ENGINEERING TRAINER

Actuated Valves: the Fundamentals

This actuated-valve course explains valve construction, operating principles, actuator choices, maintenance, failure detection, requisitioning, documentation, testing and manufacturing. It connects specification decisions with the valve's operating duty and lifecycle requirements. This self-paced online course includes video lectures and a completion certificate with PDH credits.

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ONLINE	SELF-PACED	1-YEAR ACCESS
5 MODULES	5.5 PDH	5.5 HOURS

TRUSTED BY ENGINEERING TEAMS WORLDWIDE

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What you'll learn

Actuated valves are found throughout the industry, for valve operations that need to happen too quickly, are too far away, are too dangerous or are too inaccessible to be done manually. What maintenance strategies should be used for actuated valves? How can failures be detected? What are the requirements to be specified when requisitioning? What are the inspection steps when accepting or supplying a valve?

In this Self-Paced course, the instructor will take the participants through the fundamentals they need to know when working with actuated valves. The focus is on the fundamental aspects of operation, manufacturing, and supply of actuated valves. At the end of the course, participants will be familiar with both the steps required to ensure the actuated valve ordered complies with the requirements for the application and the required strategies for operation and maintenance.

Skills you'll gain

- ✓ are familiar with actuated valve styles; the working principle of each valve style and their key components, main characteristics, and advantages and limitations,
- ✓ will understand the concept of valve criticality and what should be done to minimise the probability of valve failures,
- ✓ have become familiar with the requisition process for an actuated valve,
- ✓ will have learnt which information you should provide to a manufacturer so they can make you a technically complete proposal,
- ✓ will understand about the documentation that should be supplied with an actuated valve and know which EU directives are applicable,
- ✓ are familiar with the scope and steps in the valve acceptance testing process and have learnt how these should be specified.

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About the instructor

Frans Martens

Frans Martens is a control and automation engineer with 35 years of experience at Shell across upstream oil and gas, LNG, chemicals and refining. As a Principal Control and Automation Engineer, he was the technical focal point for control valves, actuators and field instruments, including vendor selection and acceptance testing, and authored Shell engineering standards.

Who this course is for

- ✓ Instrumentation engineers who specify actuated valves
- ✓ Control engineers responsible for valve actuation and performance
- ✓ Mechanical engineers responsible for industrial valves
- ✓ Valve engineers preparing or reviewing valve specifications
- ✓ Maintenance engineers responsible for actuated valves
- ✓ Operations personnel who operate valve-equipped systems
- ✓ Project engineers reviewing valve documentation and testing

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Course content

Module 1 - Valve Fundamentals

- Purpose of using an actuated valve
- Describing the application
- Actuated on/off valves
- Control valves
- Self-acting regulators

Module 2 - Operation and Maintenance

- Criticality
- Lifecycle conditions
- Maintainability
- Maintenance strategies
- Operational safety
- Leak detection and repair
- Failure modes

Module 3 - Overview of Valve Styles

- The 2 fundamental construction types
- Rotary motion valves
- Linear motion valves
- Variations

Module 4 - Requisitioning

- Data/ requisition sheet
- Common aspects
- Ingress protection
- Electromagnetic compatibility
- Hazardous areas
- Type acceptance testing
- Inspection and test plan (ITP)
- CE marking

Module 5 - Actuated Valve Manufacturing

- QA/ QC
- Inspection and testing
- Documentation
- Painting
- Acceptance testing