

# User's Manual

Product Name : PRESSURE GAUGE

MODEL : P222 / P228 / P252 / P253 / P254 / P258 / P259



**WISE**<sup>®</sup> WISE Control Inc.  
[www.wisecontrol.com](http://www.wisecontrol.com)

## Instruction Manual for Correct and safe use

Misuse of this product might cause damage to the product and serious injury to the user.

### WARNING

1. Do not apply more pressure than given range.
  2. Do not use the product with a corrosive fluid. A corrosive fluid can cause the rupture of the measuring elements, and it could lead to injury or destruction.
  3. Avoid excessive weight, vibration, and shock on the product.  
These could cause the rupture or damage on the product, and leaked fluid can cause injury to the user and destruction of surroundings.
  4. Use the product within the given Temperature range.  
More than given temperature range can cause the damage to the product, and leads to the destruction.
  5. When removing the products from its operating line, make sure to close the valve before removing.  
This will prevent the fluid or other substances to release. This release might cause the destruction of surroundings.
  6. Use "Use No Oil" Pressure gauges for the environment where Hydrocarbon or Oxygen is present.  
General Pressure gauges with the left over oil inside can lead to explosion when it gets mixed with oxygen or Hydrocarbon.
  7. When installing the product, please follow the instruction manual for how to install.
  8. Do not modify the product for other purpose.  
Please consult the manufacturer for repair.
  9. Do not cut off the oil cap when the product is installed outside because rain can penetrate into the gauge and cause a dew condensation.
- \*To check the pressure, please remove the oil cap to release the internal pressure.

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## 1. SERVICE INTENDED

Euro Gauges are made of Stainless steel to withstand any corrosive agents being present in

## 2. CHARACTERISTICS

To protect the gauges from any corrosive agents, these gauges are made of Stainless Steel.

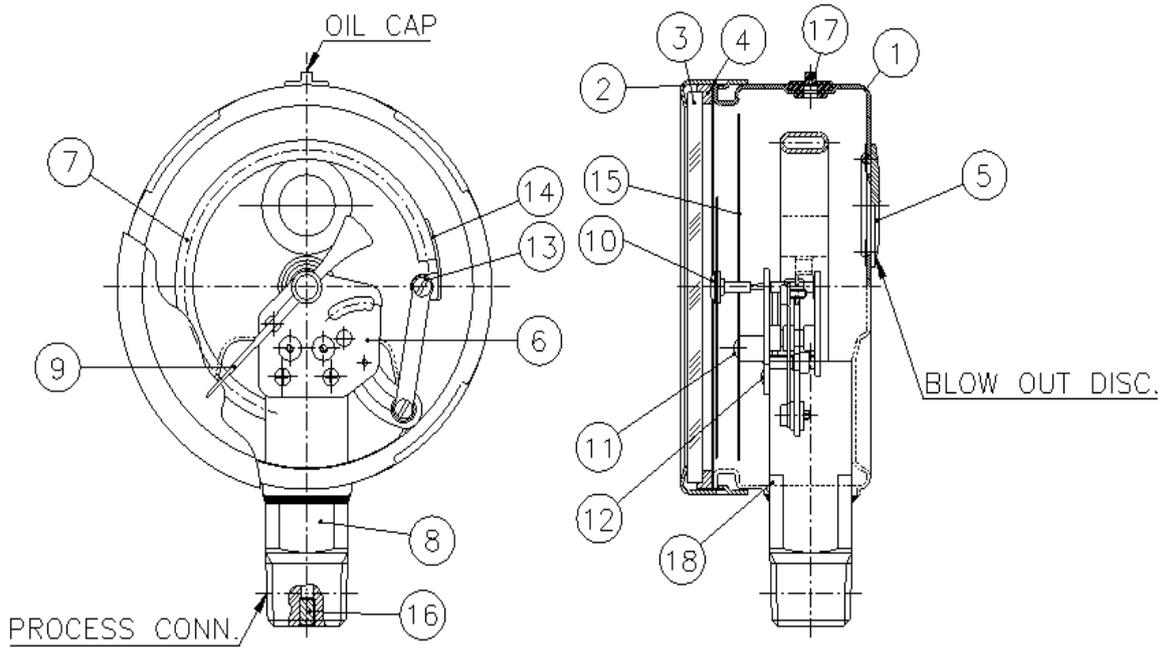
Euro Gauges are designed according to EN-837-1, and certified by the certificate authority.

