

SELECTING A PRESSURE GAUGE

How Do You Select A Pressure Gauge?

Selecting the appropriate pressure gauge can sometimes be a challenge. To select a pressure gauge there are 7 things you need to consider; environment & application, gauge size, connection, accuracy, gauge mounting, range and any gauge accessories.

ENVIRONMENT & APPLICATION

As the Bourdon tube is in direct contact with the medium being measured, the characteristics of the medium must be considered. Consider using a diaphragm seal if the process medium is corrosive, will leave a deposit or clog the Bourdon tube, or if the medium will solidify in the Bourdon tube.

Choosing the material of the pressure gauge is also important. If the medium is corrosive, stainless steel internals and casing should be chosen over brass. Brass is more suitable for general applications. The effects of moisture and weather conditions may also be harmful to the gauge and should be considered when selecting a gauge.

For applications that produce harmful pulsation, vibration or pressure spikes, the appropriate gauge or option should be chosen. For example, liquid filling a gauge or opting for a [StabiliZR™ Gauge](#) will minimize any ill effects of vibration and provide an easier pressure reading.

GAUGE SIZE

Winters manufactures a range of dial sizes, from 1" (25mm) to 10" (250mm).

CONNECTION

Winters offers bottom and back (centre and lower) connections on our gauges. The standard thread is NPT, however, other options are available such as BSP(G), SAE and many other special fittings. The most common connection sizes are 1/4" NPT and 1/2" NPT. Please contact Winters for all available connections.

ACCURACY

The degree of accuracy required should be determined to ensure that the proper gauge is used. Winters utilizes the ANSI/ASME standards for accuracy grading. We offer pressure gauges with accuracy from $\pm 0.25\%$ (ANSI/ASME Grade 3A) to $\pm 3-2-3\%$ (ANSI/ASME Grade B). Generally, the more critical the application, the higher the accuracy required.

GAUGE MOUNTING

Winters pressure gauges can be mounted in a variety of ways. For direct stem mount, we offer bottom, centre back, lower back and in-line connections. Consider purchasing a back flange for panel mounts, or a front flange if you need the gauge to be flush mounted. U-clamps are available as an alternative to flush mounting a gauge, or if you are unable to use a front flange. Also bear in mind that if a piece of equipment produces heavy vibration making pressure reading difficult, a gauge may be mounted remotely.

RANGE

Pressure Range

It is important to select a pressure range that is approximately twice the normal operating pressure of the media. The maximum operating pressure should not exceed 75% of the full scale range. If a gauge is not selected considering these criteria, it may result in fatigue of the Bourdon tube.

Temperature Range

The normal temperature ranges for dry gauges are between -40°F to 150°F (-40°C to 65°C). The normal temperature ranges for glycerin-filled gauges are -13°F to 150°F (-25°C to 65°C). It is important to know the normal operating temperature of the environment for proper gauge use. Gauge accessories can extend temperature ranges further.

GAUGE ACCESSORIES

Restrictor screws, snubbers and liquid filling are excellent accessories and options for reducing the effects of vibration and pulsation, and increasing the service life of pressure gauges. In situations where temperature is extreme, utilizing a syphon or remote monitoring the pressure gauge with a capillary and [diaphragm seal](#) are some alternatives to reduce the temperature of the process going into the gauge.

Some gauge options available include:

- [Custom Dials](#)
- Custom Ranges
- Electric Contacts
- Flanges & U-Clamps
- Gauge Boots
- Liquid Filling
- Maximum Adjustable Pointer
- Over/Under Stops
- Oxygen Cleaning
- Red Secondary pointer
- Safety Case
- Safety Glass
- Silicone Dampening
- StabiliZR™ Movement
- Stainless Steel Tags

Note: When selecting a pressure gauge, always refer to ASME B40.100 (2013)