

Shaft Alignment Level 1

Laser alignment is an essential component of a viable maintenance strategy for rotating machines. In isolation each strategy can help to reduce unexpected machine failure, but taken together they form the hub of a proactive maintenance strategy that will not only identify incipient problems but allows extending machine operating life considerably.

This 3 day course provides the basic information and guidelines to implement quality shaft alignment for standard rotating machine systems.

Course Outline

Each section covers one or two examples of the available methods for measuring the required parameters, although many of these methods are available.

What is shaft alignment

- A definition
- Machine catenary
- Operation above critical speed

Expressing alignment

- Alignment parameters
- Angularity, gap and offset
- Short flexible couplings
- Spacer shafts

How precise should alignment be?

- Alignment tolerances

Troubleshooting

- Coupling strain and shaft deflection

Causes of machine breakdown

- Couplings and misalignment
- Bearings
- Seal wear
- Machine vibration
- Symptoms of misalignment

Alignment methods and practice

- Machine installation guidelines
- Measurement and correction of soft foot

Alignment by Eyesight

Alignment by Dial indicator

- Trial and error method
- Rim and face method
- Reverse indicator method
- Indicator bracket sag

Alignment by Laser

- Basic operation requirements

Laser alignment case study

- Laser alignment cuts energy costs
- Laser alignment improves pump reliability
- Laser alignment improves bearing & seal life
- Laser alignment reduces vibration alarms

Thermal expansion of machines

- Thermal growth calculations