

ABB Marine Academy course description

H868 - HV power distribution system - general course

Course goal

The major objective of the course is to provide the participants with in-depth theory, and train them for safe operation, maintenance and testing of switchgears, breakers and relays.

Learning objectives

After completing the course successfully, the student will have a comprehensive background of the marine power plants and will be able to operate, maintain and work safely with circuit breakers (SF6, Vacuum), contactors and relays. Participants are given detailed theoretical coverage alongside practical exercises for better understanding of switchgears.

Contents

General topics

- Introduction to marine power plants
- Safety procedures while working on the switchboard
- Power distribution systems (transformers, generator and motors)
- Protection systems

Power plant regulation

- Principle (voltage and frequency)
- Droop control
- Power management

Switchboard

- Components, accessories and interlocks
- Installation activities
- Assembly procedure
- Maintenance and periodical checks

Circuit Breaker (Vacuum/SF6)

- Operation
- Safety precautions
- Testing

Contactor (VD4)

- Functional characteristics
- Application and accessories

Protection relays

- Operation principal
- Setting parameters
- Testing relays

Trouble shooting

- Interpretation of alarms and faults
- Fault clearing procedure
- Repair of miniature faults and deviations



Methods

The course will include practical demonstrations on various switchboard models, hands-on experience on device operation, and a visit to production facility.

Student profile

Marine engineers and electro-technical personnel at operational and management level

Prerequisites

Marine power plant basic for technical staff in ABB propulsion and marine high voltage safety or similar knowledge is advisable

Duration

5 days

Venue

Genoa

Additional information

Modified on-site training on request

Minimum 6, maximum 8 participants

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Course outline

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Day 1

- Introduction
- Marine power plants
- Switchboard and breakers

Day 2

- SF6 Circuit Breaker (HD4, HA3)
- Lectures and demonstration
- Practical training (operation and maintenance)
- HD4 circuit breaker assembly line tour

Day 3

- Contactors (V contact)
- Demonstration and training
- Assembly line tour of contactors (V contact)

Day 4

- Switchboards
- Demonstration
- Training and practical exercises

Day 5

- Protection relays
- Operation, setting and testing
- Discussion