Euro Gauges have a high reliability, and contains a safety mechanism to promote safe working environment.

## 3. SEPCIFICATIONS & STANDARDS

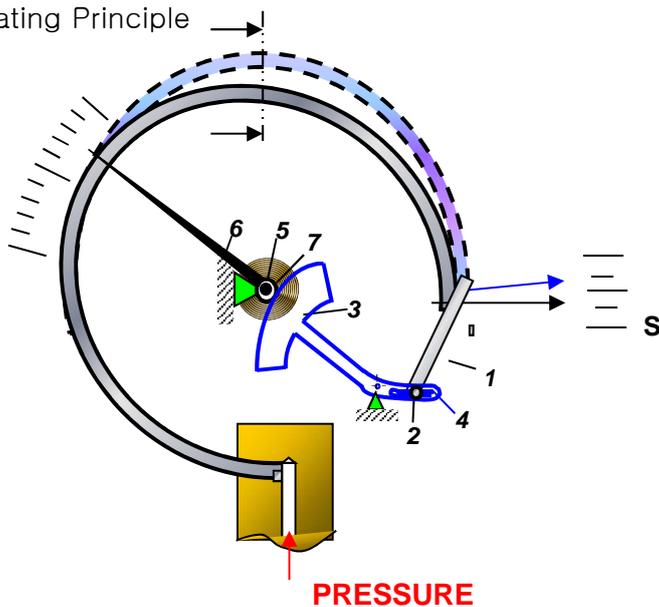
- 1) Standard: 63, 80, 100, 160mm
- 2) Accuracy: 63, 80mm  $\pm 1.6\%$  of Full Scale
- 3) Pressure Range: 63, 80mm : 0 ~ 1000bar  
100, 160mm : 0 ~ 2000bar
- 4) Working Pressure: Steady 75% of Full Scale  
Over Range Protection : 130% of Full Scale
- 5) Element Material : 316SS or MONEL
- 6) Process Connection Size : 63mm : 1/8", 1/4" PT ,NPT & PF  
80mm : 1/4", 3/8" PT ,NPT & PF  
100 and 160mm : 1/4", 3/8", 1/2"PT ,NPT & PF
- 7) Working Temperature: Ambient:  $-40 \sim 65^{\circ}\text{C}$   
Fluid: MAX  $200^{\circ}\text{C}$
- 8) Degree of Protection: IP65 & IP67

#### 4. Parts Name & Its function



NO	ITEM	NO	ITEM	NO	ITEM
1	CASE	7	BOURDON TUBE	13	CONTROL SCREW
2	COVER	8	SHANK	14	BOURDON CAP
3	SAFETY GLASS	9	POINTER	15	SCALE PLATE
4	PACKING	10	POINTER HEAD	16	ORIFICE
5	PACKING	11	SCREW	17	CAP
6	MOVEMENT	12	SCREW	18	PLATE

#### 5. Operating Principle



1. Pull Rod
2. Pull Rod Control Point
3. Toothed Segment
4. Segment Opening
5. Pointer
6. Spiral Spring

When pressure is applied to the Bourdon Tube, it extends vertically. This vertical movement of Bourdon Tube is delivered to the Movement, and the Movement changes this vertical movement

Movement is consist of lever and gear, and its main role is converting vertical movement into a rotating motion.

Generally, the vertical movement of Bourdon Tube ranges from 3~4mm, and its principle is to point currently applied pressure by using a turn angle  $270^{\circ}$

Therefore, Bourdon Tube and Movement are the most important, and these parts must be well assembled in the pressure gauge because these parts leads to precise machining accuracy.

## 6. Repair and Caution

1) If the fluid contains any corrosive agents, it will directly deliver to the Bourdon Tube, and it could damage the tube.

Therefore, it is recommended that the user chose "Diaphragm Seal Type" pressure gauges.

(Refre to Drawing 1)

2) For a remote seal type pressure gauge, a remote seal must be installed on the same line as the pressure gauges is intalled.

If this is not the case, then Zero adjustment process must be performed on the gauge.

3) If the gauge is dealiling with a high temperature fluid, then Syphon tube is required so the adequate temperature can be delievered to the gauge.

