

# Mechanical Face Sealing for Rotating Equipment

## About the Seminar:

This two-day technical seminar has been developed to provide engineers and other technical personnel techniques and strategies for the complexities of mechanical face seal operation and design.

The primary focus is on seals commonly used in Centrifugal Pumps and Positive Displacement pumps with one or more rotating shafts, as well as other rotodynamic machines such as rotary mixers and steam turbines. Bearing protection and bearing isolators in relation to the above mentioned pumps are also included. Topics of emphasis include basic seal types, how seals work, materials and design considerations, while environmental control, piping plans and API Standards are likewise covered in detail.

## Who Should Attend:

This course is intended for engineering and/or maintenance personnel who encounter mechanical seals in their job as plant technicians; process designers needing to understand sealing for pumps and other rotating equipment; or reliability engineers and those involved with plant operation.

## Benefits of Attending

- ▶ Learn the pros and cons of various seal types and sealing techniques.
- ▶ Correctly select the proper seal for given applications and conditions.
- ▶ Troubleshoot and analyze failure to identify practical solutions.
- ▶ Understand the parts within and around the seal.

## Concepts Covered

- ▶ Introduction to mechanical seal types
- ▶ How seals work
- ▶ Factors affecting seal operation
- ▶ Seal materials and secondary elastomers
- ▶ Seal design criteria
- ▶ Seal environmental control
- ▶ API 682 standards
- ▶ Piping plans



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## Course Syllabus

### How Seals Work

- ▶ Introduction to mechanical sealing
- ▶ Mechanical seal types
- ▶ Requirements for operation

### Factors Affecting Seal Operation

- ▶ Physical factors affecting fluid film
- ▶ Fluid Properties

### Seal Materials

- ▶ Seal faces
- ▶ Components and adaptive hardware
- ▶ Auxiliary components
- ▶ Secondary seals
- ▶ Elastomers

### Seal Design Considerations

- ▶ Pressure forces
- ▶ Temperature
- ▶ Speed, vibration and fluids
- ▶ Dry running seals

### Other Factors Affecting Seal Operation

- ▶ Centrifugal pump design
- ▶ Best efficiency point
- ▶ Net positive suction head

### Mechanical Sealing Standards

- ▶ Environmental aspects
- ▶ API 682
- ▶ Seal arrangements
- ▶ Seal categories
- ▶ Design requirements
- ▶ Seal performance and operation

### API 682 - Seal Piping Plans

- ▶ Single seals
- ▶ Dual seals
- ▶ Dry seals