

# Positive Displacement Meters (Instructor-Led Training)

## Course Description

This course covers positive displacement meters, their operating theory, and considerations for installation and operation.

## Course Prerequisites

- GTA Web-Based Training
  - Core WBT
  - Statistics and Uncertainty
  - Gas Properties I
  - Gas Properties II
- GTA Instructor-Led Training
  - Measurement Systems

## Course Objectives

Upon completion of this course, the student will have received instruction designed to assist him/her in the following:

- Describe the operating theory of positive displacement meters.
- Explain how pressure, temperature, and specific gravity affect the measurement of gas.
- Explain how meter proving helps eliminate measurement errors.
- Explain the need for routine inspections and maintenance of positive displacement meters.

## Course Outline

1. Positive Displacement Meters
  - a. Theory of Operation of Positive Displacement Meters
  - b. Diaphragm Meters
  - c. Rotary Meters
2. Linear Meter Equations
  - a. Pressure
  - b. Temperature
  - c. Specific Gravity
3. Meter Proving
  - a. Proving Meters
  - b. Proof versus Accuracy
  - c. Sonic Provers
  - d. Transfer Proving
4. Routine Maintenance
  - a. Maintenance of Diaphragm Meters
  - b. Making Adjustments
  - c. Timing or Crank Adjustment
  - d. Tangent Length or Speed Adjust
  - e. Maintenance of Rotary Meters
  - f. Troubleshooting a Rotary Meter
  - g. Internal Bypass Meters
  - h. Meters without Internal Bypasses

## Recommended Resources

- GTA Positive Displacement Meters Participant Guide
- GTA Positive Displacement Meters Instructor Presentation.
- Positive displacement meter industry standards.
- Internet sites and textbooks related to positive displacement meters.