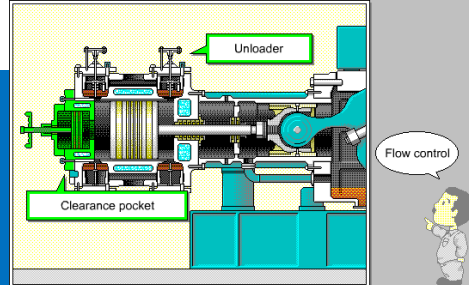


Compressor Basics Course I (Reciprocating Compressor)



Purpose

To acquire basic knowledge about compressors starting with the structure of compressors and compression theory to lead up to operation management.

Characteristics

- ★ This course focuses on the reciprocating compressor and uses videos of various experiments relating to cut section models and operational theory to provide students with a basic understanding of the structure of a compressor, compression theory, compressor performance and operation management.
- ★ Combining animated computer graphics, narration, and real video imagery, the explanations are given a sense of presence and realism.

Curriculum

Introduction

Chapter 1 Types of Compressors and Their Structure

Chapter 2 Gases and Compression

Chapter 3 Equation of State for Real Gases

Chapter 4 Absolute Work

Chapter 5 Industrial Work

Chapter 6 Motive Power

Chapter 7 Operation Management

Who should take this course

Novice and mid-level employees responsible for maintenance work, operators and engineers on production-sites (plants), workers, supervisors, and administrators in the field

Course material outline

- ◆ Expected learning time: 5 hours
- ◆ Number of tests: 2
- ◆ Shortest duration: 123 minutes

Supervised by

Idemitsu Kosan Co., Ltd. Technical Training Center

Curriculum

Chapter 1 Types of Compressors and Their Structure

- 101 What Is a Compressor?
- 102 Categorizing Compressors by Structure
- 103-1 The Structure of a Reciprocating Compressor (1) - 1
- 103-2 The Structure of a Reciprocating Compressor (1) - 2
- 104 The Structure of a Reciprocating Compressor (2)

Chapter 2 Gases and Compression

- 201 Gases and Energy
- 202 Compression Mechanism
- 203 Forms of Compression

Chapter 3 Equation of State for Real Gases

- 301 State Function
- 302 Boyle's Law
- 303 Gay-Lussac's Law
- 304-1 Equation of State for Real Gases - 1
- 304-2 Equation of State for Real Gases - 2
- 305 Equation of State for Real Gases for Practical Use
- 306 Vapor Mixture and Equation of State for Real Gases
- 307 Specific Heat

Chapter 4 Absolute Work

- 401-1 Isothermal Compression Absolute Work - 1
- 401-2 Isothermal Compression Absolute Work - 2
- 402 Adiabatic Compression Work
- 403 Polytropic Compression Work

Chapter 5 Industrial Work

- 501-1 Isothermal Compression Industrial Work - 1
- 501-2 Isothermal Compression Industrial Work - 2
- 502 Industrial Work of Adiabatic Compression
- 503 Work of Multistage Compression
- 504 Temperature of Multistage Compression
- 505 Actual Cycle
- 506 Exercises

Chapter 6 Motive Power

- 601 Adiabatic Compressor Power
- 602 Shaft Horsepower of a Reciprocating Compressor
- 603 Shaft Horsepower Calculation (1)
- 604 Shaft Horsepower Calculation (2)
- 605 Shaft Horsepower Calculation (3)
- 606 Shaft Horsepower Calculation (4)
- 607 Shaft Horsepower Calculation (5)
- 608 Shaft Horsepower Calculation (6)

Chapter 7 Operation Management

- 701 Compressor System
- 702 Gas Flow and Drainage Measures
- 703 Flow Control for a Reciprocating Compressor
- 704 Impact of Operational Variations
- 705 Compression Abnormalities and Measures
- 706 Air Compressor Safety Measures