MERCURY

Advanced Compressor Technology Training Course

Istanbul - Turkey: +90 539 599 12 06
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Introduction

This advanced compressor technology program provides a comprehensive understanding of the various types of reciprocating, rotary, and dynamic compressors. Bearings are also covered in-depth. The characteristics, selection criteria, sizing calculations, sealing arrangements, joint problems, and repair techniques, as well as the preventive and predictive maintenance of these compressors, are thoroughly addressed. Additionally, the advanced compressor technology course offers valuable insights into the latest compressor technology.

This advanced compressor technology program is a must for those who use this equipment and who are looking for a practical guide to compressor technology. The advanced compressor technology course offers detailed explanations of how compressors and bearings operate. The advanced compressor technology course prescribes the guidelines and rules that are essential for their successful application.

Inverter Compressor Technology: The Future of Advanced Compressor Tech

With the advent of the latest compressor technology, there is a shift towards more efficient and reliable options, such as the inverter compressor technology. This module explores the fundamentals of inverter compressor tech, its benefits over traditional compressors, and how it aligns with the new air compressor technology.

Participants in the advanced compressor technology course will dive into the applications, advantages, and future trends of inverter compressors in various industries.

The advanced compressor technology course wraps up with a comprehensive review of the key concepts covered. Participants will have the opportunity to discuss implementation strategies for what they have learned, with a particular focus on optimizing the use of advanced compressor technology in their respective fields.

Targeted Groups

- Operation and Maintenance Operators.
- Supervisors and Technicians.
- Facility Engineers.
- Utility Engineers.
- This advanced compressor technology course is for anyone requiring a working-level knowledge of rotating equipment and compressors.
- Technical Professionals deal with condition monitoring, reliability, and integrity analysis.

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Course Objectives

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

- Maximize the efficiency, reliability, and longevity of all types of compressors and bearings.
- Size and select from the various types of dynamic and positive displacement compressors using the performance characteristics and selection criteria that you learn in the program.
- Carry out diagnostic testing and inspection of critical components, with the knowledge of standard failure modes of compressors and bearings, by applying advanced fault detection techniques.
- Select bearings and lubrication, compressor sealing arrangements, meet commissioning requirements, conduct vibration and used oil analyses, troubleshoot, provide predictive and preventive maintenance, enhance reliability, and reduce cost.
- Determine the maintenance required to minimize compressor downtime and operating costs and maximize its efficiency, reliability, and valuable life.
- Gain a thorough understanding of compressor surge and surge prevention systems.
- Understand all the causes of failures in compressors.
- Determine all the design features that improve the efficiency and reliability of compressors.
- Design different types of compressor systems, with an emphasis on new compressor technology and advanced technology air compressors.
- Gain a thorough understanding of the various types of sealing arrangements used in compressors.

Targeted Competencies

By the end of this advanced compressor technology course, the target competencies will be able to evolve:

- Basic design.
- Specification.
- Selection criteria.
- Sizing calculations.
- Sealing arrangements.
- Common operational problems.
- All diagnostics, troubleshooting, and maintenance are required for this equipment, including vibration analysis and used oil analysis.

Course Content

Unit 1: Gas Laws, Compressor Types and Applications

- Perfect and imperfect gasses.
- Understand compressor polytropic efficiency and power requirements.
- Learn about compressor volumetric flow rate and volumetric efficiency.
- Rotary and reciprocating compressors.
- What are Dynamic compressors centrifugal and axial?
- Compressor performance measurement.
- Learn about receivers, compressor control, and compressor unloading systems.
- Preventive maintenance and housekeeping.

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Unit 2: Positive Displacement Compressors

- Performance of positive displacement compressors.
- Reciprocating compressors.
- Reciprocate compressor troubleshooting and maintenance.
- Diaphragm compressors.
- Understand rotary screw compressors and filter separators.
- Straight lobe compressors.
- Learn about recent developments in liquid/gas separation technology.

Unit 3: Dynamic Compressors

- Dynamic compressor technology.
- Centrifugal and axial compressors.
- Learn about simplified equations for determining the performance of dynamic compressors.
- Understand centrifugal compressors - components, performance characteristics, balancing, surge prevention systems, and testing.
- Choking and anti-choking systems.
- Understand compressor auxiliaries, off-design performance, stall, and surge.

Unit 4: Dynamic Compressors Performance, Compressor Seals, and Compressor System Calculations

- Dynamic compressors performance.
- Learn about surge limits, stonewalls, prevention of surges, and anti-surge control systems.
- Compressor seal systems.
- Gas seals, liquid seals, liquid bushing seals, contact seals, restricted bushing seals, and seal liquid leakage systems.
- Understand dry seals, advanced sealing mechanisms, and magnetic bearings.
- Compressor system calculations.
- Size of compressor system components, sizing of gas receiver.
- Understand the design and selection of different compressor systems for the oil and gas industry and the power generation industry.

Unit 5: Bearings, Lubrication, Vibration Analysis, and Predictive Maintenance

- Learn about bearings, types of bearings, and thrust bearings.
- What are lubrication, the viscosity of lubricants, non-newtonian fluids, and greases?
- Use oil analysis.
- Vibrate analysis and predictive maintenance.
- Vibrate causes, resonant frequency, vibration in predictive maintenance, and diagnostics.
- Intelligent smart transmitters.
- Advantages of intelligent instrumentation.
- Understand control valve selection, cavitation, and noise.
- Actuators, positioners, and accessories.
- Diagnostic testing.