Alfa Laval Aalborg OL

Large-capacity multi-fuel fired boiler

The Alfa Laval Aalborg OL is a large-capacity fired boiler for marine vessels that require significant amounts of steam or hot water. Available in two design pressures, 9 or 18 bar(g), it has a top-fired design that maximizes heat transfer and minimizes pressure loss. Besides operating on today’s fuels, including low-sulphur fuels and LNG, it is designed for compatibility with methanol and other future emission-reducing fuels.

Application
The Aalborg OL is mainly used to generate steam and heat for the following applications:

- Cargo tank heating
- Tank cleaning
- Heating for ventilation and sanitary purposes
- Engine room consumers

In addition, the Aalborg OL can function as a steam drum for one or more exhaust gas boilers.

On vessels using LNG as fuel, the Aalborg OL can support boil-off gas (BOG) management. It can safely combust BOG that cannot be consumed by the auxiliary engine or genset, and it can handle free flow from the LNG tank if the vessel’s compression train should fail. It can even combust the mix of inert gas and methane that arises before and after tank inspection.

Benefits

- Easy operation thanks to straightforward and user-friendly design
- Robust and proven construction
- Easy access to the boiler furnace chamber for inspection – no dismounting the wind box
- Future-proof compatibility – equivalent steam capacity from future fuels compared to traditional fuels
**Design**

Easy to install, the Aalborg OL is delivered with an Aalborg MF SA burner preassembled.* Both components are engineered and produced in-house to ensure the highest reliability. The combined burner/boiler unit is designed with fuel flexibility in mind, which makes it a future-proof solution as marine vessels decarbonize.

- **Aalborg OL boiler**
  The Aalborg OL is a two-drum boiler. Its furnace, whose gastight membrane walls are resistant to gas pulsations, contains a minimum of refractory material and is shaped to provide optimal combustion conditions. The convection section consists of straight pin tubes with bent pins, which provide a high coefficient of heat transfer and ensure low pressure loss. Circulation is promoted by downcomers placed outside the membrane walls.

- **Aalborg MF SA burner***
  Built with Alfa Laval’s innovative MultiFlame (MF) concept, the Aalborg MF SA is a steam-atomizing burner that supports conventional fuels, gas fuels like LNG and emerging fuels like methanol. By pre-mixing air and gas, it reduces the production of CO, NOx and other emissions. Flue gas from the burner is distributed uniformly through the boiler’s convection part. This ensures optimal heat transfer, which lowers thermal stress inside the boiler and limits the need for boiler body repair.

*Standard configuration for dual-fuel and boil-off gas application. If only traditional non-gas fuels will be used on board, the Aalborg KBSD burner can be installed as an alternative.

**Working principle**

Ignition and combustion take place in the boiler’s furnace. The produced heat is transferred from the flame to the furnace shell, mainly through radiation. As they leave the furnace, the flue gases enter vertical uptakes where the heat is transferred to pin tubes, mainly through convection. On the water side, the transfer of heat through the furnace shell or through the pin tube walls evaporates the adjacent saturated water. This causes steam bubbles to form. Because the steam bubbles have a much lower specific density than the water, they rise rapidly into the steam space, where the water and steam are separated.

**Alfa Laval Touch Control**

The Aalborg OL is simple for crews to operate thanks to Alfa Laval Touch Control. Alfa Laval Touch Control is the modern control standard, providing the best in clarity and ease of use. Robust, PLC-based and produced in-house by Alfa Laval, it offers:

- Intuitive two-touch navigation, familiar from other Alfa Laval marine products
- Support for connectivity and remote troubleshooting
- Future-proof expansion possibilities

**Technical data (standard application)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam production capacity [kg/h]</td>
<td>12,500–45,000</td>
</tr>
<tr>
<td>Capacity in dual-fuel and boil-off gas application [kg/h]</td>
<td>10,000–55,000*</td>
</tr>
<tr>
<td>Weight (incl. insulation) [kg]</td>
<td>14,800–50,800</td>
</tr>
<tr>
<td>Diameter (incl. insulation) [mm]</td>
<td>2,670–4,520</td>
</tr>
<tr>
<td>Height (incl. retraction of burner lance) [mm]</td>
<td>8,660–11,350</td>
</tr>
<tr>
<td>Connections</td>
<td>Flanged</td>
</tr>
<tr>
<td>Insulation [mm]</td>
<td>75</td>
</tr>
<tr>
<td>Design pressure [bar(g)]</td>
<td>9 or 18</td>
</tr>
</tbody>
</table>

*Gas valve train (GVT) required for boilers exceeding 45,000 kg/h capacity, necessitating a suitable indoor space for installation.