

Boiler Installations

Delivery Method: eLearning || Duration: 3 hours || Course Fee: 280 €

Category: Naval Architecture & Marine Engineering; Class & Statutory Surveys

Available languages: English

Certificate

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

- A Certificate of **Boiler Installations**, issued by Bureau Veritas Solutions Marine & Offshore.

The Certificate of **Boiler Installations** is obtained after completing the course and passing the online test.

Presentation

This training course concerns marine boilers with a focus on marine auxiliary boilers. It provides general information on marine boilers including their operation principles and parts, requirements for internal and external examinations, boiler's maintenance and typical damages and repairs.

Who the course is for

The course **Boiler Installations** is aimed at anyone interested in getting familiar with the marine auxiliary boilers. This may include Ship Managers, Technical Superintendents, Ship Masters, Officers and Seafarers; Shipyards Technical Staff; Surveyors; Flag and Port State Officers; P&I and/or Insurance Inspectors; Naval Architects; Etc.

Objectives

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

- Get familiar and understand the main components and accessories of marine auxiliary boilers.
- Know the main differences between steam boilers and thermal oil heaters.
- Understand the requirements for internal and external examination of marine auxiliary boilers.
- Get familiar with boiler's maintenance.
- Know the most common boiler damages and typical repairs

Program

- Typical marine boilers
 - Categorization
 - Oil-fired water tube steam boiler, components and operation description
 - Exhaust gas boilers / Exhaust gas economizers, water tube and smoke tube boilers
 - Composite marine boilers
- Boiler equipment
 - Fuel oil atomizers: Pressure jet atomizers, steam atomized burners, rotary or spinning cup jet boiler fuel oil atomizers
 - Auxiliary equipment: Safety valves, main steam valve, water level gauges and water level transmitters, steam pressure gauge, furnace inspection windows, manholes and inspection hatches
- Steam vs thermal oil
 - Steam system: working principle, advantages and disadvantages
 - Thermal oil system: working principle, advantages and disadvantages
 - Thermal oil heaters
- Boiler surveys
 - Safety measures
 - Periodicity of boiler surveys
 - Annual external examination of steam boilers: Scope, documentation review, external examination, testing in working conditions, safety alarms and protective devices
 - Annual external examination of thermal oil heaters
 - Internal examination of steam boilers: Scope, examinations, internal survey of water side, internal survey of gas side, examination of tubes, accessories and mountings, external examination, running tests, hydraulic test, testing and adjustment of safety valves, additional items for oil-fired boilers, feed water forced circulation pumps, fuel supply system, burners, superheaters economizers and air heaters
 - Internal examination of thermal oil heaters: Scope, safety devices and instrumentation
 - Steam generators: Electric steam generators and steam generators utilized by thermal oil
- Boiler maintenance
 - Corrosion protection: Magnetite layer, hematite layer
 - Boiler and feed water quality: Categorization, water quality parameters, boiler water problems and conditioning objectives
- Boiler damages and repairs
 - Typical boiler damages
 - Boiler failures: Drums and chambers, contamination, isolating heat transfer effects, furnace deformation by heat, scaling effects, failures due to overheating, failures due to oxygen pitting and caustic attack
 - Boiler repairs: Repair of furnace walls, temporary repair of smoke tubes, temporary repair of water tubes