



Gas Combustion Unit

Alfa Laval Gas Combustion Unit for liquefied natural gas carriers



Alfa Laval is committed to LNG transport. That is why we have added yet another security-enhancing solution for LNG carriers.

The Alfa Laval Gas Combustion Unit (GCU) conveniently handles boil-off on vessels with dual-fuel or low-speed diesel engines. With a uniquely compact design and low-maintenance operation, it combines easy integration with true reliability.

The Alfa Laval GCU joins the inert gas generators, burners, boilers, heat exchangers and more in our already extensive LNG portfolio. And perhaps most important for your LNG business, it comes with our worldwide network of service and support.

Application

During the last decade, the major part of new-building LNG carriers have changed main propulsion system from steam turbine into Dual Fuel Diesel Electric (DFDE) propulsion.



The use of DFDE engines or the new generation 2-stroke DF engines provides LNG ship-owners and operators with economical and environmentally sound alternatives to traditional systems.

These engines, however, require additional means with which to regulate LNG cargo tank pressure. There are a number of alternative systems that can be applied but the large part of the DFDE vessels being build today are equipped with GCUs. The GCU has been introduced as a crucial part of the vessel's boil-off management strategy and provides a safe, reliable method to burn the excess boil-off gas that is not used by the ship propulsion system.

Gas Combustion Unit from Alfa Laval

Proven and with a simple design, the Alfa Laval GCU is a compact system that safely disposes of excess boil-off gas. Available as a stand-alone unit, the Alfa Laval GCU has proven capabilities to burn gas mixture with high nitrogen content in a safe way, ensuring the disposal of all methane gas without requiring the use of pilot oil burners.

The Alfa Laval GCU is considered to offer the smallest footprint on-board and the lowest maintenance cost on the market today. These factors combined with proven technology and simplicity in design makes the Alfa Laval GCU the clear choice for today's LNG Carriers. It provides ship-owners with gas combustion technology that is easy to integrate, and reliable to operate and easy to maintain due to fewer spare parts. This is made possible, in part, through the use of:

- Simple and compact design without any moving parts inside the combustion chamber
- Combined combustion and dilution fans that do not require silencers or duct pipes
- All metallic combustion chamber with no refractory lining
- Electric igniters instead of an oil pilot and associated equipment

- Induct burner type that offers a robust and extremely reliable design

Capacity range

The Alfa Laval GCU is available in four standard sizes, which accommodate capacities of 1.5 to 3 t/h, 3 to 4.5 t/h, 4.5 to 6 t/h, and 6 to 9 t/h methane, using either single or dual combustion chambers.



The Alfa Laval GCU technology consist of following main components: exhaust gas stack, combustion chamber including burner, air chamber, combined dilution/combustion fans, gas valve train and control and power panels.

Gas Combustion Unit range

GCU capacity (Methane flow)	GCU design	Fan arrangement
1.5 to 3 t/h	Single combustion chamber	3 x 50%
3 to 4.5 t/h	Single combustion chamber	3 x 50% or 4 x 33%
4.5 to 6 t/h	Dual combustion chamber	4 x 33%
6 to 9 t/h	Dual combustion chamber	4 x 33% or 6 x 20%

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