IFP Training

This course can be adapted to virtual classroom mode

Reciprocating Compressors
Applications with CORYS IndissPlus dynamic simulator

5 days	EECV-EN-A
Overview	

LEVEL

Skilled

PURPOSE

This training improves participants' skills on technology, operation and maintenance of reciprocating compressors.

LEARNING OBJECTIVES

Upon completion of the course, participants will be able to:

list the different parts of a compressor and explain their characteristics,

explain the evolution of compressor operating parameters,

implement appropriate monitoring for each type of compressor,

be involved in troubleshooting activities.

WAYS AND MEANS

Actual examples from the Oil & Gas and petrochemical industries.

Trainee participation is continuously encouraged through case studies selected by the lecturer or proposed by the trainees.

Use of a dynamic simulator (start-up/shutdown, general operation, disturbances/troubleshooting).

LEARNING ASSESSMENT

Quiz.

PREREQUISITES

Provide evidence of a professional experience of at least 1 month related to the concerned field.

Agenda

TECHNOLOGY
1.5 d

Construction and design philosophies.
Components of reciprocating compressors: frame, cylinders, piston and rings, piston rod and crank head, crankshaft and connecting rods, bearings, compartment distance piece, specific emphasis on valves.
Auxiliary systems: pulsation dampeners, frame lube oil circuit, cooling systems, forced feed lubricator.
Safety devices.

PERFORMANCES
1 d

Ideal gas compression: discharge temperature, power.
Actual compression: valve behavior, leakages, internal thermal exchanges.
Indicator diagram.
Efficiency, compression power.
Case studies: discharge temperature and power calculation, indicator card plotting, efficiency calculation.

COMPRESSOR PROCESS OPERATION `0.5 d`

Start-up, shutdown. Performances control.
Influence of compression ratio, gas composition and suction temperature.
Multistage compressors.
Case study: air compression.

MAINTENANCE & TROUBLESHOOTING `1 d`

Machine monitoring: noise, vibration and temperature.
Typical defects and failures on: valves, piston rings and packings, piston rod…
Dismantling and assembly procedures and reports.
Safety devices and prevention.
Case studies: typical failures on reciprocating compressors.

DYNAMIC SIMULATION - APPLICATIONS `1 d`

Use of a dynamic simulator.
Exercises on start-up and shutdown phases.
Applications using disturbances generated by the lecturer.