

AIR COMPRESSORS: OPERATION, MAINTENANCE, INSPECTION, TROUBLESHOOTING & OVERHAUL

“Maximizing the Efficiency and Reliability of Air Compressors through Expert Maintenance and Troubleshooting”

Schedule

Date	Venue	Fees (Face-to-Face)
01 - 05 Mar 2026	Manama, Bahrain	USD 3495 per delegate
17 - 21 Aug 2026	London - UK	USD 3495 per delegate

► **Available delivery methods:** Face-to-Face & Online Training

Introduction

Air compressors are critical components in many industrial processes, and their performance directly impacts operational efficiency. This 5-day course is designed for maintenance professionals, engineers, and technicians who want to deepen their knowledge and skills in the operation, maintenance, inspection, troubleshooting, and overhaul of air compressors. The course covers the types of air compressors, their components, best practices for routine maintenance, diagnostic techniques for troubleshooting, and strategies for overhauling and extending the life of the equipment. Participants will gain the expertise to ensure that air compressors run efficiently and reliably, minimizing downtime and maintenance costs.

Objectives

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

- Understand the operation and components of different types of air compressors
- Perform routine maintenance and inspection procedures to optimize compressor performance
- Diagnose common compressor problems and troubleshoot effectively
- Overhaul air compressors and extend their operational lifespan
- Implement preventive maintenance strategies to reduce unscheduled downtime and extend compressor life

Why Attend

- Gain a comprehensive understanding of air compressor operations, including key components and systems
- Learn how to perform detailed maintenance checks and inspections to ensure maximum efficiency
- Enhance your troubleshooting skills to identify and resolve compressor issues quickly
- Acquire hands-on experience in overhauling and optimizing compressor performance
- Develop practical knowledge to extend the service life of air compressors and improve their reliability

Target Audience

- Gain a comprehensive understanding of air compressor operations, including key components and systems
- Learn how to perform detailed maintenance checks and inspections to ensure maximum efficiency
- Enhance your troubleshooting skills to identify and resolve compressor issues quickly
- Acquire hands-on experience in overhauling and optimizing compressor performance
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Individual Benefits

Key competencies that will be developed include:

- Advanced understanding of air compressor systems, types, and components
- Practical experience in the maintenance and inspection of air compressors
- Skills in troubleshooting and diagnosing common compressor issues
- Knowledge of overhaul procedures to maximize air compressor lifespan
- The ability to implement preventive maintenance strategies to reduce costs and downtime

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Increased operational efficiency through effective air compressor maintenance and troubleshooting
- Reduced downtime and maintenance costs by improving compressor reliability
- Better management of air compressor systems, leading to extended equipment lifespan
- Improved safety and performance of compressed air systems across the organization
- Enhanced capability to train and support other team members in air compressor operation and maintenance

Instructional Methodology

- Lectures to explain the principles of air compressor operations, components, and maintenance
- Case studies to examine real-world examples of compressor failures and troubleshooting strategies
- Workshops focused on performing maintenance checks and diagnostics on air compressors
- Group exercises to practice overhauling compressors and extending their operational lifespan
- Hands-on training to troubleshoot and resolve common air compressor issues

Course Outline

Training Hours: 07:30 AM - 03:30 PM Daily Format: 3-4 Learning Modules | Coffee Breaks: 09:30 & 11:15 | Lunch Break: 01:00 - 02:00

Day 1: Introduction to Air Compressors and Basic Operation

- Module 1: Types of Air Compressors (07:30 - 09:30) • Overview of positive displacement and dynamic air compressors • Differences between rotary screw, reciprocating, centrifugal, and diaphragm compressors • Selecting the right type of compressor for specific applications
- Module 2: Basic Compressor Components and Functions (09:45 - 11:15) • Key components of an air compressor: intake valve, pistons, cylinders, air receiver tank, etc. • Understanding how compressors work: principles of compression and air delivery • Common issues related to compressor components
- Module 3: Workshop - Compressor Components and Functionality (11:30 - 01:00) • Hands-on activity: Identifying key components in an air compressor system

Day 2: Air Compressor Maintenance and Inspection

- Module 4: Routine Maintenance Procedures (07:30 - 09:30) • Cleaning, lubricating, and checking air compressor components • Performing visual inspections and checking for leaks • Ensuring correct air pressure and system performance
- Module 5: Comprehensive Inspection of Air Compressors (09:45 - 11:15) • Techniques for inspecting air compressors for wear and tear • Identifying signs of premature failure (oil leaks, unusual vibrations, etc.) • Using diagnostic tools for in-depth analysis
- Module 6: Workshop - Performing Maintenance and Inspection (11:30 - 01:00) • Participants will practice performing a full maintenance check on an air compressor

Day 3: Troubleshooting Air Compressor Issues

- Module 7: Diagnosing Common Air Compressor Problems (07:30 - 09:30) • Troubleshooting compressor performance issues: low pressure, unusual noises, overheating, etc. • Identifying the root causes of common compressor faults • Using diagnostic equipment to troubleshoot problems
- Module 8: Advanced Troubleshooting Techniques (09:45 - 11:15) • Electrical and mechanical troubleshooting for compressor systems • Troubleshooting air compressor control systems and valves • Repairing or replacing faulty components
- Module 9: Workshop - Troubleshooting and Repairs (11:30 - 01:00) • Participants will practice diagnosing and fixing common compressor issues

Day 4: Air Compressor Overhaul and Optimization

- Module 10: Overhauling Air Compressors (07:30 - 09:30) • Steps for complete disassembly and reassembly of an air compressor • Replacing worn-out parts: seals, pistons, valves, and more • Ensuring proper lubrication and alignment during reassembly
- Module 11: Optimizing Air Compressor Performance (09:45 - 11:15) • Techniques for optimizing compressor efficiency and performance • Reducing energy consumption and improving air delivery • Ensuring optimal cooling and heat dissipation
- Module 12: Workshop - Overhaul and Performance Optimization (11:30 - 01:00) • Hands-on session: Participants will dismantle and reassemble a compressor

Day 5: Preventive Maintenance and Best Practices

- Module 13: Preventive Maintenance Strategies (07:30 - 09:30) • Designing a preventive maintenance plan for air compressors • Scheduling regular inspections and maintenance activities • Tracking performance and identifying early signs of wear
- Module 14: Best Practices in Air Compressor Operation (09:45 - 11:15) • Operating air compressors safely and efficiently • Managing air quality and ensuring adequate air supply • Implementing sustainability practices in compressor operations
- Module 15: Workshop - Developing a Preventive Maintenance Plan (11:30 - 01:00) • Participants will develop a preventive maintenance plan tailored to their organization's needs

Certification

Upon successful completion of this course, participants will receive a Certificate of Completion in Air Compressors: Operation, Maintenance, Inspection, Troubleshooting & Overhaul, validating their ability to manage and optimize air compressor systems.

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