

Alfa Laval Fuel Conditioning Module Methanol

Low-Flashpoint Fuel Supply System for methanol-fuelled engines and boilers

The Alfa Laval Fuel Conditioning Module (FCM) Methanol is a Low-Flashpoint Fuel Supply system (LFSS) capable of supplying methanol within the flow rate, pressure, temperature and filtration parameters specified by an original equipment manufacturer (OEM).

Application

The FCM Methanol is suitable for conditioning and supplying methanol to dual-fuel marine engines (both main and auxiliary), as well as boilers. A single, automated FCM Methanol system can be engineered to meet the process requirements of multiple methanol consumers.

Designed for use in potentially explosive atmospheres, the FCM Methanol is ex-proof designed for Zone I and equipped with an automatic purging and inert gas system. Its automation handles all daily routines and safety functions, including the purging and inerting. Since operator commands are issued from a control point located in a safe zone, there is minimal risk of crew inadvertently coming into contact with hazardous fuel.

Benefits

- Proven technology and efficiency, in use on methanol carriers since 2015
- Designed to maximize uptime and energy efficiency, while minimizing maintenance costs
- Simplifies safety routines and security by automating control of the fuel conditioning process
- Supported by an Alfa Laval service network trained to work with methanol
- Spare parts readily available from Alfa Laval distribution centres

Operation and control

The FCM Methanol is designed for fully automatic operation. Its automation handles all necessary fuel routines, ensuring that the methanol is conditioned and ready for a start signal from the engine control system (ECS). Upon a stop signal from the ECS, the system safely returns to stand-by.

Operators can issue commands, adjust settings or view status and logs from the touchscreen of the FCM Methanol control cabinet. Using a Modbus serial link, the FCM Methanol



can also be connected to the vessel's automation system, which enables control and monitoring from remote locations.

If needed, advanced troubleshooting can be performed in manual mode from any control location. Operators can check the status and test the operation of all valves, pumps and other key components. This means that any function or setting can be fine-tuned without entering the hazardous zone.

Since the FCM Methanol control software is modular and developed by Alfa Laval, the functions and automation can easily be tailored to meet specific customer requirements.

Design

The FCM Methanol is a dual-stage, pressurized system that supplies methanol safely and automatically. Each stage is protected by a pressure relief valve and is equipped with transmitters and indicators for pressure and temperature. The low-pressure stage is designed to prevent the cavitation of the high-pressure pump. The high-pressure stage is designed to maintain the specified fuel parameters.

The FCM Methanol can be arranged to simultaneously feed multiple fuel lines with different process parameters, thereby meeting the needs of multiple engines and boilers.

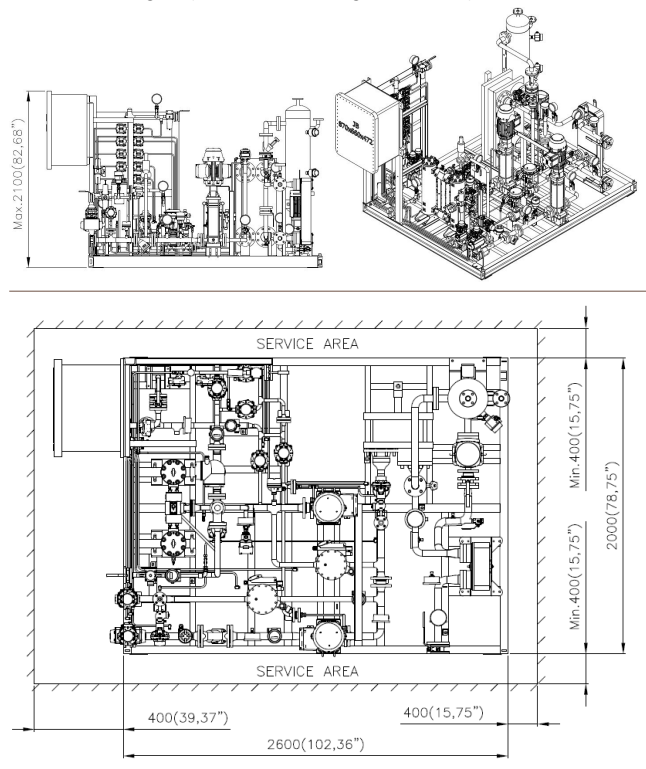
To prevent leakage, the methanol pumps are equipped with magnetic couplings as standard. The heat exchangers that control the fuel's temperature are fed by a built-in glycol water circuit, which safely segregates the methanol from the vessel's heating and cooling media. The 10-micron, double block-and-bleed duplex filter allows maintenance to be performed safely on one filter chamber while the other remains in operation.

The FCM Methanol complies with IGC Code, IGF Code and DNV Pt.6, Ch.2, Sec.6, and it comes complete with a nitrogen-based gas inerting system. When maintenance is required, an automatic purging sequence flushes the system, with drain valves and pumps returning the methanol to the service tank. Double block-and-bleed insulation prevents any accidental fuel exposure.

The FCM Methanol control cabinet contains the PLC, the starters for the pump motors and an HMI in the form of a 15" touchscreen. The cabinet is installed in a safe zone, which allows the system to be controlled without risk of fuel contact.

Dimensional drawing

Dimensional drawing for an FCM Methanol system serving a two-stroke main engine (no four-stroke engine or boiler)



Technical data*

Pressure to engine	13 ± 0.5 bar
Temperature to engine	+25 °C / +50 °C
Ambient Temperature	-20 °C / +45 °C
Service Tank Temperature	-20 °C / +45 °C
Inert Gas Used	Nitrogen

* Data shown for an FCM Methanol system serving only a two-stroke main engine (other configurations will differ)

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