical position. Always install in vertical position to calibrate.

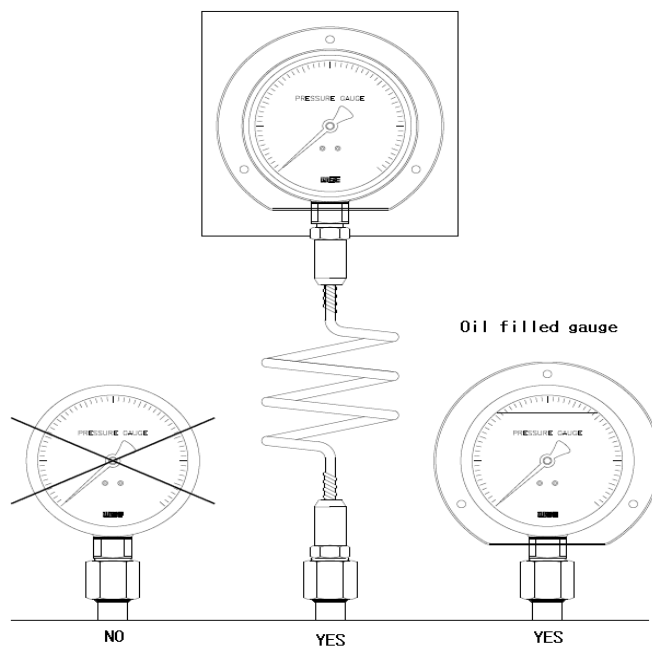


- 9) Install valve when the pressure gauge is first installed so that it is easily dismounted.



8. Operating instructions

- 1) Check presence of vibration, pulsation or heat in pipe lines and determine whether to use accessory, or select products with capillary or other oil types.



- 2) Always make sure the gauge is calibrated to zero prior to installation.
- 3) Use Teflon tape or gasket on screws for extra firmness.
- 4) Open the valve slowly to check if the pressure is proper after the installation.
- 5) The line of vision should be in line with the gauge when checking the pressure.

