

American Safe Room, Inc.

Installation and Operation Manual

Differential Pressure Gauge



Revision A
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Description

The American Safe Room Differential Pressure Gauge displays the difference in air pressure between the inside and outside of a shelter. It has a sampling tube that goes through the wall or ceiling in order to read the outside air pressure. Another sampling tube is inside the housing and the difference in air pressure is displayed by a needle on a dial gauge.

When you do not have the Safe Cell NBC overpressure air filter on, a properly installed differential pressure gauge will read zero because there is no difference in the air pressure inside, and outside of the shelter. When you start the Safe Cell, the gauge will read a higher pressure.

The unit of measure displayed is inches of water column (wc). There are 27.67 inches of water in one pound per square inch (PSI).

Air flow and air pressure are two properties of forced air that are linked together. As a general rule, the more air pressure, the less air flow. An airflow of 5 cubic feet per minute per person at 0.3-inch (7.62-mm) of water column is recommended by the United States Army Corps of Engineers in the technical letter ETL 1110-3-498. See www.AmericanSafeRoom.com to view this document.

There are three ranges of gauges available that displays positive overpressures:

1. zero to 0.5-inches of water column — part number ASR-05-DPG
2. zero to 1-inch of water column — part number ASR-10-DPG (special order item)
3. zero to 25-mm of water column — part number ASR-25-DPG (special order item)

The Differential Pressure Gauge is designed for easy installation into any protected space. The kit includes all of the required components for installation inside of the protected space.

Please see the manual for the Adjustable Overpressure Relief Valve to set up your shelter at the proper pressure. It is available at www.AmericanSafeRoom.com.

Specifications

Range: 0 to .5-inches/wc (12.7 mm/wc) or 0 to 1-inch/wc (25.4 mm/wc)

Accuracy: +/- 5% of full scale

Absolute pressure limit: 30 psi g (2.067 bar)

Temperature limits: 20-120 F (-6.67-48.9 C)

