



# JOWA Fuel Management System

Makes ECA fuel adaptation a breeze



# Fully automatic JOWA Fuel Management System



*The IMO is setting new environmental regulations for the shipping industry. To meet this JOWA Technology has developed the JOWA Fuel Management System. JOWA FMS is the world's first fully-automated Fuel Management System (FMS) with an Approval Certificate from Germanischer Lloyd. The system mixes and homogenises HFO and low-sulphur MDO/MGO to the precisely correct sulphur content for traffic in Emission Control Areas (ECA). The result is significantly lower fuel costs and increased operational reliability.*

Today, ECAs are already in operation off the West Coast of the US (CARB) and in Europe (EU-ECA). They will also be introduced for the East Coast of the US as well as Canada, and many other areas are being planned. This means that all vessels sailing in these waters are required to mix their fuels in an efficient manner while underway.

JOWA Technology's Fuel Management System is an advanced diesel switch with sensors and intelligent computer control, together with a homogenizer and cooler. The system is so advanced that

it mix fuels during the voyage without any interruption to operations. The system also mixes HFO and low-sulphur fuel in the correct ratios, allowing the sulphur content of the fuel to be precisely in accordance with the requirements for the respective ECAs.

The continuous and precise mixing function also means that it is sufficient to have just two tanks in the vessel, one with HFO and one with low-sulphur fuel, in order to meet all ECA-requirements worldwide.

## JOWA FMS GIVES AN ROI OF 3 - 12 MONTHS

By using mixed fuel with the precisely correct sulphur content instead of switching over to a pure MDO/MGO, JOWA FMS saves a considerable amount of money on each ton of fuel when sailing in ECAs.

The savings are so significant that JOWA FMS can give an ROI of just 3 months for larger vessels and no more than 12 months for smaller vessels.

| Engine Consumption | Saving (time in ECA zone) |          |             |             |
|--------------------|---------------------------|----------|-------------|-------------|
|                    | per hour                  | per day  | per 10 days | per 20 days |
| 2 t/hr             | 140 €                     | 3 360 €  | 33 600 €    | 67 200 €    |
| 4 t/hr             | 280 €                     | 6 720 €  | 76 200 €    | 134 400 €   |
| 6 t/hr             | 420 €                     | 10 080 € | 100 800 €   | 210 600 €   |

Calculation base:  
sulphur limit of 1% in ECA  
price of MDO750 €/t  
price of blend oil 680 €/t (Ratio= 26:74=HFO:Mdo)



## EVEN BETTER FUEL ECONOMY

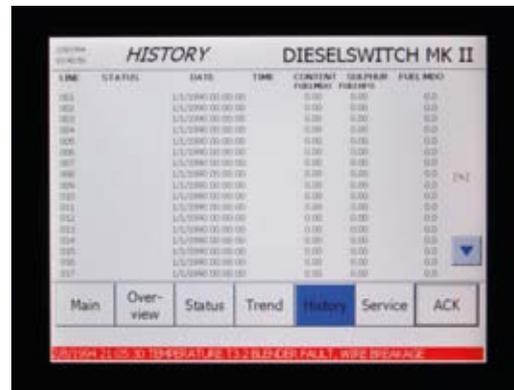
JOWA FMS also includes a highly effective homogenizer that reduces larger asphalt particles to less than 5 µm, which means that they can be evenly blended and homogenized in the fuel without affecting fuel components prior to injection and combustion. The homogenizer efficiently treats incompatible fuel components and avoids instability or incompatibility problems during change over procedures prior to injection. The result is that the entire energy content in the fuel can be utilised, which makes for better economy.

## ADVANCED CONTROL FUNCTION

JOWA FMS is fully computer-controlled via sensors and a very advanced algorithm. The system checks that the fuels are mixable before the mix

is fed into the fuel system. It also checks that the fuel temperature and viscosity are correct for stable, problem-free operation.

