

Mid-West[®] Instrument

Piston vs. Diaphragm

Piston

Mid-West[®] Instrument Piston Δ P Gauges- A precision ground magnetic piston assembly moves against a calibrated range spring in a diamond reamed bore in the gauge body as pressure differential between the high and low ports changes. A rotary magnet on the outside of body tracks the movement of the magnetic piston and the attached pointer indicates Δ P on a dial. All piston type gauges allow process fluid to migrate across the piston from high to low side. The precision machining of Mid-West[®] Instrument piston Δ P gauges limits the migration to a maximum of 15 SCFH air at 100 PSID at ambient conditions. For applications where fluid migration from high side to low side is not tolerable select one of our many Diaphragm type Δ P gauges

Diaphragm

In our diaphragm type gauge the high and low-pressure ports are completely isolated from each other. There is no bypass and therefore they are appropriate for air or gas along with liquids. They also come in a variety of sizes allowing for very sensitive measurements.

Piston Type

- $\pm 3/2/3\%$ or $\pm 5\%$ Full Scale Accuracy Ascending.
- Dial Scales range from 5 PSID up to and including 400 PSID (**dependent on Model**)
- Some Common applications: Filter/Strainer Monitoring, Separators, Pumps, Hydraulic, Chillers etc.
- Primarily designed for clean liquid applications.
- Piston Type gauges exhibit a slight amount of bypass as the fluid crosses from the high to the low pressure port.
- Because gas molecules are smaller, the crossover is often deemed too great for the piston style application.
- Leakage across the piston will not exceed 15 SCFH air at 100 PSID at ambient conditions.
- Models that fall into this group of gauges are as follows: 120, 121, 122, 123, 124, 126, 127, 220 and 444

Diaphragm Type

- $\pm 3/2/3\%$ or $\pm 5\%$ Full Scale Accuracy Ascending.
- Dial Scales range from 5" H2O up to and including 100 PSID (**dependent on Model**)
- Some Common applications: Tank Level, Filter/Strainer Monitoring, Compressed Air, Liquid Level, Heat Exchanger, Water Treatment applications, Flow Measurement, Pump Performance Testing etc.
- The high and low-pressure ports are completely isolated from each other.
- There is no bypass and therefore they are ideally suited for use on dissimilar fluids, air, gases, or liquids with a high concentration of solids, etc.
- Models that fall into this group of gauges are as follows: 114, 130, 140, 142, 146, 240, 522, and 555

Bellows Type

- $\pm 1/2\%$ or $\pm 1\%$ Full Scale Accuracy.
- Bellows design provides a low range high accuracy differential pressure indicator.
- Dial Scales range from 10" H2O up to and including 30 PSID (**dependent on Model**)
- Some Industries served: Cryogenic Tank Level, Power Plants, Filter Monitoring, Flow Measurement etc.
- For measurement in Cryogenic gases or either Liquid or Gaseous media, Liquid Level, Tank Level, Differential pressure indication, square root available for direct reading flow rate. Special Dial Scales for tank level available.
- Models that fall into this group of gauges are as follows: 105, 106, 115, and 116

Bourdon Tube Type

- $\pm 1/2\%$ or $\pm 1\%$ Full Scale Accuracy.
- Bourdon Tube design provides an accurate direct reading high accuracy differential pressure indicator.
- Dial Scales range from 15 PSID up to and including 6000 PSID (**Dependent on body material & gauge working pressure**)
- Some Industries served: Refineries, Chemical and Petrochemical Plants, Water and Wastewater Pressure Control, Power Plants, Mining and Metals, Filter, and Flow Measurement etc.
- For environments with either, Liquid or Gaseous media, Differential pressure indication, High range Differential pressures, square root available for direct reading flow rate.
- Model that falls into this group is 109