



Bearings in Rotating Machinery Applications

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.

Course objective

To teach the attendee how to improve the service life of machinery with rotating equipment systems.

2009 course schedule

June 2-4	San Diego, CA
Oct. 6-8	Philadelphia, PA

2009 tuition

Public classes	\$1,095
On-site	
per class	\$12,995
# people	16
17+ people	\$395 per person

3 days

A written examination is included with this course and is conducted on the afternoon of the final day of class.

Course description

Bearings in Rotating Machinery Applications focuses on the four most common types of rotating equipment: motors, fans, pumps and gearboxes. Using a systems approach to machinery life extension. Familiar machinery is used as starting point to teach learn world-class techniques for installation, maintenance, troubleshooting and repair that can be carried over to all types rotating machines.

Instruction is accomplished using a combination of hands-on training, audio visuals, lectures and discussion opportunities. Specific topics include:

Industrial motors

- Learn advanced concepts related to rolling bearings:
 - Friction and sealed-for-life bearings
- Factors effecting the performance of rolling bearings
 - Component conformance: measuring for:
 - Shaft and housing fits
 - Installation errors
- Troubleshooting and preventing common motor problems:
 - Stray currents
 - Improper bearing installation
 - Lubrication: large and small motor lubrication discussion
- Motor condition monitoring: methods and practice

Industrial fans

- Bearing mounting and dismounting procedures on tapered adapters and tapered shafts using the accurate drive-up method
- Locating and non-locating bearings: controlling heat expansion
- Lubrication of open bearings in pillow blocks and split housings
- Detecting and correcting unbalance
- Rebuilding fan applications for peak performance

Industrial pumps

- Controlling thrust loads in applications
- ANSI vs. API pumps: design overview

- Fluid machinery: common problems and corrections
 - Cavitation, off-BEP operation, low bearing service life
 - Case studies of typical failures

Industrial gearboxes

- Coupling machinery: alignment overview
- Selecting the proper lubricant: oil lubricated machinery
 - The role of chemical additives in lubricants
 - Synthetic lubricants discussion
- Gearbox monitoring and inspection
 - Detecting gear problems
 - Oil analysis
 - Low and high frequency vibration monitoring
 - Damage verification with the Borescope

Prerequisite

Participants should have an understanding of industrial safety. A fundamental knowledge of, and ability to use, basic hand tools is recommended to participate in hands-on activities.

RMI On-line course*

WE100 Bearing basics
WE101 Angular contact ball bearings
WE103 CARB Toroidal roller bearings

Reading material*

SKF100955_1
Rolling bearings in centrifugal pumps, Part 1
SKF100955_2
Rolling bearings in centrifugal pumps, Part 2
SKF_5230
Rolling bearings in electric motors and generators
SKF4560_E_1
Rolling bearings in industrial gearboxes, Part 1
SKF4560_E_2
Rolling bearings in industrial gearboxes, Part 2
SKF_3213_E
Bearings for fans

* On-line learning material at aptitudeexchange.com