

**Training Title**

**MODERN VALVE TECHNOLOGY: Selection, Installation, Upgrading, Inspection & Troubleshooting**

**Training Duration**

5 days

**Training Dates & Venue**

REF ME064	MODERN VALVE TECHNOLOGY: Selection, Installation, Upgrading, Inspection & Troubleshooting	5	18-22 March	\$4,250	Dubai, UAE
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Training will be held at any of the 5 star hotels. Exact venue will be informed later.

**Training Fees**

- 4,250 US\$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch

**Training Certificate**

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

**TRAINING OVERVIEW**

**INTRODUCTION**

This course has been design to show the basic types of Valves operate such as gate, globe, plug, ball, butterfly, check and relief valves and how they are configured for their many applications. It will be shown how valves should be specified and selected.

In light of the many liability cases held throughout the world, selecting the proper valve can have major consequences for a company's safety, economy and viability.

This course presents a practical approach to valve selection for the function, Servicing, sizing, installation, repair, overhaul, upgrading and modifications of these components.

Valves usually appear to be simple in form and operation, such as those of a manual Off-On Valve, Check Valve, or the Fixed Valve type such as an Orifice, Blind, etc. You will learn how components such as Safety and Relief Valves can become highly complicated and dangerous.

The course is constructed for three different groups, i.e., Valve Selection & Specification, valves end connection ,Valve Manufacturing & Maintenance, and Valve Design & Application Theory, it is always difficult to meet all the objectives of anyone group due to the diverse and completely different backgrounds in both education and experience.

**OBJECTIVES AND BENEFITS:**

Upon the successful completion of this course, participants will be able to:-

- Demonstrate and apply good working knowledge on the selection, installation, upgrading, inspection & troubleshooting of valves

- Apply the proper steps, techniques and practices related to the maintenance, repair, sizing and selection of valves.
- Apply the principles of pressure, temperature, flow and fluid mechanics on the design and use of valves

### WHO SHOULD ATTEND?

This course is intended for Maintenance Engineers, Application Engineers, Inspection Engineers, Mechanical Engineers, Under-Development Engineers, Elect/Electronics Engineers, Production Engineers, and the new Valve Designers. Also this Course is essential for Supervisors, Foremen and Technicians.

### TRAINING OUTCOME

- Demonstrate and apply good working knowledge on the selection, installation, upgrading, inspection & troubleshooting of valves
- Apply the proper steps, techniques and practices related to the maintenance, repair, sizing and selection of valves.
- Apply the principles of pressure, temperature, flow and fluid mechanics on the design and use of valves.

### TRAINING METHODOLOGY:

There will be interactive discussion based around case studies and videos to highlight course details. Each participant will receive a copy of the comprehensive course notes. The presenter will outline and discuss the topics using computer displays, CD displays and videotapes. The course is designed to have an interactive format to maximize delegate participation. Questions and answers are encouraged throughout and at the daily sessions. Needs-Based case-studies and examples will be discussed in problem solving workshop sessions. This gives participants the opportunity to discuss with other delegates and the presenter their specific problems and appropriate solutions. Only minimum note taking is encouraged to ensure maximum delegate attention during the course. Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

### COURSE OUTLINE:

#### Day One:-

##### Types of Valves

- Valve Materials
- Valve Components

#### Day Two:-

P.O BOX 45304 ABU DHABI U.A.E

T +971 2 626 4455 F +971 2 6275344

training@definetraining.com www.definetraining.com

- Introduction to Control Valve Theory
- Definition of a Control Valve
- Types of Energy
- What is Happening Inside a Control Valve
- Choked Flow
- Cavitation
- Flashing

**Day Three:-**

- Check Valves
- Definitions
- Operational Detail
- Main Types
- Design Considerations
- Selection
- Pressure Relief Valves
  - Introduction
  - Principles of Operation
  - Main Types
  - Case Study-Three Mile Island

**Day Four:-**

- End Connections
- Face to Face Criteria
- Materials Selection
- Leakage Rates
- General Review
- Installation
- Maintenance
- Troubleshooting
- Corrosion
- Valve Failures
  - Introduction
  - Physical Failures
  - Velocity Problems
  - Erosion by Cavitation
  - Erosion ( by Abrasion / Noise / Vibration)

**Day Five**

- General
- Valve Coefficient (CV)
- ISA Sizing Equation
- Simplified Sizing Equation
- Actuators

- Introduction
  - Types of Actuators
  - Linear Actuators
  - Rotary Actuators
  - Actuator Forces
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- Common Valve Problems
  - Water Hammer Effects
  - High Noise Levels
  - Noise Attenuation
  - Fugitive Emissions

### Valve Testing & Inspection

**NOTE:**

**Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.**



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