

Dynamic Balancing and Shaft Alignment

Course Objectives:

Unbalance is present to some extent in all rotating equipment, and has been found to be the most common source of vibration encountered. Field balancing of rotating equipment depends on identifying the type of unbalance and then applying the correct balancing procedure. Precision alignment of equipment shafts to one another is critical in extending the useful life of various machine components, and in preventing catastrophic failures. The two most common sources of machine vibration are misalignment and unbalance. Often these two sources will account for over 90% of all machine problems occurring in any given plant. During the alignment process, many sources of machine unbalance can be detected and corrected. Thus, a complete understanding of precision alignment and an understanding of the sources of machine unbalance are critical skills to the plant repairman.

Detailed topic list:

Shaft Alignment

- ✚ Introduction to Shaft Alignment
- ✚ Avoiding Premature Failure
- ✚ What is Misalignment?
- ✚ Pre-Alignment checks and soft foot
- ✚ Determining the alignment state
- ✚ Understanding Dial Indicators
- ✚ Soft Foot Checks and Corrections
- ✚ Using the laser alignment system
- ✚ Benefits of Laser Alignment
- ✚ Tolerance Limits

Dynamic Balancing

- ✚ What is unbalance?
- ✚ Why do machines become out of balance?
- ✚ Using vibration analysis to ensure it is out of balance and not misaligned
- ✚ Dealing with run out and eccentricity, etc.
- ✚ The balancing check-list
- ✚ Cautions during Balancing
- ✚ Practical issues
- ✚ Quick review of amplitude and phase readings
- ✚ Collecting vibration and phase readings
- ✚ Understanding vectors
- ✚ Single plane balancing
- ✚ Report generation
- ✚ Balancing Standards

Course Duration

- The course consists of Two full days of training & 1-hour exam

Hours



- 9.00 am to 4.00 pm (Days 1-2)
- Exam: 1 hour - end of Day 2

Who should attend

- ✚ Maintenance Professionals
- ✚ Plant/Rigs Supervisors
- ✚ R & D Personnel
- ✚ QA/QC Supervisors
- ✚ Equipment designers
- ✚ HVAC Engineers
- ✚ Plant Technicians
- ✚ Vibration Engineer
- ✚ Inst. Technicians
- ✚ Maintenance Technicians
- ✚ Equipment Operators
- ✚ Reliability Engineers
- ✚ Industrial Engineers
- ✚ Operations Managers

Learning Objectives

By using Field Balancing techniques such as Graphic Vector Method, balancing with a Strobe and Influence Coefficient Method, we can reduce operating costs by energy savings from reduced power consumption.

- By prolonging life of bearings and other components.
- By maintenance savings in spare parts and labour.
- By increasing product quality and by decreasing downtime.

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