XCELERATE TRAINING INSTITUTE

your learning & development partner

MECHANICAL ENGINEERING

Gas Compressor System, Working Principle and Maintenance Training Course

DURATION	LANGUAGE	FORMAT
5 days	English	Classroom / Online

Upcoming dates

Dates	Venue	Format	Fee
8 – 12 Feb 2027	Live online	Online (live)	€1,200
15 – 19 Mar 2027	Istanbul	Classroom	€4,800
16 – 20 Aug 2027	Live online	Online (live)	€1,200

Register or ask a question

Online: x8ti.com/course/gas-compressor-system-working-principle-and-maintena…

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Gas Compressor System, Working Principle and Maintenance Training Course

Introduction

Introduction

Compression of gas naturally increases its temperature. Machines that are used to compress gases are called gas compressors. When the gas is air, the machine used for this is called an air compressor. Compressors are similar to pumps in that they increase pressure and transport fluid through a pipe.

There are different types of gas compressors used as per the purpose they need to serve, the gas they need to compress, etc. These types include reciprocating, rotary, centrifugal, axial, diagonal, scroll and diaphragm types. Since they work under highly stressful external conditions, their maintenance is key to the success of plants using them.

This Xcelerate Training Institute course will empower you will detail information and knowledge necessary to thoroughly understand gas compressor maintenance and operation. By undertaking this course, you will be able to independently drive and oversee gas compressor maintenance and operation for your organization, contributing to a significant responsibility and function for your organization.

This Gas Compressor System, Working Principle and Maintenance course will also provide you with the necessary experience and confidence to work in any organization requiring assistance and experience in gas compressor maintenance and operation.

Learning Objectives

- complete information and knowledge about gas compressor maintenance and operation
- the required awareness of issues and challenges when working with gas compressors and ways to handle these
- the ability to predict wear and tear of the compressors and take timely action to prevent adverse effects to the organization
- adequate confidence and knowledge to train other professionals on best practices and precautions when working with gas compressors
- the knowledge and skill to choose the correct compressor to be used as per the intended purpose
- the ability and potential to undertake critical action that would save the organization maintenance and operational costs, thereby fostering growth and development
- the capabilities and skill to conduct regular checks and inspections to ensure that gas compressors are working at optimal efficiency and quality and in adherence with required standards and guidelines
- the skill to apply advanced concepts and techniques to enhance gas compressor operation

Training Methodology

Xcelerate Training Institute chose an unconventional approach to training that consisted of classroom sessions as well as practical activities. Lectures are delivered by highly experienced professionals from

the relevant domain, using audio-visual presentations for ease of reference. The practical activities include group projects, role-plays, etc., which also encourage trainees to equally participate and contribute to the program. Trainers also discuss real workplace challenges and their solutions about the content of the training program.

Benefits for Your Organization

- Experienced and trained professionals overseeing gas compressor operation and maintenance
- Regular inspections to ensure that gas compressors are working at optimal capacity and quality
- Continuous training of employees to ensure that everyone working with gas compressors is aware of basic best practices and precautions
- Effective preventive and predictive maintenance through regular inspections
- Longer machine life and hence reduced maintenance and operational costs
- Organizational growth because of lesser costs and risks of wear and tear of machines and better risk management
- Adherence to international standards and guidelines of gas compressor operation and maintenance
- Application of advanced methods and concepts to enhance gas compressor performance

Benefits for You

- Detailed understanding and knowledge of gas compressor operation and maintenance
- Increased knowledge and confidence to conduct preventive and predictive maintenance of gas compressors, ensuring that wear and tear is avoided as much as possible
- Enhanced skill and capabilities to apply advanced techniques and concepts to enhance gas compressor maintenance
- Greater ability to contribute to cost reduction (maintenance and operational), thereby fostering organizational growth
- Increased foresight, awareness and understanding to predict challenges working with gas compressors and make plans to address these so that they do not impact the organization
- Greater confidence and knowledge to regularly audit gas compressors to ensure that they are working at optimal efficiency and quality
- Increased confidence, experience and knowledge to train other professionals on best practices and precautions to be followed when working with gas compressors
- Greater understanding and experience to make the right choice of gas compressors to be used as per the intended purpose
- Enhanced skill set and capabilities to work in any organization requiring expertise in gas compressor operation and maintenance, thereby increasing the potential for greater opportunities in other organizations as well

Target Audience

- Top management of an organization who need to thoroughly understand the importance of gas compressors and their regular maintenance to be able to take decisions in case of maintenance costs or wear and tear replacements
- Engineers and other members closely working with and operating gas compressors in some form of equipment

- Managers and leaders overseeing end-to-end operations of equipment involving gas compressors
- Internal and external auditors as well as quality checkers responsible for ensuring adherence to required standards of safety and operation
- Vendors and suppliers involved in procuring and maintenance of gas compressors
- Any other professional interested in knowing more about gas compressor maintenance and operation

Course Outline

Types of Gas Compressors

- Reciprocating
- Rotary
- Centrifugal
- Axial
- Diagonal
- Scroll
- Diaphragm

Relationships between Temperature and Pressure in Gas Undergoing Compression

- Isothermal
- Adiabatic
- Polytrophic

Applications of Gas Compressors

- Pipeline transport
- Petroleum refineries
- Refrigeration and air conditioning
- Gas turbine systems
- Pressurized aircraft
- Jet engines
- Scuba diving
- Turbochargers and superchargers
- Rail and heavy road transport

Gases used in Gas Compressors

- Compressed air
- Ammonia
- Argon
- Corrosive gases
- Carbon dioxide
- Helium
- Hydrocarbon gas
- Natural gas
- Nitrogen

- Oxygen
- Propane
- Refrigerant gases

Aspects Considered During Gas Compressor Maintenance

- Periodic recording of operating parameters
- Planned corrective action
- Lube oil/cooling water check
- Maintenance of proper fuel, lube oil, water and instrument pressures
- Bearing greasing and lubrication
- Compressor unit cleaning
- Engine shut down
- Isolation valve closure
- Depressurization of compressor unit

Air Compressor Preventive Maintenance Checks

- Unit disconnected from power source
- Compressor on flat surface
- Fill cap/plug removal
- Debris or dirt check-in oil
- Oil level not exceeding halfway point of sight glass

Components of Compressor Stations and their Operation and Maintenance

- Compressor unit
- Turbines with centrifugal compressors
- Electric motors with centrifugal compressors
- Reciprocating engine with reciprocating compressor
- Filters and scrubbers
- Cooling systems
- Mufflers

Critical Elements Contributing to Reduced Maintenance Costs

- Clean, cool inlet air
- Correct air filter capacity
- Optimum compressor operating temperature
- Proper lubricant and feed rate
- Efficient air cooling system
- Safe reserve air capacity storage
- Airline lubricants
- Minimized air leaks

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Registration Form

Gas Compressor System, Working Principle and Maintenance Training Course

Preferred dates: ..... Venue or online: .....

Duration: 5 days Language: .....

Please complete and email this form to us, or register online. We confirm your place and send the invoice within one working day.

Delegate information

Full name (Mr / Ms / Dr / Eng): .....

Position: ..... Telephone / mobile: .....

Official email: ..... Personal email: .....

Company information

Company name: .....

Address: .....

City / country: ..... VAT / tax number: .....

Person responsible for training & development

Full name (Mr / Ms / Dr / Eng): .....

Position: ..... Telephone / mobile: .....

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