DEFINE
MANAGEMENT CONSULTANTS
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# Pump & Valve Technology

## Training Duration

**5 days**

## Training Date

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|---|---|---|---|---|---|---|---|---|
| Pump & valve technology | | 5 | | 13-17 June | | $3,300 | | Abu Dhabi |
| Practical Pump & Valve Technology | | 5 | | 19-23 December | | $3,300 | | Dubai |

**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**
- **Accommodation is not included in this, however Define Management can help in arranging the same if required**

## Training Certificate

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

**Language: English**

## TRAINING OVERVIEW

### Course 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.**

### Course 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 troubles shooting. The delegate will be able to select the appropriate type of valves and pumps for the application.**

## Who Should Attend

**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.**

## Course Contents

**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
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

**Case Studies, Last Day Review, Discussions & Pre & Post Assessments will be carried out.**

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