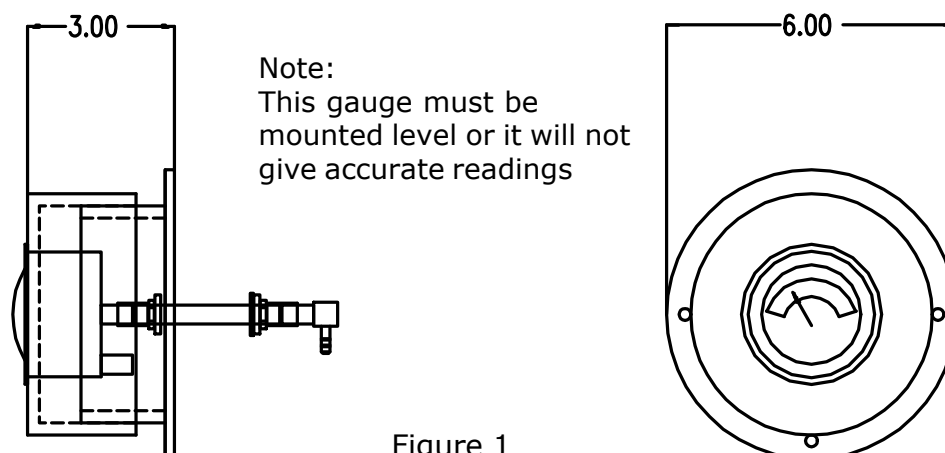


Figure 1

Through the wall installation

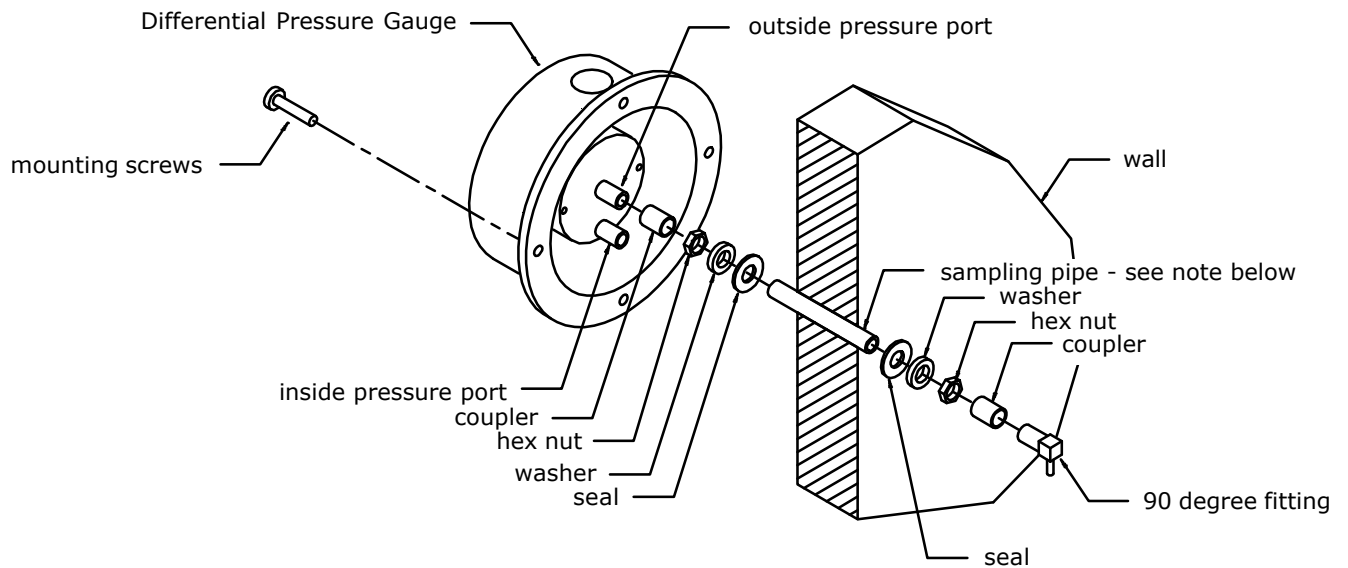


Figure 2

Installation

1. Choose a mounting location on an outside wall with smooth flat surfaces to insure proper sealing of the bulkhead compression seals.
2. Drill a 13/32-inch diameter hole through the bulkhead wall.
3. Insert the hollow threaded rod through the hole and assemble the seals and threaded fasteners as shown in Figure 2.

Note: two 6-inch sampling pipes are included with a coupler to connect them. Maximum wall thickness is 5-inches per sampling pipe. Please order additional sampling pipes for thicker walls.

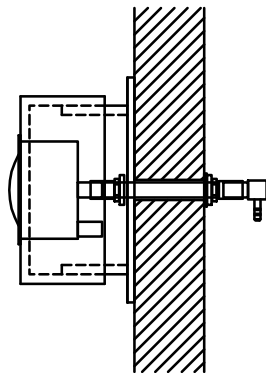


Figure 3

Through the ceiling Installation

The provided bulkhead fitting kit also works for ceiling installations.

Follow the same assembly procedure as for wall installation except use the provided rubber tube to connect from the gage to the bulkhead fitting kit.

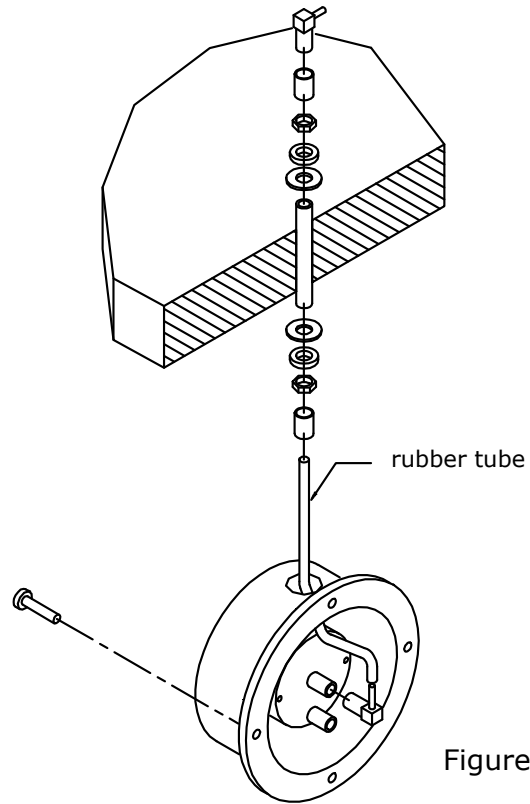


Figure 4

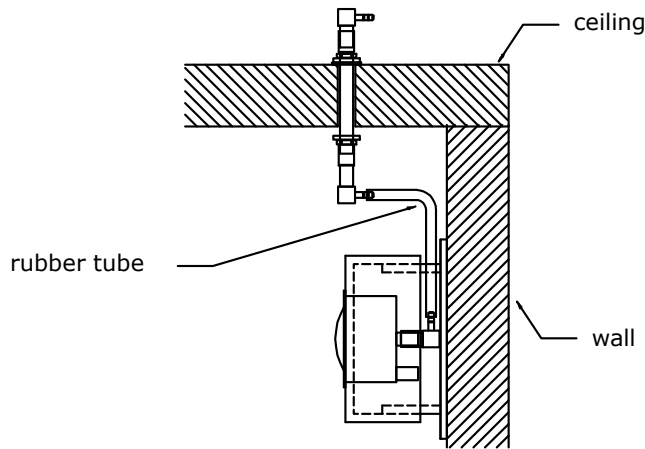


Figure 5