INSTALLATION, OPERATING AND MAINTENANCE INSTRUCTIONS

41/2" PROCESS GAUGE - NF4UGY, LF4UGY

Warning:
Pressure gauges must be selected and installed so that the possibility of failure resulting in injury or damage caused by misuse or misapplication is minimized. For correct selection and use of gauges, refer to ASME B40.1 which can be obtained from the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017. Important factors for proper gauge selection are:

Pressure: The range of the gauge should generally be twice the working pressure. The working pressure in all cases should be limited to 75% of the gauge range. Where alternating pressure and pulsation are encountered, working pressure should be limited to 2/3 of the gauge range.

Process: Wetted parts must be compatible with the measured media.

Pulsation / Vibration: Pressure pulsation and vibration could result in fatigue failure of the measuring system. Therefore, dampening provisions such as liquid filling of the gauge, installing flow restricting devices or isolating from the vibration source should be considered.

Temperature: Excessive temperature exposure may result in damage to the measuring system and/or gauge outer parts, case, gasket, and window. Preventative temperature lowering devices such as a pigtail siphon should be considered.

Liquid Fill: Be sure that the filling liquid can safely mix with the process fluid.

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Process Gauge Instructions

A. General:
Weiss gauges are designed and built to deliver long and reliable service under conditions of severe stress. For inquiries concerning gauge selection and operation, the American Society of Mechanical Engineers specification ASME B40. 1 should be consulted.

B. Installation:
Gauges should always be mounted by using the wrench flats (squares) provided on the pressure connection. Under no circumstances should the pressure connection be tightened by applying force to the gauge case.

It is preferable to mount gauges in a location free of mechanical vibration . If this is not possible, a liquid filled gauge or a flexible tube connection may be necessary.

The gauge should be located so that it is not exposed to abnormally low or high temperatures. This may cause an additional temperature error, depending on the deviation from the reference temperature of 23°C(73°F). For steam service, the gauge must be protected by a water-filled syphon.

If severe pulsation is present, the gauge should be equipped with a properly sized orifice restrictor screw in the connection or be installed with the needle valve in line with the pressure connection.

C. Maintenance:
All gauges should be checked regularly for wear and tear, accuracy, and proper functioning by comparing them to a Precision Test gauge or a dead weight tester. Replace all broken or damaged parts immediately.

D.Disassembly:

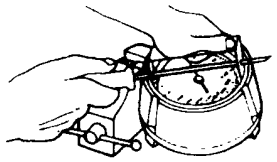


Fig. 1

1. Threaded Ring Removal:
Place the gauge into the bench vise face-up by clamping the connection (gauge stem) firmly on the flat sides. Seat the Threaded Ring Tool into the ring between the tightening notches. Insert the screwdriver into the Threaded Ring Tool for better leverage, and loosen the threaded ring. You can unscrew the ring once it is loose by using the Threaded Ring Tool without the screwdriver.

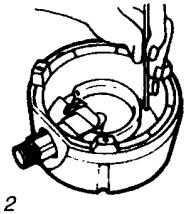


Fig. 2

2. Window Removal: If the window sticks to the o-ring and will not come out,you will have to remove the blow-out back. See step 3.

There is an overflow hole located on the "solid front" wall on the gauge at the 12 o'clock position. Insert the small screwdriver into this hole, and carefully push the window out.

3. Blow-out Back Removal: To remove the blow-out back, you will need a bench vise and a screwdriver. Before starting, look at the back of the gauge. Please note the two small openings next to the two upper snap-in tabs in the blow-out back. Insert the screwdriver into the opening and pry out the tab (Fig. 3). Repeat this step on the other side and the blow-out back will pop out.

