Incl. DIESELswitch
Fuel Change-Over System

- automatic and controlled change-over from HFO to DFO and vice versa
- minimized risk of damages due to abrupt temperature changes
- calculates when booster system is fully flushed of heavy fuel oil
- tamper-proof datalogger
- integrated safe guard functions

For a safe and automatic change-over from HFO to DFO and vice versa

LEMAG CONTROLmag® is designed to carry out the change-over process between heavy fuel oil (HFO) and low sulphur fuel automatically and safely.

LEMAG CONTROLmag® with integrated DIESELswitch protects the engine during change-over, as sensors will detect if the fuel temperature changes too rapidly. The system will then freeze the position to protect the engine’s fuel injection system from a thermal shock and generate an alarm. For safety the fuel change-over process can also be stopped manually.

LEMAG CONTROLmag® is simple to install on both newbuilds and existing vessels and can handle different tank levels up to 25 m without additional MDO/MGO pumps. The basic system consists of:
- safety change-over valve (bronze) with magnetic coupling to prevent leakages
- static mixing tube
- electronic cabinet with advanced software

LEMAG CONTROLmag® can also be delivered on a foundation containing all system components, pipes and internal cabling.

Before shipment each system is pressure tested by DNV GL (other classification societies on request).

All systems are equipped with a tamper-proof data logger to prove that the correct fuel was used in regulated areas.

Further LEMAG CONTROLmag® features and options e.g. flowmeters are listed overleaf.

The system is simple to use.

All the user has to do is:
1. choose time frame for change-over
2. choose fuel change-over direction: HFO to DFO or DFO to HFO
3. Start the process!
Features and Options

Emergency Start Function
The integrated emergency start function allows flushing the fuel system with pure HFO in case of accidental overheating of the distillate fuel to ensure that the engine can be started.

Data Logger
The tamper-proof data logger is used to prove that the correct fuel was used in regulated areas based on the integrated sensors. Optional with a GPS signal if connected.

Magnetic Coupling
The safety change-over valve is hermetically sealed by a magnetic coupling to avoid any leakages.

Absolutely Linear Fuel Change-Over
LEMAG CONTROLmag® uses a PLC and especially designed orifice inserts to enable an absolutely linear fuel change-over. The linear change-over is vital, to avoid damages to the fuel injection system.

Controlled DFO Mode
To avoid incorrect operation and low lubricity, LEMAG CONTROLmag® requests and controls the fuel oil cooler operation using a PID controller. The correct timing and operation of the cooler is vital, as e.g. after a certain amount of time the change-over process from HFO to DFO will no longer reduce the fuel temperature due to the remaining heat energy in the booster circuit (pre heater, filter etc). LEMAG CONTROLmag® therefore always runs and controls the cooler during DFO mode to increase safety and to protect the fuel system. The DFO temperature is constantly monitored and the system will generate an alarm if the DFO temperature is too high.

CONTROLmag® CALCULATOR
To avoid unnecessary DFO consumption, LEMAG CONTROLmag® automatically calculates the exact duration of the fuel change-over to ensure the booster circuit is fully flushed of HFO just before entering an ECA.

Additive Dosing (optional)
A controlled dosing pump and additive tank can be included to prevent incompatible fuels from flocking during the change-over process.

Cooler/Chiller Units (optional)
Cooler or chiller units can be connected and controlled by the LEMAG CONTROLmag® software to avoid accidental cooling of HFO.

Flow Meter (optional)
Further options include flow meters to calculate total fuel consumption and low viscosity alarm sensors. Please contact us for more details.

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