

## Meter Proving & Metering System

*Düsseldorf (Germany)*

*25 - 29 November 2024*

UK Traininig

# PARTNER



## Meter Proving & Metering System

Code: OG28 From: 25 - 29 November 2024 City: Düsseldorf (Germany) Fees: 4900 Pound

### Introduction

This course focuses on the principles and practical applications of metering systems. Participants will gain an in-depth understanding of fluid properties, various types of flow meters, and measurement techniques, including sampling and proving methods.

### Course Objectives

By the end of this course, participants will:

- Understand the properties of fluids and the relevant gas laws related to metering systems.
- Learn the characteristics of accurate measurement and meter performance.
- Familiarize themselves with different types of flow meters and their applications.
- Gain insights into advanced metering technologies, including ultrasonic and Coriolis meters.
- Develop practical skills in measurement systems, sampling, and proving techniques.

### Course Outlines

#### Day 1: Fundamentals of Fluid Properties and Measurement

- Properties of fluids: density, viscosity, and compressibility.
- Relevant gas laws Boyle's and Charles' laws.
- Overview of measurement systems.
- Factors affecting meter performance.
- Introduction to meter proving concepts.

#### Day 2: Differential Pressure and Positive Displacement Meters

- Principles and applications of differential pressure meters.
- Types of differential meters: orifice plates, Venturi, and flow nozzles.
- Positive displacement meters: lobes, gears, and nutating discs.
- Comparison of performance and accuracy.
- Troubleshooting and maintenance tips.

#### Day 3: Turbine and Ultrasonic Flow Meters

- Turbine flow meters: operating principles and applications.
- Key components of turbine meters and their functions.



- Ultrasonic flow meters: transit-time and Doppler methodologies.
- Advantages and limitations of ultrasonic meters.
- Applications in liquid and gas metering.

#### Day 4: Electromagnetic and Coriolis Flow Meters

- Principles of electromagnetic flow meters.
- Applications in water, wastewater, and industrial fluids.
- Overview of Coriolis mass flow systems.
- Applications in liquid and multiphase metering.
- Performance optimization and troubleshooting.

#### Day 5: Sampling, Proving, and Flow Computing

- Techniques for fluid sampling and quality control.
- Meter proving methods and equipment.
- Flow computing and data integration systems.
- Safety and environmental compliance in metering operations.
- Final review and practical exercises.



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