WE 211 - Bearing Reliability in Pumps Course

Recommended for

Service, maintenance, machine repair, or plant/facility engineering staff of an industrial plant, OEM facility, institution, public utility or commercial building which uses rolling bearings and related equipment. Managers and technicians at industrial plants and OEM facilities responsible for rolling bearing performance and reliability. Rotating equipment engineers, reliability engineers, millwrights, mechanics, and maintenance supervisors. Those interested in rolling bearing and rotating equipment performance. Individuals should have direct involvement or responsibility for pump maintenance and installation.

Course objective

To provide attendees with a thorough knowledge of the design, function and maintenance requirements of a centrifugal pump. Additionally, the course describes the preferred methods for installing, starting up and run-in for new pumps. Troubleshooting and solutions for common pump problems are covered. Knowledge of these areas allows the attendee to be better prepared to maximize the service life and reliability of pumps in their facility.

Course description

The course curriculum is centered around pump maintenance and includes the theory behind the function of the pump and its components. Topics are addressed in a series of lectures, discussions, and hands-on workshops.

Pump classification and function

- Different styles of pumps are covered
- Basic concepts of pump function
- Theory and design of centrifugal pumping
- Basic information on pump curves, head, specific speed and proper pump operation

Bearing selection and internal dynamics

- Bearing selection for radial and thrust positions
- Behaviors of angular contact bearings under application conditions
- Selections of clearance or preload
- Appropriate contact angle and cage style
- Fundamentals of lubrication of pump bearings

Seal design and function

- Mechanical and lip seal design and application
- Seal selection and troubleshooting

Pump installation and operation

- Proper methods of installing, leveling and grouting a pump
- Start-up procedures including priming
- Alignment, impeller clearance and pipe strain

Maintenance and troubleshooting

- Routine maintenance concerns plus bearing and seal installations
- Lubrication systems
- Hands-on bearing failure
- Indicators of pump malfunction
- Troubleshooting hints and suggestions

Course length

2 days