



Fixturlaser South Africa

Precision Laser Alignment

Course Objective

The course objective is to teach students how to align coupled rotating machinery shafts to specified tolerances using a Laser Alignment system, including proper planning, rough and precision alignment processes per approved procedures.

Course Description

This course focuses on specific procedures for using today's laser alignment systems and the fundamental concepts and skills required to perform precision alignment. The unique approach provides not only an understanding of the specific procedures to follow for the laser system being used, but also the foundation to understand why and how the system works the way it does. Up to 50% of this course consists of guided hands-on activities. It is requested that participants bring their instruments to the course.

Specific topics include:

Introduction and overview

- Why precision alignment; percentage of breakdowns attributable to misalignment
- Review of shaft alignment fundamentals
- Detection methods; vibration analysis,
- Soft foot; types; cause & detection
- Advantages, disadvantages, and sources of error associated with various alignment methods including "mechanical contact methods", Dial indicators, Laser systems.
- Describing and documenting shaft offset and angular misalignment conditions in the vertical & horizontal planes
- Thermal growth. Pre-set allowances. Modern detection methods
- Pre-alignment procedures
- Review the three major phases of alignment ie., MAD
- Review of dial indicator alignment methods
- Laser alignment systems overview
- Pipe stress; causes and corrections

Fundamental horizontal machine alignment processes

- Setting up the laser system
- Measuring and entering the dimensions
- Obtaining measurements
- Interpreting results
- Making moves/adjustments
- Alignment completion and documentation



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Dealing with alignment challenges

- Base-bound and bolt-bound conditions
- Dynamic movement
- Identify general types of soft foot and how to detect and correct soft foot conditions
- Effects of thermal growth on the alignment process and machine operation
- Do' and Don'ts to achieve good alignments
- Machine base construction and "skid" fabrication

Other types of shaft alignment

- Train alignments
- Cardan shaft alignment
- Vertical shaft alignment

Course Duration

2 Days

Target Audience

This course is designed for maintenance, engineering, technical support, and management personnel whose job functions involve alignment of rotating machinery. The scope is appropriate for those who align machines, those who detect, investigate and resolve premature machinery failure due to misalignment, as well as those who direct activities relative to alignment and machine reliability.