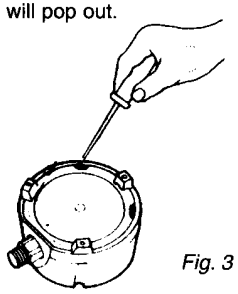


Fig. 3

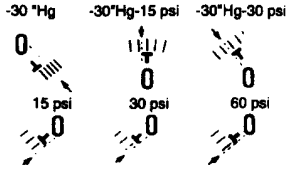
E. Assembly:

1. Threaded Ring Assembly:
First make sure the o-ring and window are properly seated. Then place the threaded ring on the gauge and turn it in a clockwise direction. The threaded ring tabs should face up. It should turn easily without binding. If you encounter resistance before the ring touches the window, the ring has not been seated correctly. Unscrew the ring and repeat the step above. You can use the Threaded Ring Tool to hand tighten the ring. To seat it firmly, insert a screwdriver into the tool and tighten the ring by one quarter turn with 9 ft.-lbs. of torque.

2. Blow-Out Back Assembly:
First make sure the o-ring (for dry gauges) or membrane (for liquid filled gauges) is seated properly on the blow-out back (lubricate the sealing surface of the case or membrane with glycerine or silicone when installing a membrane) . Now press the back down with your hands and engage only the two large tabs. Press the blow-out back into the case until all four tabs are engaged and the blowout back is flush with the case.

F. Hermetically Sealed Conversion:
The conversion from the standard dry, weatherproof design to a hermetically sealed design is as follows. First remove the blow-out back. Second, replace the o-ring with the (p/n PROLFK-LC) membrane. Then lubricate the case or membrane sealing surface with glycerine or silicone. Press the blow-out back into the case. Please note that hermetically sealed gauges with pressure ranges under 60 PSI are temperature sensitive and will have small inaccuracies in pressure readings due to changes in temperature.

G. Liquid Filled Conversion:
The conversion procedure from the standard dry, weatherproof design to a liquid filled design is as follows. First remove the blow-out back. Then replace the o-ring with the membrane (p/n PROLFK-LC). Lubricate the case or membrane sealing surface with glycerine or silicone. Press the blow-out back into the case. For gauges with pressure ranges 60 PSI or less, the pointer must be adjusted as shown below in order to compensate for the liquid fill.



Remove the filling plug from the top of the gauge (12 o'clock) with a small screwdriver. Turn the gauge over onto its face. You will see a small vent hole on the blow-out back (Fig. 4). Close this hole with the vent plug from the filling kit.

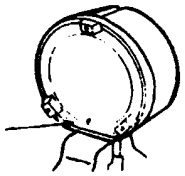


Fig. 4

Fill the gauge with the correct fluid for your application using a small funnel or tube. The gauge must be filled in an upright position. Be careful not to touch the Bourdon tube, as this may cause a shift in the gauge calibration. The fluid level should be as full as possible

Once you have the correct fluid level, clean the area around the filling hole, dry the filling plug, and insert it into the filling hole. Make sure the plug is seated squarely. Next, remove the temporary vent plug from the blow-out back. The final step is to check the zero position of the pointer. If the pointer is not within the tolerance field of the zero mark, the pointer must be readjusted. To do this,drain the gauge, reversing the steps above, adjust the pointer and then repeat the procedure from the start.

H. Calibration and Testing:
This section contains a short description of how to calibrate the Process Gauge. For a more detailed description on how to test pressure gauges, please refer to ASME B40.1.
The reference (ambient) temperature for gauge calibration is 23°C (73°F), Gauges must be calibrated in the normal mounting position, which is upright and perpendicular.

Use a Precision Test gauge to compare the accuracy of the Process Gauge. The two gauges must be connected to the same source of pressure. For an accurate calibration, the Precision Test gauge should be at least 2 grades higher in accuracy than the gauge being checked. For example, a gauge Grade 2A (0.5% accuracy) requires a Master Gauge of Grade 4A (+ 0.1% accuracy).

Apply pressure to the gauges until the Precision Test gauge reads the required pressure. Compare the gauge indications. If the readings deviate more than is acceptable, you will have to recalibrate the Process Gauge.

Adjusting the Span: You can adjust the leverage rates of the segment tail section by moving the link connection. If you move the link connection away from the segment pivot, the pointer rotation (span) will decrease; if you move the link connection toward the segment pivot, the pointer rotation (span) will increase.

Adjusting the Linearity: Apply half of the range pressure and adjust the pointer indication by changing the length of the link. To"speed-up" the indication at midscale, open up the hole in the link. To "slow down" indication at midscale, close up the hole in the link.