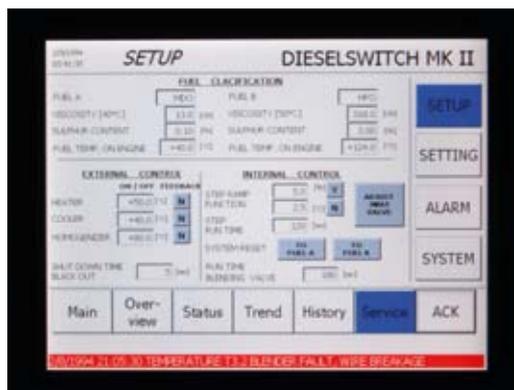
Due to the highest quality valves and control units, JOWA FMS has very high operational reliability and a long lifetime.



## ACCURATE DOCUMENTATION

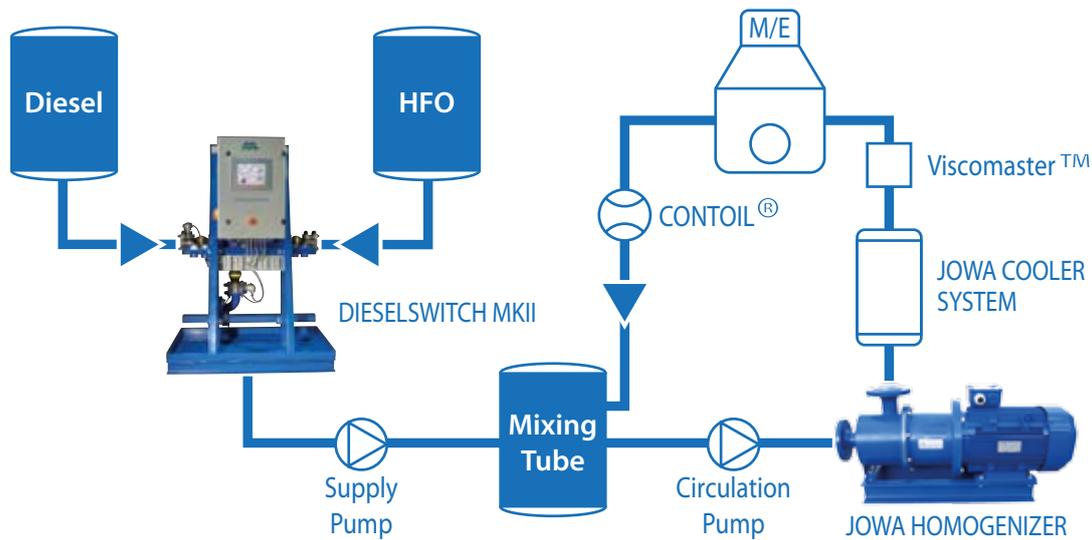
In all ECAs, there are also strict requirements in regard to documentation of fuels and their use. This information is routinely checked in port.

JOWA FMS thus also has an integral documentation system, which logs all information about operation, fuel and times in accordance with official requirements. The information can be presented and delivered as a printout or on data media, and may also be viewed onscreen.



## SIMPLE GUI ON THE TOUCH SCREEN

JOWA FMS is very user-friendly. The touch screen and well-arranged user interface make it easy for the operator to enter all the input data and the desired sulphur content, after which the automatic process takes over. Subsequently switching back to pure HFO operation is just as easy.



### TURNKEY SYSTEM WITH QUICK AND LOW-COST INSTALLATION

JOWA FMS is available in different sizes, covering all fuel systems. The system installs in an existing fuel system with a minimum of pipes needing to be run. The installation process is easy and simple, regardless of whether it involves the construction of a new vessel or is installed later.

Once the system is in place, it is fully ready for operation, with every unit being checked and certified by Germanische Lloyd.



#### JOWA Technology AB

JOWA Technology AB is an innovation company focused on developing and increasing the efficiency of marine fuel systems. Our first product, the JOWA Fuel Management System, was introduced 2010, and our work is continuing on new products benefiting both the shipping industry and environment.

JOWA Technology AB is a wholly-owned subsidiary company of JOWA AB, the market leader in the field of marine water systems.



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