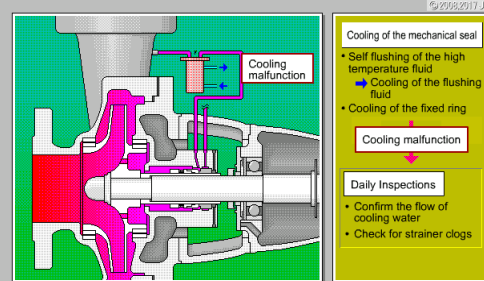


Pump Basics Course II

(Operation and Maintenance)



Purpose

To master knowledge about problems in pump operation and maintenance, and countermeasures against them.

Characteristics

- ★Mastery of methods of mechanical seal management related to pump operation and maintenance, and management methods related to temperature, flowrate, corrosion, fouling, and lubrication.
- ★Combining animated computer graphics, narration, and real video imagery, the explanations are given a sense of presence and realism.
- ★With interactive content interspersed in various places, students can progress through the materials at their own pace.

Curriculum

Before You Start Studying

Chapter 1 Mechanical Seal Management (1)

Chapter 2 Mechanical Seal Management (2)

Chapter 3 Problems Due to Temperature Control

Chapter 4 Problems Involving Low Flowrate

Chapter 5 Effects of Corrosion, Fouling, and Lubrication

Who should take this course

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

Course material outline

◆Expected learning time : 4hours

◆Number of tests:2

◆Shortest duration : 83 minutes

Supervised by

Idemitsu Kosan Co.,Ltd. Technical Training Center

Pump Basics Course II (Operation and Maintenance)

Curriculum

Outline of Learning Materials

Chapter 1 Mechanical Seal Management (1)

- 101 Mechanical Seal Structure
- 102 Sealing Mechanism and Flushing
- 103 Problems Caused by Contaminants in the Flushing Fluid
- 104 Strainers and Cyclone Separators
- 105 Slurry and High Viscosity Countermeasures

Chapter 2 Mechanical Seal Management (2)

- 201 Countermeasures against Heat in Mechanical Seals
- 202 Precautions with Metal Bellows Seals
- 203 Problems on the Atmosphere Side of Mechanical Seals
- 204 Safety Seals
- 205 Daily Inspections

Chapter 3 Problems Due to Temperature Control

- 301 Pump Warm-Up
- 302 Countermeasures against Vaporization if Operating Pressure Is Close to Saturated Vapor Pressure of Handling Liquid
- 303 Low Temperature Pumps

Chapter 4 Problems Involving Low Flowrate

- 401 Vibration Due to Low Flowrate Operation
- 402 Fluid Collisions
- 403 Incipient Cavitation
- 404 Vortices near the Impeller Eye
- 405 Temperature Rise Due to Low Flowrate Operation
- 406 Ways to Improve Low Flowrate Operation

Chapter 5 Effects of Corrosion, Fouling, and Lubrication

- 501 Performance Degradation
- 502 Corrosion and Unbalances
- 503 Lubrication Problems