

Training Title

CONTROL VALVES, ACTUATORS & PUMPS

Training Duration

5 days

Training Venue and Dates

Control valves, Actuators & Pumps	5	14-18 February	\$3,300	Dubai
Control valves actuators & pumps	5	21-25 March	\$3,300	Doha Qatar
Control valves actuators & pumps	5	20-24 June	\$3,300	Doha, Qatar
Control valves actuators & pumps	5	19-23 September	\$3,300	Abu Dhabi
Control valves actuators & pumps	5	17-21 October	\$3,300	Abu Dhabi

In any of the 5 star hotel. Exact venue will be informed later.

Training Fees

- 3300 US\$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

Language: English

Training Description

Control valves, actuators, and pumps are a vital component of modern industrial operations around the world. Today's control valves incorporate a number of impressive design and materials enhancements which allow higher flow capacity and overall compactness with improved dynamic and sealing performance. In addition, recent improvements in actuators and petitioners have made control valve performance and economy an attractive benefit and incentive for their use. Care must be taken, however, to insure that a control valve- actuator system can handle the pressure, temperature, flow



rate, and medium required without noise or cavitation, corrosion, erosion or leakage. Pumps are mainly the driving forces in the system; hence their operation, technology, and maintenance are vital parameters for the overall system to run smoothly. Properly selected and maintained control valves and pumps increase efficiency, safety, profitability, and ecology.

The course covers control valve types and designs, materials, specification selection, actuators and controllers, preventive maintenance procedures, operation and troubleshooting. Also, it discusses various types of pumps: operation, technology, and troubleshooting.

A number of different instructional methods are used throughout the course to allow for interactive learning and to give practical examples from manufacturing and service industry to enable the delegates to operate, select and troubleshoot control and safety valves upon course completion.

Who Should Attend

The course should benefit engineering personnel responsible for the selection, installation, operation or maintenance of control valves, actuators, and pumps. The course will be also useful for engineering graduates who need to enhance their knowledge in the field of pump technology.

What Is Expected

Upon completion of this course, participants will have a thorough understanding of the fundamental concepts and behavior of fluid flow through different types of control valves, actuators, and pumps. Participants will have in-depth knowledge of equipment selection, proper operation, fault diagnosis and trouble shooting through presentation of actual case studies.

Objectives

- Familiarize the Attendees with different types of control valves, actuators and pumps and their corresponding advantages.
- Understand the characteristics of various types of pumps, control valves and actuators.
- Understand the basic operation of control valves and the underlying fluid mechanics principles.
- Appreciate common problems encountered in control valves and Pumps including cavitation, water hammering, flashing, noise, vibration erosion and corrosion.
- Obtain hands-on training on valve and pump sizing based on head loss and flow rate calculations.

- Learn how to choose the right control and pumps, how to read the performance curves of pumps, and understand the limits on the pumps operation
- Recognize the different types of materials used for the valve body, trim, packing boxes and gaskets and understand the design considerations for selecting these materials.

Topics

Control valves, actuators, and pumps are widely used devices now in different oil & petrochemical facilities, water distribution systems and different industrial applications. Proper selection and operation of these devices make it possible to achieve best performance and reliable operation of the system.

This course is designed to provide the participant with:

1. An overview, classification and different types of control valves, actuators, and pumps.
2. Types, applications and performance of displacement control valves, actuators, and pumps.
3. Basic theory of flow through control valves, actuators, and pumps, theoretical and real performance.
4. Design and construction of axial and centrifugal pumps.
5. Pump selection.
6. Operation, control & monitoring, maintenance and trouble shooting of control valves, actuators, and pumps.

Outline

First Day:

- An overview, classification of valves and different applications.
- Definitions for common control valve and instrumentation terminology.
- Control valve performance.

Second Day:

- Valve types: design, constructions and connections.
- Valve controllers, actuators, and other control valve accessories.
- Selecting the best control valve for an application.

Third Day:

- Typical control valve installation and maintenance procedures.
- Classification and types of pumps – Definitions.
- Types of displacement pumps.

Fourth Day:

- **Construction, performance and control of displacement pumps.**
- **Theoretical and real performance of turbopumps.**
- **Construction of axial and centrifugal pumps.**

Fifth Day:

- **Cavitation and NPSH.**
- **Pump operation and common problems.**
- **Case studies and discussion.**

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