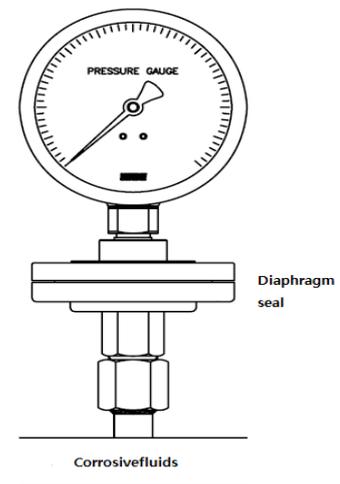


Figure 1

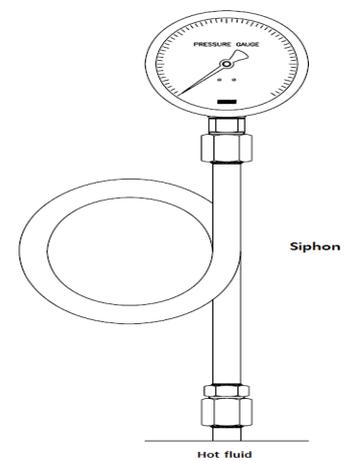


Figure 2

4) Sudden Change of pressure (Over/Under pressure) can cause a malfunction of the gauge.

5) Dampner or Gauge protector is recommended where pulsation or impulsive pressure is present.

Figure 3, 4

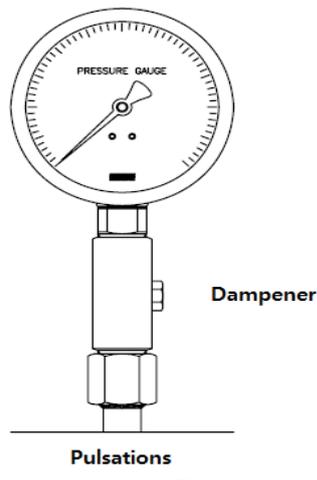


Figure 3

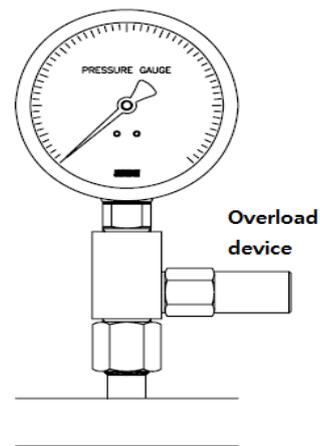


Figure 4

6) It is necessary to perform a routine inspection 1 or 2 times a year to check gauge's operating condition.

7) Do not cut off the oil cap if the gauge is being used in outdoor because water can flow into the gauge when it rains. It is recommended to release the internal pressure regularly.

However, it is required to cut off the oil cap, then just cut off the tip of the oil cap as expressed in Figure 5.

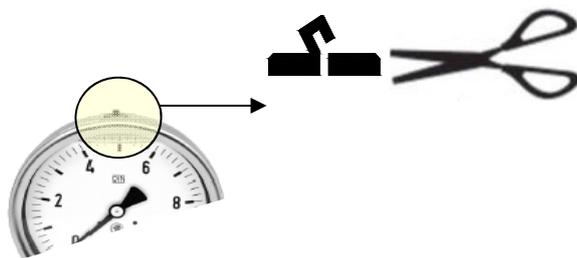


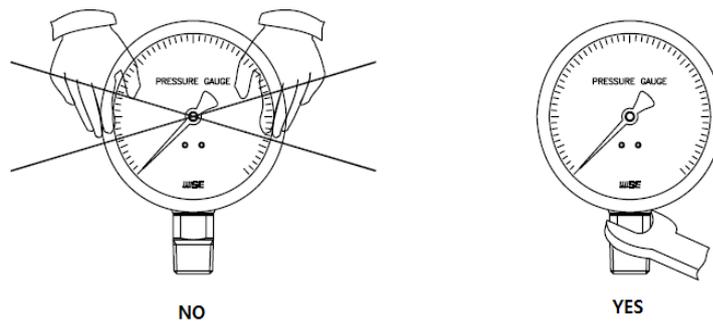
Figure 5

## 7. How to install

- 1) Avoid the place where humidity, vibration, dust, and corrosive gas are present.
- 2) Avoid the place where the temperature is higher than the recommended ambient temperature indicated in this manual.
- 3) Be prepared to protect the gauge from lightning or a steam.
- 4) Avoid Direct rays of the Sun
- 5) When installing a gauge on the wall by using an attachment groove, it is recommended to use M5 nut, and when installing a gauge by using a metal attachment, install it firmly.
- 6) When installing a gauge on the pressurized pipe, it is recommended to use a flexible tube.
- 7) When installing a gauge on the pipe, do not turn the gauge by holding its case.

