USER'S MANUAL

Name : LOW PRESSURE GAUGE

MODEL : P421 / P422 / P430 / P440

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. It may lead to harming 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.

CONTENTS

1. Ooverview and Product characteristic

The P421 / P422 / P430 models can measure pressure and vacuum between 10 and 350 mbar, which can not be measured with a bourdon tube pressure gauge using a chamber. It is mainly used for pressure measurement in air or gas ducts.

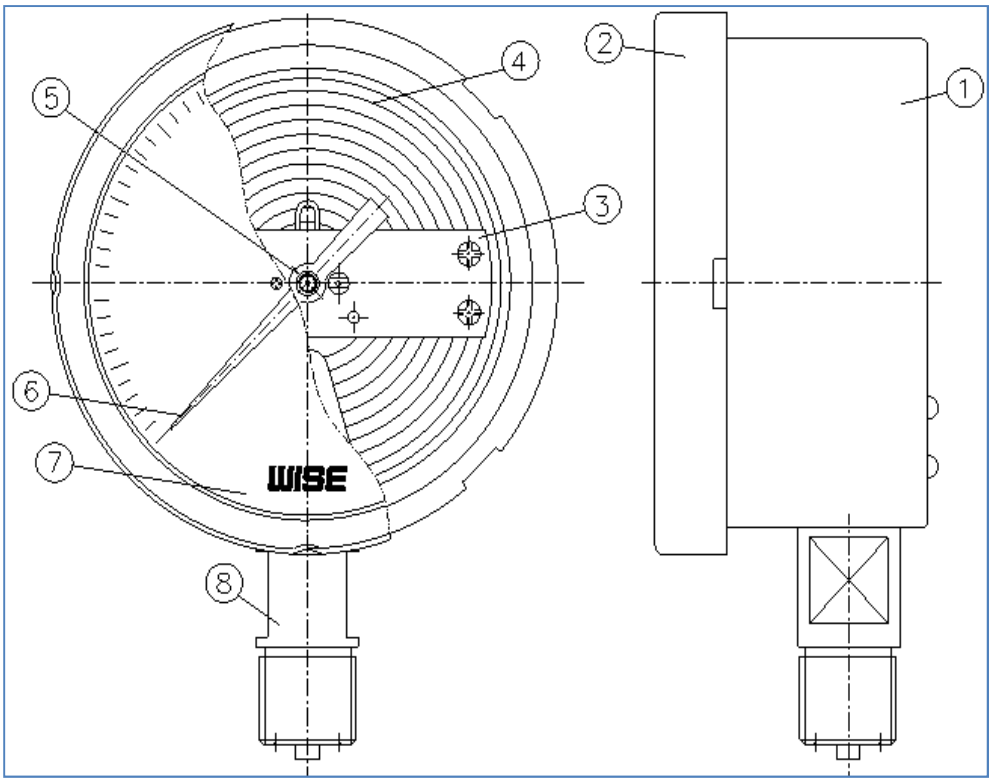
Chambers for pressure measurement are made of stainless steel for use with internal fluids.

The P440 model is a pressure gauge that can measure low pressure, vacuum, and ductility. The connection material is made of stainless steel and chrome plated case.

2. Specifications and standards

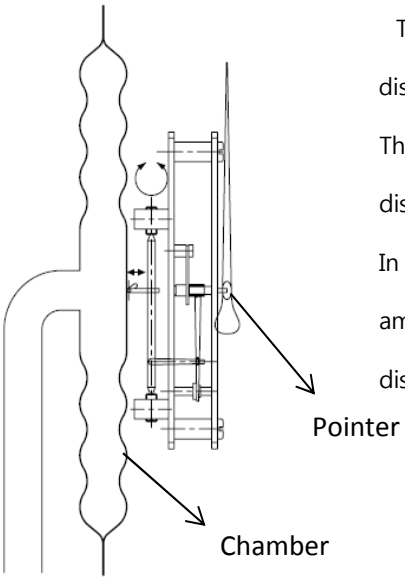
1) Standard	:	P440 : 63, 75 and 100mm
		P421 : 100 and 160mm
		P422 : 63 and 160mm
		P430 : 100 and 160mm
2) Accuracy	:	±1.5% of Full Scale
3) Pressure range	:	Steady 75% of Full Scale
		Over Range Protection : 130% of Full Scale
4) Element material	:	Stainless Steel
5) Process connection size	:	63mm : 1/8", 1/4" PT, NPT & PF
		75mm : 1/4", 3/8" PT, NPT & PF
		100 and 160mm : 1/4", 3/8", 1/2" PT, NPT & PF
6) Degree of protction	:	Ambient. -20~65℃
		Fluid : Max. 100℃

3. Names of Parts and Functions



NO	NAME	NO	NAME	NO	NAME
1	CASE	4	Chamber	7	SCALE PLATE
2	COVER	5	POINTER HEAD	8	SOCKET
3	MOVEMENT	6	POINTER		

4. Principles



The chamber changes the pressure to displacements and The amount of displacement is greatly enlarged and changed to rotation by using the movement. The movement consists of a lever and a gear, which receives the linear displacement of the chamber and converts it into rotary motion.

In general, the displacement amount is designed to generate a displacement amount of about 3 to 4 mm at the highest graduation pressure, and the displacement amount is rotated by 270 ° to indicate the pressure.

