Training - Compressors Operation

COMPOP-EN-P | **Face-to-face only** | **5 days**

This course provides a better understanding of the technology, performance and operation of centrifugal and positive displacement compressors

Level
Skilled

Public
- Operation and technical department staff involved in the operation of centrifugal and positive displacement compressors
- Employees in charge of running and checking compression systems

Objectives
Attendees will be able to implement the following skills:
- Describe the technology of centrifugal and positive displacement compressors
- Select the adequate operating conditions
- Explain the main operating problems
- Be involved in a troubleshooting process

Pedagogical & technical resources
- Functional approach for a better understanding
- Numerous examples and cases studies from the Oil & Gas production industry and analysis of manufacturer file
- Applications with dynamic simulators

Assessment of achievements
Quiz

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

GAS COMPRESSION BASICS — 0.5 day

Compressor types. Selection.
Gas compression: key points, pressure ratio. Gas composition, typical thermodynamical laws and models.
Isothermal, isentropic, actual compression.
Compression work and power.
Single and multistage compression.

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TECHNOLOGY & PERFORMANCE — 2 days

Centrifugal compressors:

- Centrifugal compressor typical parts and arrangements.
- Technology of the essential components: stator, rotor, bearings, thrust bearing, seals.
- Vibrations, critical speed, dynamic balancing.
- Auxiliary equipment: lubrication system, balancing line, mechanical seals auxilairies...
- Safety devices: axial displacement, vibrations, bearing and thrust bearing temperatures, oil pressure...
- Compression mechanism through a compressor stage.
- Operation limits. Surge. Various antisurge systems.
- Characteristic curves of the circuit and the compressor. Influence of the operating conditions: intake pressure and temperature, nature of the gas, rotation speed, IGV position.

Reciprocating compressors:

- Reciprocating compressor parts and arrangements.
- Technology of the essential components: cylinder, piston, valves, packings, crankshaft, connecting rod...
- Auxiliary equipment: lubrication of moving parts and cylinders, interstage coolers and cooling devices systems, flare connections.
- Safety devices: vibrations, rod drop, temperatures...
- Piston side compression map vs operating conditions Theoretical and practical cycles.
- Flow control with typical devices: spillback line, unloading, clearance pocket actuation,(e-)Hydrocom™ system.

Rotary positive displacement compressors:

- Rotary positive displacement compressor technologies.
- Auxiliary equipment.
- Operation: start-up/shutdown, survey, flow control.

OPERATION — 2.5 days

Centrifugal compressors:

- P&ID and logic security matrix analysis.
- Flow rate regulation. Adaptation to service conditions.
- Start-up, shutdown and isolation: hazards related to these phases.
- Survey and monitoring the compressor and auxiliary equipment under normal operating conditions.
- Case studies: typical incidents.
- Applications with dynamic simulator: start-up, shutdown, operation vs suction conditions.

Reciprocating compressors:

- Conventional control: start-up, shutdown associated risks.
- Monitoring the compressor and auxiliary equipment under normal operating conditions.
- Case studies: incidents.
- Applications with dynamic simulator: start-up, shutdown, operation vs suction conditions.

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Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com

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