BLACKBIRD FOR TRAINING

Reciprocating & screw compressors operating

17 – 21 May 2027
Barcelona (Spain)



Reciprocating & screw compressors operating

Ref: 321556_295534 **Date:** 17 – 21 May 2027 **Location:** Barcelona (Spain) **Fees:** 5900 GBP

Introduction

This course offers a comprehensive understanding of various types of compressors, pumps, motors, and variable speed drives used in industrial applications. The course will cover essential terminology, operation, and maintenance strategies for reciprocating compressors, screw compressors, centrifugal pumps, and more. We will dive into the principles of operation, troubleshooting, and efficiency monitoring of these systems, enabling participants to apply industry best practices for maximum performance and cost efficiency.

Course Objectives

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

- Understand the different types of compressors, pumps, motors, and variable speed drives, such as reciprocating compressors, screw compressors, and centrifugal pumps.
- Operate compressors, pumps, motors, and variable speed drives efficiently to achieve optimal performance.
- Monitor and assess the efficiency, availability, and reliability of these systems.
- Learn selection, operation, and maintenance strategies for these critical components.
- Troubleshoot and resolve issues related to compressors, pumps, motors, and variable speed drives.

Course Outlines

Day 1: Compressors

- Compressor Types: Overview of positive displacement compressors reciprocating and rotary and dynamic compressors centrifugal and axial.
- Principles of compressor operation and gas laws.
- Compressor performance measurement and energy recovery.
- Detailed discussion on reciprocating compressors e.g., piston pumps, plunger pumps and screw compressors.
- Compressor control, unloading systems, and auxiliary components like intercoolers and after-coolers.



Day 2: Compressor System Calculations

- Affinity Laws for centrifugal compressors.
- Calculations for air leaks in compressed-air systems and annual costs.
- Power requirements for centrifugal compressors and reciprocating compressors.
- Compressor selection and air system requirements.
- Sizing compressor components, including air receivers and pump-up time.

Day 3: Bearings & Lubrication

- Overview of bearing types e.g., ball bearings, roller bearings and their operation.
- Analyzing lubrication systems and maintenance techniques.
- Oil analysis techniques: visual inspection, viscosity, and spectrographic analysis for evaluating lubrication condition.

Day 4: Positive Displacement Pumps

- Types of positive displacement pumps: reciprocating, screw pumps, and rotary pumps.
- Understanding the principles of pump operation and performance characteristics.
- Pump selection and calculation of system requirements.
- Understanding the role of pumps in system performance and their maintenance.

Day 5: Mechanical Seals & Vibration Analysis

- Mechanical seals: Components, lubrication, and temperature control.
- Overview of vibration analysis for predictive maintenance.
- Techniques for using vibration transducers to monitor compressor and pump performance.
- Troubleshooting using vibration analysis for equipment health assessment.

Why Attend this Course: Wins & Losses!

- In-depth understanding of compressors, including reciprocating compressors and screw compressors, crucial for optimizing industrial operations.
- Practical skills in operating compressors, pumps, motors, and variable speed drives with maximum efficiency.
- Knowledge of how to monitor the efficiency, availability, and reliability of these systems, ensuring high performance and low operational costs.
- The ability to troubleshoot and solve issues quickly, enhancing the life span of industrial equipment.
- Proficiency in selecting the appropriate systems based on specific operational needs and performing key maintenance practices.



Conclusion

This course provides a valuable opportunity to master the fundamentals of compressor operation, pump management, and motor performance. Whether you're new to the field or an experienced professional, this training will equip you with the knowledge and skills necessary to operate and maintain reciprocating compressors, screw compressors, centrifugal pumps, and variable speed drives efficiently.

By attending, you'll not only enhance your technical understanding but also improve your ability to troubleshoot, optimize, and maintain critical industrial equipment.

