Shaft Alignment

Delivery Method: eLearning || Duration: 3 hours || Course Fee: 380 €

Category: Naval Architecture & Marine Engineering

Available languages: English

Certificate

On completion of the training program, the student will be awarded:

- A Certificate of **Shaft Alignment**, issued by Bureau Veritas Solutions Marine & Offshore.

The Certificate of **Shaft Alignment** is obtained after completing the course and passing the online test.

Presentation

This training course describes the various components of a shaft line and the different types of shafts and their couplings, the importance of shaft alignment and the various methods utilized for shaft alignment. The course provides also a brief introduction to the vibrations that may affect the shaft lines.

Who the course is for

The course **Shaft Alignment** is aimed at anyone interested in understanding the importance of shaft alignment and the various methods utilized for the alignment of shaft lines. This may include: Ship Managers, Technical Superintendents, Ship Masters, Officers and Seafarers; Shipyards Technical Staff; Surveyors; P&I and/or Insurance Inspectors; Naval Architects; Marine Engineers; Etc.

Objectives

On completion of the training, students will be able to:

- Get familiar and understand the components of a shaft line, know the types of shafts and their couplings, understand the protection required and the shaft line components scantlings and get familiar with the required tests and certification of shaft lines.
- Understand the importance of shaft alignment and the factors influencing the alignment, know the different alignment methods currently employed and understand the shaft alignment issues for installations other than the main shafting line.
- Understand the different types of vibrations that may affect shaft systems, know the general principles of torsional and axial vibrations and get familiar with the vibration control methods and vibration tests and measurements

Program

Module 1 – Shaft lines

- Shaft line components: Shafts, shaft liners, propellers, propeller cap, shaft and intermediate bearings, stern tube, stern tube bushes and seals
- Couplings: Flanged couplings, hydraulic couplings, flexible couplings
- Design and construction: Propeller shaft key and keyway, shaft materials, couplings materials, coupling bolts, shaft scantlings, shaft monitoring
- Inspection and certification: Inspections during construction, material tests, hydrostatic tests, certification, sea trials

Module 2 – Shaft Alignment

- Introduction
- Alignment calculation
- Required information
- Factors influencing the alignment: Draught, buoyancy, rigidity of the bearing base, temperature
- Alignment methods: Gap and sag method, sighting method, jack-up method, strain gauge method
- Alignment verification on board
- Shafts for other installations: Alignment techniques, preparation, types of misalignment, alignment methods

Module 3 – Shaft Vibrations

- Torsional vibrations
- Rules requirements
- Vibration damper
- Barred speed range
- Required documentation
- Calculation principles
- Axial vibrations
- Vibration control and tests