

# Alfa Laval Aalborg electric steam boiler

## Onboard steam production using shore power or surplus electricity



### Introduction

The Alfa Laval Aalborg electric steam boiler is a simple, compact and combustion-free solution for meeting vessel steam needs. By utilizing shore power or surplus electricity already on board, it delivers steam without producing additional emissions. In port, where the use of shore power is increasingly required, it can lead to lower harbour fees and reduce vessel carbon emissions to zero.

### Application

As the marine industry decarbonizes, more ports are requiring cold ironing, i.e. the use of shore power during harbour stays. This prohibits the use of auxiliary engines, but the need for onboard steam remains. Even where gensets can be utilized, port fees may be based on a vessel's total emissions, which makes it beneficial to produce steam without combustion.

Using the Aalborg electric steam boiler, vessels can improve their green profile while meeting steam needs easily in port.

When connected to the onshore grid, they can shut down their gensets and eliminate vessel carbon emissions – while still supporting the steam consumers on board.

At sea, the Aalborg electric steam boiler can shrink carbon footprint by producing steam with available surplus electricity. LNG carriers and FSRUs for example, often use gensets to manage boil-off gas (BOG), which creates an electricity surplus. Using the electric steam boiler, they can apply it to reduce the load on the oil-fired boilers.

### Benefits

- Compliance with local regulations demanding use of shore power
- Reduced emissions and carbon footprint
- Reduced fuel consumption and associated costs
- Potentially lower port fees
- Possibility of load regulation down to 60kW
- Easy installation, operation and maintenance

### Working principle

The Aalborg electric steam boiler is much simpler in design and operation than a traditional fired boiler. It comprises electric heating elements that work in steps, with each element supplying six stages. Load regulation is possible down to 60 kW.

When steam is required, the relay-based control system enables the heating elements incrementally until the demand is met. If the boiler is used at sea, where the electricity supply varies, it can be signalled to start only when sufficient power is available.

### Installation

The boiler is compact and has a small footprint that simplifies placement on board. It is delivered as loose components and installed horizontally.



### Maintenance

No regular maintenance is required. However, the boiler should be inspected once per year to ensure that its heating elements are working properly.

### Approvals

The Aalborg electric steam boiler is type approved by all major marine classification societies.

## Technical data

Model	AESB 600	AESB 1200	AESB 1800
Capacity	600 kW	1200 kW	1800 kW
Design	Cylindrical Horizontal	Cylindrical Horizontal	Cylindrical Horizontal
Normal working pressure	8–10 bar(g)	8–10 bar(g)	8–10 bar(g)
Max. allowable working pressure	12 bar(g)	12 bar(g)	12 bar(g)
Feed water temp.	80°C	80°C	80°C
Hydrostatic test pressure	18 bar(g)	18 bar(g)	18 bar(g)
Weight excl. water	2.1 t	2.3 t	3.0 t
Weight incl. water	3.9 t	4.1 t	5.8 t
Length	2335 mm	2335 mm	2487 mm
Height excl. mountings	1822 mm	1822 mm	2190 mm
Diameter incl. isolation	1550 mm	1550 mm	2000 mm
Heating elements	1 × 600 kW JEVI electrical	2 × 600 kW JEVI electrical	3 × 600 kW JEVI electrical
Control	Relay-based	Relay-based	Relay-based
Supply voltage	380, 440 or 690 V, 3 phases, 50-60 Hz		

This document and its contents are subject to copyrights and other intellectual property rights owned by Alfa Laval Corporate AB. No part of this document may be copied, re-produced or transmitted in any form or by any means, or for any purpose, without Alfa Laval Corporate AB's prior express written permission. Information and services provided in this document are made as a benefit and service to the user, and no representations or warranties are made about the accuracy or suitability of this information and these services for any purpose. All rights are reserved.

### How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com)