5. Maintenance and Precautions

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 'Diaphram Seal Type' pressure gauges. (Figure 1)

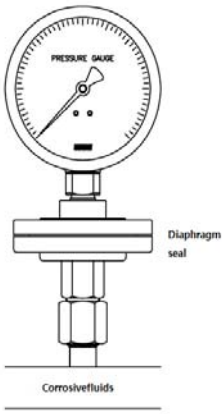
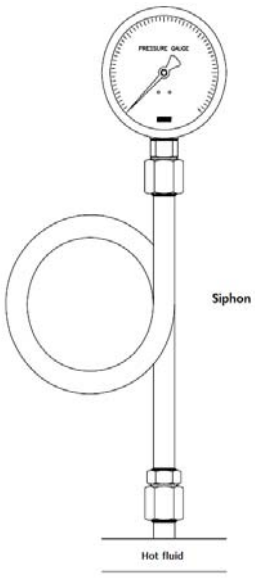


Figure 1

Figure 2



2) If the gauge is dealing with a high temperature fluid, then
syphon tube is required so the adequate temperature can be deliver
to the gauge. (Figure 2)

3) Sudden change of pressure(over/under pressure) can cause a malfunction of the gauge.

4) Dampner or gauge protector is recommened where or impulsive pressure is present. (Figure 3, 4)

Figure 3

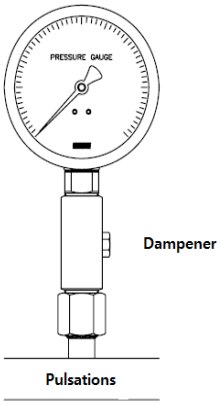
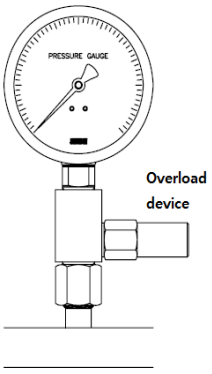


Figure 4



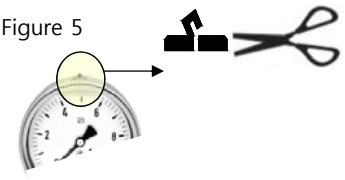
5) It is necessary to perform a routine inspection 1 or 2 times a year to check gauge's operating condition.

6) Do not cut the oil inlet cap when installing the outdoor unit and periodically release the internal pressure.

Moisture can get in the rain.

If necessary, do not cut the oil inlet cap completely, but cut only half as shown in Figure 5.

Figure 5



6. Installation

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 manua

3) Be prepared to protect the gauge from a lightning or a steam.

4) Avoid direct rays of the sun.

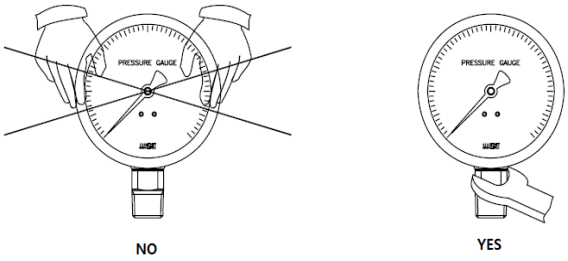
5) When installing a gauge on the wall by using an attachment groove, it is recommended to use M5 nut

and when installing a gauge by using a metal attachment, install firmly.

6) When installing a gauge on the pressurized pipe, it is recommended to use a flexible tube.

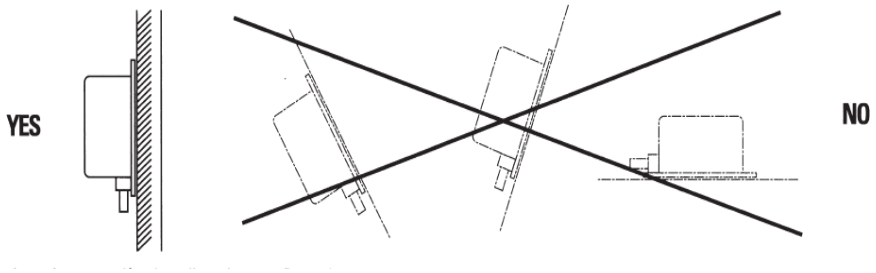
7) When installing a gauge on the pipe, do not turn the gauge by holding its case; please use proper spanner. (Figure 6)

Figure 6



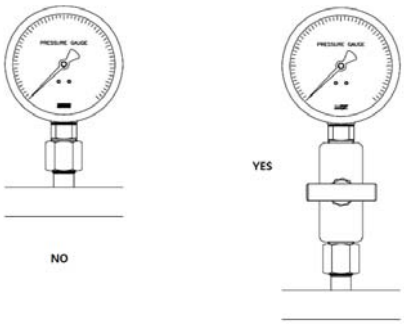
8) A gauge is calibrated in a vertical position; must install vertically (figure 7)

figure 7



9) It is recommended to use valve for easy detach or control when installing a gauge for the first time. (figure 8)

figure 8



7. Operating Instructions

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

- Pulsation exist? If yes, use dampner
- Vibration exist? If yes, filled the gauge with oil or use oil filled gauge.

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) Open the valve and check steady indication of pressure gauge after installation.

5) When checking the current pressure, make sure the gauge is installed on the same height of observer's eye le (figure 9)

figure 9