MAWA EVENTS

Address: No. 857, Block A2. Leisure Commerce Square - No 9., 46150 Petaling Jaya, Selangor, Malaysia

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RECIPROCATING COMPRESSORS OVERHAUL, PERFORMANCE & MAINTENANCE OPTIMIZATION

"Enhancing Reliability, Efficiency, and Longevity of Reciprocating Compressors through Precision Overhaul and Maintenance Excellence"

Schedule

Date	Venue	Fees
25 – 27 Feb 2026	Kuala Lumpur, Malaysia	USD 2495 per delegate
15 – 17 Apr 2026	Dubai, UAE	USD 2495 per delegate

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

Introduction

Reciprocating compressors remain vital in many process industries, especially in high-pressure and gas handling applications. However, they are subject to frequent mechanical stresses, making precision overhaul and performance optimization essential for operational continuity and safety.

This 3-day intensive course delivers practical, hands-on knowledge in the overhaul, diagnostics, and maintenance of reciprocating compressors. Participants will learn to identify early signs of wear or failure, implement best practices in disassembly and reassembly, and apply condition monitoring to extend equipment life and performance.

Objectives

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

- Understand the working principles and configurations of reciprocating compressors
- Execute proper disassembly, inspection, and reassembly during overhaul
- Identify causes of compressor inefficiency and mechanical failure
- Apply condition monitoring tools to assess health and predict failures
- Develop an effective preventive maintenance and performance improvement plan

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Why Attend

- Learn best practices in overhaul and precision alignment of reciprocating compressors
- Reduce mechanical failure rates through structured inspection and diagnostics
- Understand performance factors and optimize for energy efficiency
- Enhance mechanical integrity, safety, and reliability
- Cut maintenance costs by reducing unplanned interventions

Target Audience

This program is designed for:

- Mechanical and maintenance engineers
- Rotating equipment technicians and supervisors
- Plant reliability engineers
- Maintenance planners and condition monitoring specialists
- Compressor operators and OEM service coordinators

Individual Benefits

Key competencies that will be developed include:

- Overhaul, reassembly, and clearance checks of critical compressor parts
- Condition monitoring using vibration, pressure, and temperature data
- Troubleshooting common compressor problems
- Root cause failure analysis and reliability improvement planning
- Hands-on knowledge of valve, piston, and cylinder component wear

Organizational Benefits

Upon completing the training course, participants will demonstrate:

- Improved equipment uptime and MTBF (mean time between failures)
- Reduced maintenance cost and emergency breakdowns
- Higher compressor efficiency and reduced energy consumption
- More accurate planning of overhauls and spare parts inventory
- Enhanced mechanical integrity and safety compliance

Instructional Methodology

The course follows a blended learning approach combining theory with practice:

- Strategy Briefings – Compressor design, operating limits, and maintenance philosophy
- Case Studies – Real failures and best-practice overhauls in oil, gas, and chemical plants
- Workshops – Disassembly plans, condition-based assessments, reassembly procedures
- Peer Exchange – Troubleshooting challenges and success stories from participants
- Tools – Templates for overhaul documentation, inspection logs, and condition monitoring reports

Course Outline

DETAILED 3-DAY COURSE OUTLINE

Training Hours: 7:30 AM – 3:30 PM **Daily Format:** 3–4 Learning Modules | Coffee breaks: 09:30 & 11:15 | Lunch Buffet: 01:00 – 02:00

Day 1: Compressor Fundamentals and Mechanical Overview

- Module 1: Operating Principles and Component Functions (07:30 – 09:30) • Types of reciprocating compressors and applications • Cylinder design, crankshaft mechanics, pistons, valves, and seals • Performance curves and compression ratios
- Module 2: Key Failure Modes and Root Causes (09:45 – 11:15) • Mechanical wear, lubrication failure, overheating, liquid slugging • Symptoms and early signs of wear and misalignment • Design vs. operational failure sources
- Module 3: Planning an Overhaul – Pre-Inspection & Documentation (11:30 – 01:00) • Pre-overhaul condition monitoring and reporting • Safety, rigging, and parts preparation • Disassembly planning and tolerances tracking
- Module 4: Workshop – Condition Review and Overhaul Readiness (02:00 – 03:30) • Participants evaluate overhaul readiness from a sample compressor history

Day 2: Overhaul, Inspection and Reassembly

- Module 1: Step-by-Step Disassembly Techniques (07:30 – 09:30) • Disassembling valves, cylinder heads, pistons, and crankcases • Inspection of liners, rods, gaskets, packing rings, and bearings • Shaft runout and alignment checks
- Module 2: Component Inspection and Defect Identification (09:45 – 11:15) • Wear pattern recognition and measurements • Valve failure and reconditioning • Bearing clearance and wear assessment
- Module 3: Precision Reassembly and Alignment (11:30 – 01:00) • Assembly techniques for valves, piston rings, crankcases • Shaft alignment using dial indicators and laser alignment • Clearance setting and torque sequencing
- Module 4: Workshop – Reassembly Plan and Tolerance Checklist (02:00 – 03:30) • Participants create a full reassembly plan using case specifications

Day 3: Troubleshooting and Maintenance Optimization

- Module 1: Troubleshooting Common Operational Issues (07:30 – 09:30) • Low discharge pressure, vibration, leaks, overheating • Using vibration and thermographic data for fault analysis • Evaluating lubrication system performance
- Module 2: Performance Monitoring and KPI Analysis (09:45 – 11:15) • Measuring volumetric efficiency and pressure differential • Tracking compressor reliability and failure frequency • Using CMMS data to forecast maintenance needs
- Module 3: Predictive Maintenance and Condition-Based Programs (11:30 – 01:00) • Predictive tools: vibration analysis, oil analysis, temperature trends • Maintenance strategies: time-based vs. condition-based • Creating a PM checklist and monitoring schedule
- Module 4: Final Workshop – 90-Day Compressor Reliability Plan (02:00 – 03:30) • Teams create a short-term improvement plan • Group presentations and instructor feedback

Certification

Participants will receive a Certificate of Completion in Reciprocating Compressors Overhaul, Performance & Maintenance Optimization, validating their expertise in maintaining, diagnosing, and improving reciprocating compressor systems.

Why Choose MAWA Events

- **Global Expertise:** More than 17 years of experience in professional training and consulting.
- **Industry-Leading Faculty:** Courses delivered by seasoned professionals with hands-on experience.
- **Practical Insights:** Learn to turn theory into actionable strategies for real-world business impact.
- **Client-Focused Solutions:** Customized programs designed to achieve your organisation’s unique goals.

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In-House / Customized Training Interested in running this course for your team? Please contact us:	TEL: **+601116373203**	EMAIL: **info@mawaevents.net**