



Oil & Gas Valve Technology: Selection, Operation, Maintenance, and Troubleshooting

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Dubai (UAE)



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Introduction:

Different types of valves are crucial in power plants. In the oil and gas industry, where they are used extensively for controlling processes and ensuring safety, in-depth knowledge of valve functions is vital for maintaining high-quality processes, equipment reliability, and cost-effectiveness in oil and gas operations. Proper valve selection based on flow characteristics is essential, and understanding valve-related issues is fundamental for effective troubleshooting and maintenance in the oil and gas industry.

Optimizing Valve Performance in Oil & Gas Operations:

Valve performance is pivotal in ensuring the smooth operation of oil and gas technology solutions. A thorough understanding of valves for oil and gas, including material selection in the oil and gas industry, not only contributes to operational excellence but also plays a significant role in maintenance and troubleshooting efforts.

This oil and gas selection, operation, maintenance, and troubleshooting course deep-dives into valve technology's principles and practical aspects, empowering maintenance engineers and technicians to maximize efficiency and safety.

Targeted Groups:

This oil and gas selection, operation, maintenance, and troubleshooting course is specifically designed for Engineers and Technicians from mechanical, electrical, and chemical backgrounds. It is highly recommended for those involved in Maintenance, Operation, and Research and Development within the oil and gas industry. Maintenance engineers specializing in oil and gas will find this training particularly beneficial.

Course Objectives:

Upon the end of this oil and gas selection, operation, maintenance, and troubleshooting course, participants will be able to:

- Gain a comprehensive understanding of valve characteristics and the parameters affecting valve operation in oil and gas operation and maintenance.
- Acquire the necessary knowledge to identify the principal types of valves, such as Control Valves, Non-Return Valves, and Safety Valves, and select the appropriate valve for specific applications.
- Conduct the required calculations for proper valve sizing in oil and gas operations.
- Understand valve control systems, including the functionalities of actuators and positioners.
- Identify common valve-related problems, including flashing, slamming, and water hammer, and apply this knowledge to oil and gas technology solutions.
- Perform troubleshooting and maintenance strategies effectively for various valves within the oil and gas industry.

Targeted Competencies:

At the end of this oil and gas selection, operation, maintenance, and troubleshooting training, participants competencies will be able to:

- Basics of Valve Technology and Sizing.
- Proficiency in Control Valves.
- Implementation of Check Non-Return Valves.
- Mastery of Relief and Safety Valves: Function and Operation.
- Expertise in valve actuators and troubleshooting.

Course Content:

Unit 1: Basics of the Valve Technology and Sizing:

- Overview of Valve Types in oil and gas valves.
- Detailed Examination of Valve Parts and Characteristics.
- Study of Flow Characteristics: Linear, Quick Opening, and Equal Percentage.
- Parameters for Valve Sizing and Selection Criteria in oil and gas operations training.
- Different valve characteristics.
- Case Studies and Practical Examples

Unit 2: Control Valves:

- Functions and roles of valves in oil and gas technology.
- Methods of Flow Regulation.
- Variety of Control Valve Types.
- The Significance of Valve End Connections.
- Valves seating.
- Advanced Valve Control Techniques.

Unit 3: Check Non-Return Valves:

- Critical Applications of Check Valves in oil and gas operations.
- Differentiation of Check Valve Types.
- Operational understanding of Check Valves.
- Effective Selection of Check Valves.
- Valves for various applications.

Unit 4: Relief and Safety Valves: Function and Operation:

- Classification of Relief Valve Types.
- Exploration of Relief Valve Parts.
- Close Look at Direct Acting and Pilot Control Mechanisms.
- Understanding the Wide Applications of Relief Valves.
- Troubleshooting Common Relief Valve Problems.
- Applications of the Role of Rupture Discs.

Unit 5: Valves Actuators and Troubleshooting:

- In-depth Analysis of Control Valve Types: Linear and Rotary Valve Features.
- Exploration of Actuation Systems and Types of Actuators.
- Proficiency in Valve Positioners.
- Insights into Pressure Recovery Characteristics.
- Dealing with Cavitation in Valves and Preventing Water Hammer.
- Ways to Address Noise Problems.