

Training Title

BEARING ROOT CAUSE FAILURE ANALYSIS

Training Duration

5 days

Training Dates & Venue

REF			28 Apr – 2 May,		
ME043	Bearing Root Cause Failure Analysis	5	2019	\$4,250	Dubai, UAE

Training will be held at any of the 5 star hotels. The exact venue will be informed once finalized.

Training Fees

- 4,250 US\$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch

Training Certificate

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

TRAINING OVERVIEW

TRAINING DESCRIPTION

The bearings functions to permits relative motion between two machine members while minimizing frictional resistance, so a correct bearing selection and appropriated lubrication will keep the machine healthy during its life time. This course will give you the correct path to understand the bearing as valuable device for every rotating machine which high influence on machine performance , maintenance and operation cost, and how tied the relation between the bearings and lubrication

TRAINING OBJECTIVES:

The course scenario takes you in a logical trip start by the bearings & lubrication fundamental end by maintenance and condition monitoring. This course introduces the basic types of bearings, selection, bearing mounting, lubrication, cleaning, flushing, maintenance and trouble shooting is discussed with a focus on preventing premature failure. The course focus also on the importance of lubricates types, function, physical properties, and how to select the correct way for lubricant system delivery. You will understand how the bearings fail? And what are the types of failure, cause and remedy The course highlights the importance of condition monitoring as a tool for predictive maintenance specially the vibration analysis. Managers, planning engineers, chemist, procurement staff and designer will find the course satisfy the required knowledge to enhanced their works and give a good support. This course suit any discipline any level

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dealing with rotating machinery or has involvement in bearing and lubrication for any industrial

WHAT YOU CAN GET FROM THAT COURSE

How Lubrication Affects Machine performance? Bearings classification Bearings standard Basics of lubrication How to choose the correct Lubricants? How to inspect bearing condition? Raises employee awareness of proper bearing installation How to analyzing failed bearings ?

WHO SHOULD ATTEND?

All maintenance professionals, lubrication technicians, machine and equipment predictive maintenance technicians, reliability and lubrication engineers, superintends, Supervisors and Technicians, maintenance managers, supervisors and foremen, Rotating equipment engineers, Plant Engineers, PM Engineers & Machinery Engineers.

TRAINING METHODOLOGY

A highly interactive combination of lecture and discussion sessions will be managed to maximize the amount and quality of information, knowledge and experience transfer. The sessions will start by raising the most relevant questions, and motivate everybody finding the right answers. The attendants will also be encouraged to raise more of their own questions and to share developing the right answers using their own analysis and experience. All attendees receive a course manual as a reference.

This interactive training workshop includes the following training methodologies

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work& Practical Exercises
- 20% Videos& General Discussions

DAILY OUTLINE

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The purpose of maintenance

- Function of maintenance
- Type of Maintenance Strategy
- Maintenance Methods
 - o Failure-Based or Breakdown Maintenance
 - o Scheduled or Preventive Maintenance
 - o Predictive Maintenance o Proactive Maintenance
 - o Summary of Predictive and Proactive Practices
 - o Condition-Based Maintenance (CBM)

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- o Reliability-Centered Maintenance (RCM)
- o Total Productive Maintenance (TPM)
 - Computerized Maintenance Management Systems (CMMS)
 - Summary - The Reliability Toolkit
 - Maintenance Resources
 - Maintenance Definition and use MAINTENANCE MANAGEMENT METHODS
 - Run-to-Failure Management
 - Preventive Maintenance
 - Predictive Maintenance
 - Other Maintenance Improvement Methods
 - Total Productive Maintenance
 - Reliability-Centered Maintenance Preventive maintenance for equipment Air Compressors
 - Air Compressor Maintenance
 - Common Causes of Air Compressor Poor Performance
 - Air Compressor Maintenance Checklist Pumps
 - Positive Displacement Pump
 - Centrifugal Pumps
 - Diagnostic Tools for Pumps
 - General Safety Requirements for Pumps
 - Pump Maintenance
 - Pump Maintenance Checklist Motors
 - Alternate Current (AC) Motors
 - Diagnostic Tools for Motors
 - General Requirements for Safe and Efficient Motor Operations
 - Motor Maintenance Checklist Fans
 - Key Components of Fans
 - Fan Maintenance
 - Fan Maintenance Checklist Building Automation Systems
 - Types of Building Automation Systems
 - Key Components of Building Automation Systems
 - Building Automation System Maintenance Checklist Boiler Maintenance Checklist Diesel engine (closed water jacket) cooling system Lightning Protection Cooling system instrumentation and electrical Predictive Maintenance Condition Monitoring
 - Scheduled predictive
 - Predictive Technologies
 - Putting It All Together
 - Predictive Maintenance
 - Data Collection
 - Instruments and Aids for Condition Monitoring and Troubleshooting
 - Types of measurement - Accuracy and Considerations

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- Accuracy and Considerations Vibration Analysis
- Introduction to Vibration
- Vibration Units
- Mechanical Structures
- Natural Frequencies
- Resonance
- Frequency Analysis
- Practical Aspects of Vibration Measurement Test Point Location
- Vibration Identification Chart
- Vibration Frequency and the likely causes
- Oil whirl Other Predictive Maintenance Techniques
- IR Thermography
- Ultrasonic Leak Detection
- Oil and Wear Particle Analysis
- Motor Circuit
- Surface Flaw Detection
- Liquid Penetration
- Magnetic Particle
- Sub-Surface Flaw Detection
- Ultrasonic Thickness (Auto/Manual)
- Eddy Current
- Radiography
- Fluoroscopy
- Endscope (Borescope) inspection

NOTE:

Pre & Post Tests will be conducted

Case Studies, Group Exercises, Group Discussions, Last Day Review & Assessments will be carried out.

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