

Compressors and Pumps Maintenance & Troubleshooting

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Energy Milestones Corporation Advancing Professionals to the next level

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Compressors and Pumps Maintenance & Troubleshooting



Overview

This course will provide an opportunity to learn more about pumps and compressors, including their design, construction, operation, performance curves, control, troubleshooting, and maintenance. During the course participants' discussion, comments, bringing up their own problems are welcomed and encouraged.

Course Objectives

- Describe the operation of centrifugal and positive displacement pumps, including pump design aspects, laws, performance comparisons, characteristic curves and performance testing.
- Test rotary pump performance and apply maintenance and troubleshooting techniques accordingly.
- Identify reciprocating pump types and perform maintenance and troubleshooting on reciprocating pumps.
- Determine centrifugal pump problems and perform maintenance and troubleshooting on centrifugal pumps.
- Identify compressor types, their operation, everyday problems, and perform troubleshooting techniques.
- Apply various methods of pump alignment, including visual, straight-edge, and feeler-gauge methods, rim and face measurements, reverse dial indication, cross dialling, and laser alignment.
- Diagnose soft foot conditions and apply measurement and correction techniques.



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Course Content

1. Pump operation and theory
 - Centrifugal pumps
 - Design aspects
 - Pump laws
 - Positive displacement pumps
 - Performance comparisons
 - Special-purpose pumps
 - Pump characteristic curves
 - Performance testing
2. Rotary pump maintenance and troubleshooting
 - Reciprocating pump types
 - Pump problems
 - Pump maintenance
 - Pump troubleshooting
3. Reciprocating pump maintenance and troubleshooting
 - Reciprocating pump types
 - Pump problems
 - Pump maintenance
 - Pump troubleshooting
4. Centrifugal pump maintenance and troubleshooting
 - Pump problems
 - Pump maintenance
 - Pump troubleshooting
 - Pump inspections
5. Compressor maintenance and troubleshooting
 - Rotary screw compressors
 - Rotary vane compressors
 - Lobe-type compressors
 - Reciprocating compressors
 - Lubrication and cooling
6. Pump alignment methods
 - Straight edge and feeler gauge

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Course Content

- 6. Pump alignment methods
 - Rim and face
 - Reverse dial indication
 - Cross dialing
 - Laser alignment
 - Mathematical alignment formula calculations
 - Graphical solutions
- 7. Soft foot correction and tolerances
 - Soft foot definition
 - Effects of soft foot
 - Types of soft foot
 - Measuring soft foot
 - Correcting soft foot

Targeted Audience

This course is designed for plant personnel responsible for the installation, maintenance, and repair of positive displacement/centrifugal pumps, as well as compressors, including plant maintenance technicians and mechanical maintenance technicians. It will also be beneficial for professionals managing and supervising personnel involved in the operation and maintenance of pumps and compressors.

Course Methodology

Facilitated by an experienced professional trainer, this training course will be conducted as a highly interactive workshop session. A variety of training methodologies and facilitation techniques will be used before and during the course whenever applicable. These methods are aimed at enhancing individual and group interaction while maximizing learning. Some of these methods are:

- Online Pre-post Test
- Colorful Visual Aids
- Gamification
- Self-Assessment Instruments
- Simulations
- Case Studies
- Videos
- Group Exercises & Discussions
- Role plays
- Indoor & Outdoor games

