

**Training Title:**

**MECHANICAL MAINTENANCE SPECIALIST: PUMPS, COMPRESSORS & ROTATING MACHINERY**

**Training Duration**

5 days

**Training Dates & Venue**

|              |                                                                                  |   |                   |         |                     |
|--------------|----------------------------------------------------------------------------------|---|-------------------|---------|---------------------|
| REF<br>ME068 | Mechanical Maintenance<br>Specialist: Pumps, Compressors &<br>Rotating Machinery | 5 | 16 - 20 June 2025 | \$6,500 | Barcelona,<br>Spain |
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In any of 4 or 5 star hotel. Exact venue will be informed once finalized.

**Training Fees**

- \$6,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch.

**Training Certificate**

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

**TRAINING OVERVIEW**

**TRAINING DESCRIPTION**

This course provides comprehensive training on the maintenance, troubleshooting, and operation of critical rotating machinery, with a focus on pumps, compressors, and associated equipment. Participants will gain the skills needed to ensure the reliability and efficiency of machinery used in industrial operations.

**COURSE OBJECTIVES**

By the end of the course, participants will be able to:

- Understand the operating principles of pumps, compressors, and other rotating machinery.
- Identify common failure modes and root causes of breakdowns.
- Apply preventive and predictive maintenance techniques.
- Perform alignment, balancing, and vibration analysis.
- Read and interpret mechanical drawings and maintenance manuals.
- Follow safety standards and best practices during maintenance procedures.

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### TRAINING METHODOLOGY:

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of the multiple-choice type will be made available on a daily basis to examine the effectiveness of delivering the course.

All presentations are made in excellent colorful power point. Very useful Course Materials will be given.

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

### WHO SHOULD ATTEND?

- Mechanical maintenance technicians
- Rotating equipment specialists
- Plant engineers
- Maintenance supervisors and planners

### COURSE OUTLINE

#### **Day 1: Introduction & Rotating Equipment Basics**

- Overview of rotating machinery in industrial applications
- Basic mechanical concepts: torque, power, and motion
- Types of pumps, compressors, and other rotating equipment
- Components: bearings, seals, couplings, shafts
- Maintenance strategies: preventive, predictive, and reactive
- Mechanical safety procedures and standards

#### **Day 2: Pumps – Types, Operation & Maintenance**

- Centrifugal pumps: principles, performance, and components
- Positive displacement pumps: gear, screw, diaphragm, piston
- Reading and interpreting pump curves
- Common pump failures: cavitation, seal leaks, bearing wear
- Pump maintenance procedures and troubleshooting

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### Day 3: Compressors – Operation & Maintenance

- Compressor types: reciprocating, screw, centrifugal
- Compression stages and cooling systems
- Lubrication and sealing systems in compressors
- Common failures: overheating, pressure loss, vibration
- Compressor inspection, servicing, and diagnostics

### Day 4: Condition Monitoring & Alignment Techniques

- Introduction to condition monitoring techniques
- Vibration analysis fundamentals
- Oil analysis, infrared thermography, and ultrasonic testing
- Shaft alignment: dial indicator and laser alignment methods
- Balancing of rotating parts and coupling installation

### Day 5: Troubleshooting & Final Assessment

- Root cause failure analysis methods
- Troubleshooting pumps and compressors: real-world case studies
- Maintenance planning and documentation practices
- Review session and participant assessment (written & practical)
- Feedback, discussion, and certification ceremony

#### 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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