

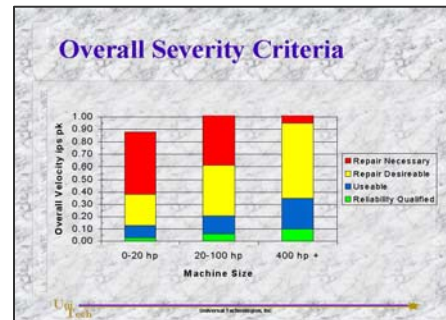


MEP-302: Procurement and Engineering Roles in Machinery Reliability

Abstract

A key part of any reliability improvement program is the establishment of effective machinery and equipment procurement and installation standards.

This course begins with a discussion of different reliability philosophies and methods, including examples of how and where each is appropriately applied. Case histories and practical examples drive home key points and reduce confusion often created by use of the many buzzwords surrounding machinery reliability.



The key components of an effective reliability program will be discussed along with the common challenges and the role procurement and engineering play in solving them
Subjects include

- Common sources of reliability problems
- Using condition monitoring tools for QA purposes
- Equipment information specifications
- Base specifications
- Equipment installation specifications
- Alignment Specifications
- Balancing Specifications
- Specifying components such as bearings and seals
- Documentation
- Establishing and maintaining vendor relationships

Throughout this seminar, instructor demonstrations reveal the impact of course content on machinery reliability, vibration levels, bearing life, etc. Attendees will leave this seminar with a *refreshed understanding* of maintenance principles and procedures they had forgotten, never used, or never learned. This seminar provides practical, easy-to-implement techniques and processes for ensuring maintenance and installation tasks are performed *confidently right the first time*.



Seminar Duration

The duration of this seminar is 16 hours. Seminar can be customized to meet specific client needs.

Who should attend?

This seminar is designed primarily for maintenance, engineering, technical support and management personnel whose job functions involve rotating machinery repair. The scope of content is appropriate for management personnel, as well as for technicians or other employees who will benefit from an overview of machinery reliability processes and requirements.

Associated Task(s)

Perform the following tasks in a manner that supports the facility's Machinery Reliability program goals and demonstrate technical understanding sufficient to provide program leadership and assess the program's effectiveness:

- Establish and implement vendor/contractor specifications that encompass standards for precision.
- Establish and implement equipment, component and installation specifications that encompass standards for precision.
- Establish and implement quality assurance processes to monitor adherence to established standards of precision.



Seminar Outline

- 1.0 Introduction
- 2.0 Maintenance Philosophies
 - 2.1 Breakdown
 - 2.2 Preventive
 - 2.3 Condition Based
 - 2.4 Precision/Reliability Improvement
 - A. Four Steps of Precision
 - A. Detection
 - B. Analysis
 - C. Correction/Improvement
 - D. Verification
- 3.0 Reliability Issues...technical overview
 - 3.1 Condition Monitoring Technologies Overview
 - 3.2 Vibration Overview
 - A. Fundamentals
 - B. Sources
 - 3.2.B.1 Resonance
 - C. Severity Overview
 - 3.3 Misalignment Issues
 - A. Sources
 - B. Base-bound/Bolt Bound
 - C. Soft Foot
 - D. Dynamic Movement
 - E. Recommended Alignment Tolerances
 - 3.4 Unbalance Issues
 - A. Sources
 - B. Recommended Balance Tolerances
 - Equipment Specification Challenges
 - B. What's inside?
 - C. Bases and Foundations
 - D. Piping Installation
 - 3.5 Component Specification Challenges
 - A. Bearings
 - 3.5.A.1 Types
 - 3.5.A.2 ABEC/RBEC
 - 3.5.A.3 Other Specifications
 - 3.5.A.4 Handling Problems
 - B. Impellers
 - C. Fans
 - D. Sheaves



- 4.0 Proposed Specifications
 - 4.1 Specifications Overview
 - A. Process Engineering
 - B. Mechanical and Electrical Engineering
 - C. Establishment of Operating Parameters
 - D. Maintenance Planning

 - 4.2 Component Part Specifications
 - A. Bearings
 - B. Seals.
 - C. Sheaves.
 - D. Impellers/Fans.
 - E. Shafts
 - F. Couplings

Equipment Mechanical Specification Criteria

(Provide criteria and samples plus reference sources)

- A. General Assembly Specifications...runout, balance, keys, etc.
- B. Electric Motors
- C. Pumps...API
- D. Gearboxes...API
- E. Fans and Blowers...API

Installation Specifications

- G. Foundations and Bases...
- H. Piping
- I. Alignment...methods and tolerances

