

Alfa Laval Aalborg OS-TCi

Self-cleaning multi-fuel fired boiler

The Alfa Laval Aalborg OS-TCi is a fired boiler for steam production, intended for use as a marine auxiliary boiler. Built with helix tubes that maximize its heat transfer surface, it combines reliable heating for marine operations with high efficiency that can reduce environmental impact. 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

As a steam producer, the Aalborg OS-TCi is mainly used to generate steam for following applications:

- Tank cleaning
- HVAC
- Engine room consumers

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

On vessels using LNG as fuel, the Aalborg OS-TCi can support boil-off gas (BOG) management. It can safely combust unpressurized 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
- Easy installation and maintenance due to modular construction – fewer components and less weight
- Easy access to the boiler furnace chamber for maintenance and inspection – no dismantling the wind box
- Same steam output no matter which fuel is used
- Positive influence on the vessel's carbon footprint



Design

Compact and easy to install, the Aalborg OS-TCi is delivered with an Aalborg MF PA 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 OS-TCi boiler**

A fired section with helix tubes provides more heat transfer area than competing solutions, which results in fuel-saving efficiency. Thanks to a baffle plate installed in the steam space, the steam passes through the tube bundle twice, which ensures that the steam is absolutely dry.

- **Aalborg MF PA burner**

Built with Alfa Laval's innovative MultiFlame (MF) concept, the Aalborg MF PA is a pressure-atomizing burner that supports conventional fuels, gas fuels like LNG and future fuels like methanol. By pre-mixing air and gas, it reduces the production of CO₂, 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

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 helix tubes, mainly through convection.

On the water side, the transfer of heat through the furnace shell or through the helix 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 OS-TCi 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. It offers:

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

Robust and PLC-based, the Alfa Laval Touch Control system is produced in-house. For operation on LNG or methanol, it can be hardwired to the gas detection system.

Self-cleaning and maintenance

The Aalborg OS-TCi is built for high reliability and a long service life. It is effectively self-cleaning thanks to its TCi (Turbo Clean, intelligent) technology, which ensures consistently efficient operation. If desired, the TCi cleaning process can also be initiated manually.

Maintenance is simplified by the boiler's compact design, as well as by the following:

- Easy access to the furnace chamber
- No oil spillage from the burner during maintenance
- Easy reassembly of the burner parts after maintenance

Technical data (standard application)

Capacity [kg/h]	1,200–8,000
Weight (incl. insulation) [kg]	4,700–16,800
Diameter (incl. insulation) [mm]	1,370–2,420
Height (incl. exhaust gas boxes) [mm]	3,875–5,065
Connections	Flanged
Insulation [mm]	75
Maximum working pressure [bar(g)]	10

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