



Instrumentation Pressure



Course Objectives

1. Identify common types of instruments for measuring pressure including: manometers; mechanical pressure gauges; digital pressure gauges; and pressure transmitters using differential pressure (d/p) cells, strain gauge, and capacitance sensing elements.
2. Describe the operation of common pressure measurement instruments.
3. Describe typical applications for common pressure measurement instruments.
4. Describe safety concerns for common pressure measurement instruments.
5. Describe typical malfunctions for common pressure measurement instruments.
6. Identify common pressure instrument symbols on P&IDs.
7. Measure pressure using concepts and principles of measurement for common instruments.
8. Solve common problems encountered when using pressure measurement instruments.



Key Terms (Define the following)

Pressure - _____

$P = F / A$ - _____

Atmospheric pressure - _____

Absolute pressure - _____

Gauge pressure - _____

Meniscus curve - _____

Parallax - _____

Bourdon tube - _____

Pressure transmitters - _____



Questions

1. Pressure measurements can be used to represent _____, _____, _____, _____, and _____.
2. What are the three basic types of manometer?
 - 1) _____
 - 2) _____
 - 3) _____
3. What point in the meniscus curved surface gives an accurate measurement?

4. The _____ uses the elastic deformation of a series of capsules to expand or contract with changes in pressure.
5. Which of these mechanical elements is most commonly used with analog gauges?
 - Bourdon tube
 - Bellows
 - Diaphragm
6. What is the purpose of a transducer?

