



Alfa Laval Aalborg i-OC

Modular composite boiler

The Alfa Laval Aalborg i-OC is a high-performance composite boiler, capable of generating steam through the firing of oil and/or the recovery of waste heat from engine exhaust gas. Its modular design comprises one oil-fired section and one–three exhaust gas sections. One of the exhaust gas sections is connected to the main engine, while the two other exhaust gas sections are optional and can be connected to one or two auxiliary engines.

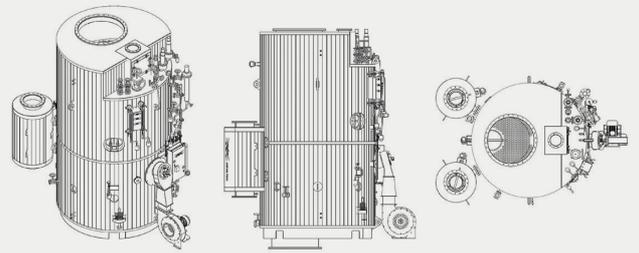
Application

Able to work with multiple heat sources, the Aalborg i-OC offers reliable production of steam while sailing and during port stays. As a composite boiler, it demands considerably less space than having both oil-fired and exhaust gas boilers on board. In addition, it has a smaller footprint and weighs less than older composite boiler designs.

At its operating pressure of 7 bar(g), the Aalborg i-OC can produce up to 2500 kg/h of steam with its oil-fired section and up to 1000 kg/h with its exhaust gas sections.

Benefits

- Composite design – can utilize fuel and/or exhaust gas
- Minimized footprint and weight
- Internal bypass for regulation of steam production and back pressure
- Standardized, pre-assembled and easy to install
- Optimized for high self-cleaning effect in the smoke tubes
- New burner design for easy inspection and maintenance



Design

The Aalborg i-OC is a vertical and cylindrical boiler that employs natural circulation of water and steam. Its pressure sections are manufactured from mild steel that is able to withstand high temperatures.

The plant is designed according to Alfa Laval's modular Aalborg boiler concept, with a main module that comprises two parts: an oil-fired section and an exhaust gas section that recovers heat from the main engine. One or two optional exhaust gas modules (Alfa Laval Aalborg Micro boilers) can be incorporated for auxiliary engine waste heat recovery. Handling the auxiliary exhaust gas with separate but connected modules ensures flexibility and a stress-free plant design.

- **Oil-fired section**

The oil-fired section of the main module comprises a furnace, a steam space and a convection section. The convection section, through which the flue gas flows, consists of helix tubes with a turbocleaning effect.

- The modulating-type pressure-atomizing burner (Aalborg MF PA) is fully integrated with the convection part of the oil-fired section. The burner housing is mounted on the boiler front, angled 15° downwards towards the furnace bottom. It optimizes the flue gas flow distribution during combustion, which results in higher performance in the convection part and lower NOx emissions.

- **Main engine exhaust gas section**

The main engine exhaust gas section comprises smoke tubes and an internal bypass damper. The bypass consists of a plain tube welded to the lower and upper tube plates, with the automatic damper installed in the top.

- **Auxiliary engine exhaust gas boilers (optional)**

The exhaust gas boiler modules for auxiliary engine waste heat recovery comprise serrated and finned spiral tubes. Each module has its own exhaust gas bypass damper. These smaller modules are bolted directly to the main module, with no piping or other equipment. All boiler mountings are shared with and installed on the main module.

Control system

Reliable and intelligent, the user-friendly Alfa Laval Touch Control system provides fully automatic operation of the boiler plant and the pressure-atomizing burner. The system includes controls for the burner load and sequence, burner motor, water level and safety device, as well as starters for the fuel heater and fuel oil pumps.

Installation

The Aalborg i-OC is standardized, pre-assembled and easy to install quickly. Only the burner and the optional exhaust gas boilers for auxiliary engine waste heat recovery need to be mounted on site. Installation is a matter of hooking up pre-mounted fittings with connections that are almost all situated on the boiler top. Inlet and outlet boxes are integrated, and the boiler foundation is prepared for welding to the deck.

Maintenance

The Aalborg i-OC has adequate space for inspection and maintenance in the steam and water sections. The boiler can easily be washed with water or mechanically cleaned through the boiler uptakes, and the smoke tubes are also easy to clean when needed. The Aalborg i-OC is optimized for water level control and a high gas velocity even through the smoke tubes, which makes it effectively self-cleaning.

Servicing the burner is easy. By opening a top plate, the lance can be withdrawn to service both the lance and nozzle. Access to the oil system and electrical components is possible through two separate covers on the side of the burner.

Selection

All information is available immediately upon request, including layout drawings for the design of the engine room.

Technical data

Boiler type	Fired steam capacity (max)	Steam capacity ME	Steam capacity AUX	Design pressure	Height*	Diameter (incl. insulation)	Boiler dry weight [T]**
Model	(kg/h)	kg/h	kg/h	bar(g)	(mm)	(mm)	ton
i-OC-S	1600	300–600	100–400	9	5147	2520	14.0–16.4
i-OC-S	1600	300–600	100–400	9	5147	2520	14.0–15.6
i-OC-M	1600	400–700	100–400	9	5037	2770	16.2–19.3
i-OC-L	2500	600–1000	100–400	9	5297	2970	17.8–20.5
i-OC-XL	2500	600–1000	100–400	9	5722	3020	22.9–24.5

* Boiler height (to top of exhaust gas outlet flange)

** Weight incl. insulation – varies depending on Aalborg Micro number (0–2) and size (0–1600 kg)

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

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