
PRACTICAL PROCESS COMPRESSORS



WHAT YOU WILL LEARN:

- Different types of compressors used in process industry
- Their principle, design, construction, operation and maintenance
- Theoretical basis that helps evaluate the efficiency of their operation
- Operating and Mechanical range and limits of the various types of compressors
- Practical Maintenance – Procedures and Techniques

WHO SHOULD ATTEND:

Anyone who deals with design, operation and maintenance of compressors in the course of their work, including:

- Mechanical Engineers
- Maintenance Engineers
- Reliability Engineers
- Electrical Engineers
- Professional Engineers
- Utility Advisors & Planners
- Municipal & Regional Planners
- Operations Managers
- Maintenance Managers
- Project Managers
- Contract Managers
- Asset Managers
- Technical Managers

The Workshop

This workshop guides you from the basics of thermodynamics to every practical aspect of air and gas compression as used in any process industry. It covers the principle, design, construction, operation and maintenance of the most commonly used types of compressors.

The compressors covered in this workshop include the different types of positive displacement and dynamic compressors. It discusses the special features of every compressor type, their range of operation, applications and limitations. Various aspects needed to size, select, operate, troubleshoot and maintain different types of compressors are covered in great detail.

The topics attempt to encompass the latest in compressor hardware and their manufacturing processes. It covers the various designs and materials of components and details their special features.

The interactions of components bring about the dynamics of gas compression. The correlation of thermodynamics theory to practical gas compression helps you to understand the fundamentals of compressor operation. This association has been done using many numerical examples. The behaviour of various compressor under different conditions is explained in a manner that makes it very simple to understand the how and why of their operation. The user would also be introduced to the various phenomena in gas compression that limit operation of compressor beyond certain limits.

Performance calculations are included and that enable you to evaluate the efficiency and energy requirement of compressors. This helps to benchmark their performance. These are shown as an important tool to trouble shoot compressor problems and aid in operating them in an efficient manner. The various formulae and empirical relationships required to size and select the different types of compressors are also covered.

A special focus is made on the dynamics of compressor machinery. It introduces the user to rotordynamic concepts in rotating machines and various forces and moments in reciprocating machines.

The workshop covers the practical aspects of maintenance of the different compressor types. It covers the key stages of compressor overhaul and repair.

The workshop raises the knowledge bar by many notches for someone new to compressors while at the same proving to be a very good refresher and reference material for an expert in gas compression.

Practical Sessions

This is a practical, hands on workshop enabling you to work through practical exercises which reinforce the concepts discussed.

To gain full value from this workshop, please bring your laptop/notebook computer.

The Program

COMPRESSOR BASICS

- What is a compressor?
- Compressor definitions

GAS PROPERTIES AND THERMODYNAMICS

- Gas Laws and properties
- Calculating properties
- Thermodynamics basics

RECIPROCATING COMPRESSORS

- Mechanics
- Parts of reciprocating compressor
- Troubleshooting compressor problems
- Maintenance of reciprocating compressors

CENTRIFUGAL COMPRESSORS

- Principles
- Parts
- Casing configurations
- Types of centrifugal compressors
- Performance of centrifugal compressors
- Performance coefficients
- Compressor capacity control
- Anti-surge controls
- Compressor sizing
- Rotor dynamics
- Maintenance of centrifugal compressors

SCREW COMPRESSORS

- Principles
- Construction
- Characteristic parameters
- Sizing and performance
- Rotor dynamics
- Capacity control
- Maintenance

LOBE BLOWERS

- Principles
- Construction
- Selection of lobe blowers
- Maintenance of lobe blowers

AXIAL COMPRESSORS

- Principles
- Construction
- Performance curve
- Sizing
- Rotor dynamics
- Maintenance of axial compressors

SUMMARY, OPEN FORUM & CLOSING