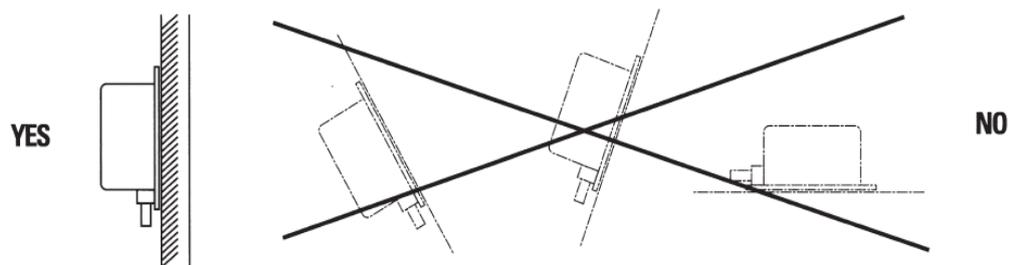
The user must use a proper spanner.

Figure 6

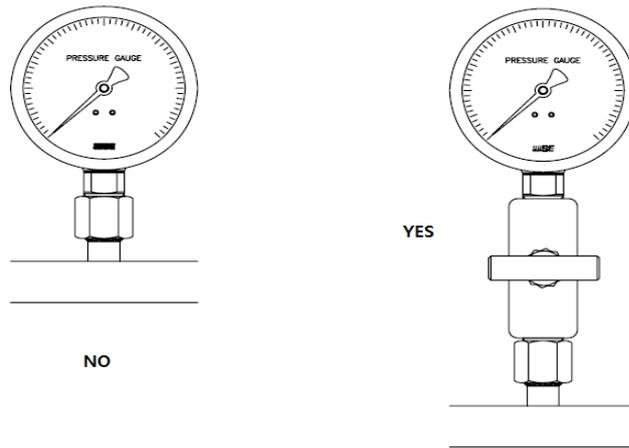


- 8) Because a gauge will be calibrated in a vertical position, a gauge must be installed vertically.

Figure 7



9) When installing a gauge for the first time, it is recommended to use the valve so it can be removed or controlled easlily.

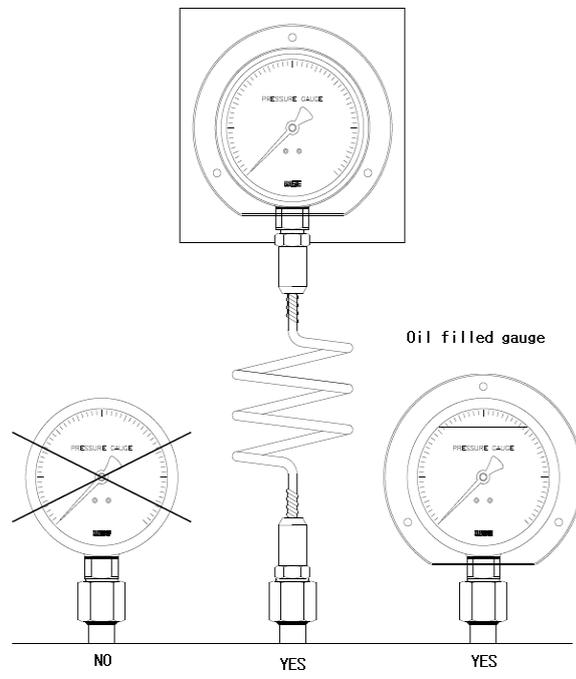


### 8. How to use

1) It is required to find out followings before using the gauge.

- . Pulsation exist? If yes, then use Dampner
- . Vibration exist? If yes, then filled the gauge with oil or use oil filled gauge.
- . Is ambient temperature high? If yes, then use capillary type gauge.

Figure 9



- 2) Before using the gauge, make sure zero point is properly adjusted.
- 3) On the connection screw, use teflon tape or gasket to install the gauge firmly.
- 4) When installation is finished, slowly open the valve to find out the pointer is correctly indicating current pressure.
- 5) When checking the current pressure, make sure the gauge is installed on the same height of observer's eye level (Figure 10)

Figure 10

