

Mechanical Seals: Design, Selection, and Maintenance Techniques

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Mechanical Seals: Design, Selection, and Maintenance Techniques



Overview

In this course, participants will gain a strong technical and practical understanding of mechanical seals through the exploration of the design features and implications of many sealing systems in today's applications.

Course Objectives

- Understand the different types of seals
- Have learned about selection, operation, and maintenance strategies
- Be able to troubleshoot seal problems
- Understand how seals are fitted
- Understand how seals are tested
- Understand API flush plans

Course Content

1. Basic Concepts of Fluid Sealing

- Lubrication fundamentals
- Basic fluid mechanics, Reynolds equation, lubrication solutions, application to mechanical seal

2. Mechanical Seal Design

- Factors affecting design
- Mechanical seal selection
- Seal type selection
- Selection of the primary seal
- Selection of the seal arrangement

3. Mechanical Seals Configurations

- Mechanical seal applications
- Seals Classification



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Course Content

3. Mechanical Seals Configurations

- Wet and Dry mechanical seal
- Balanced and unbalanced mechanical seals
- Mechanical seals, pumps, and compressors considerations

4. Failure Diagnosis

- External symptoms of seal failure
- Common seal failure modes
- Seal installation tolerances
- Vibration effect on a mechanical seal
- High temperature effect
- Running speed effect
- Rotor balance effect

5. Mechanical Seal Performance

- Acceptable performance
- Mechanical seal-related standards
- Pre-installation machine checks
- Mechanical seal installation
- Mechanical seal maintenance
- Seal handling and inspection



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Targeted Audience

This course is intended for mechanical engineers, maintenance engineers, material engineers, machinery engineers, superintendents, supervisors, draftsmen, foremen & technicians.

Course Methodology

Facilitated by an experienced professional trainer, this training course will be conducted as a highly interactive workshop session. A variety of training methodologies and facilitation techniques will be employed before and during the course, as applicable. These methods are aimed at enhancing individual and group interaction while maximising learning. Some of these methods are:

- Online Pre-post Test
- Colourful Visual Aids
- Gamification
- Self-Assessment Instruments
- Simulations
- Case Studies
- Videos
- Group Exercises & Discussions
- Role-plays
- Indoor & Outdoor games

