

Training Title

**PUMP & VALVE TECHNOLOGY**

Training Duration

5 days

Training Venue & Dates

ME054	Pumps & Valve Technology	5	14-18 April 2025	\$ 5,500	Dubai, UAE
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In any of the 4 or 5-star hotels. The exact venue will be intimated on finalizing.

Training Fees

- \$5,500 per participant includes Training Materials/Handouts, Tea/Coffee breaks, Refreshments and Lunch.

Training Certificate

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

TRAINING DESCRIPTION

The course will cover topics concerning different types of industrial valves, the control valves and the safety relief valves. Hydraulic pumps, the dynamic and the positive displacement types will be addressed in this course. The sealing and flushing systems plus bearing, and lubrication loops are also covered.

The selection and troubleshoot of such systems will also be addressed in detail. Delegates will learn how different system operate, their limit of performance and the best operating condition with least troubles and least failure.

TRAINING OBJECTIVES

The participant will gain deeper understanding of the control valves and safety relief valves used in different industrial applications. The delegates will learn more about different types of hydraulic as well as dynamic pumps, their performance, operation, control and trouble shooting. The delegate will be able to select the appropriate type of valves and pumps for the application.

WHO SHOULD ATTEND

[www.definettraining.com](http://www.definettraining.com)

Heads of Maintenance and Operation, Mechanical and Chemical Engineers, Equipment Specialists, Technical Engineers, Operation Engineers, Planning Engineers, Engineers involved with control and safety valves and pumps of different types.

TRAINING METHODOLOGY

A highly interactive combination of lecture and discussion sessions will be managed to maximize the amount and quality of information, knowledge and experience transfer. The sessions will start by raising the most relevant questions and motivate everybody finding the right answers. The attendants will also be encouraged to raise more of their own questions and to share developing the right answers using their own analysis and experience

All attendees receive a course manual as a reference.

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- 30% Lectures
- 30% Workshops & Work Presentations
- 20% Case Studies & Practical Exercises
- 20% Videos & General Discussions

## **TRAINING OUTLINE**

### **Chapter 1**

Control Valves  
Valves Performance  
Tightness Criterion  
Flow Characteristics  
Dead time  
Time Constant  
Valves Design  
Linear Type  
Rotary Type  
Valves actuators  
Hydraulic actuators  
Pneumatic actuators  
Valves Positioners

### **Chapter 2**

Safety and Relief Valves  
Valves Design  
Spring-loaded pressure relief valves  
Balanced Relief Valves  
Pilot Operated PRV  
Valves characteristics  
Design pressure  
Superimposed back pressure (degree of fluctuation)  
Built-up back pressure during operation  
Valve Installation  
Valves Sizing and Selection  
Calculation of Relieving Area  
Constant backpressure  
Variable Backpressure  
Capacity Requirement for External Fire  
Valve Sizing Simplified Method

### **Chapter 3**

Valves Troubleshooting  
Common-Valve Problems  
Cavitation  
Flashing  
Choked Flow  
High Velocities

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Water-Hammer  
High Noise Level  
Fugitive Emission  
Installation Faults  
Inlet and outlet pipe size  
Backpressure effects  
Piping supports  
Reaction forces  
Parallel and series RV installation

**Chapter 4**

Hydraulic Pumps  
Types and Designs  
Gear Pumps  
Vanes Pumps  
Swash piston pumps  
Performance Curves  
Operation  
Cavitation  
Foam and bubbles  
Overheating  
Capacity Control

**Chapter 5**

Dynamic Pumps  
Centrifugal Pumps  
Axial Flow pumps  
Performance  
Operation  
Capacity Control  
Multistage Pumps  
Balancing Systems  
Cavitation Problem  
NPSH required  
Suction Energy  
Sealing Systems  
Mechanical seals  
Flushing Systems  
Bearings and Lubrication  
Troubleshooting



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**Note:**

**Pre & Post Tests will be conducted**

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

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