

Everllence

LSF Upgrade



Main Benefit



Decarbonization

Low Sulfur Fuel Upgrade



Decarbonization

- Supports compliance with environmental regulations by enabling permanent operation with Low Sulfur Fuel Oil



Other Benefits

- Enabling use of LSF without
 - excessive wear on inlet valves
 - fuel leakage due to lower viscosity
- Best option for converting from HFO to LSF without major modification

How the Solution works

LSFs (e.g. MDO/MGO or biofuels) are becoming increasingly indispensable to comply with environmental regulations in the marine and power sectors

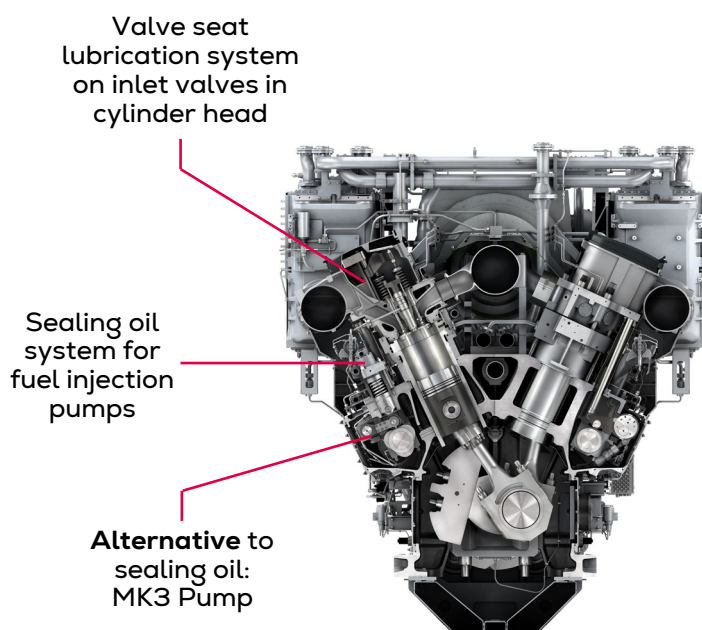
However, LSFs typically have lower viscosity and lubricating ability compared to HFO

Continuous operation with LSFs (>72h) without any adaptations leads to:

- higher wear rates on inlet valves
- fuel leakage to lube oil
- corrosion of fuel injection nozzles (if cooling water stays activated)
- potential fuel injection pump seizures as fuel heating up continuously in fuel system

The Everllence LSF Upgrade counteracts this by:

- providing valve seat lubrication at the inlet valves
- a sealing oil system for the injection pumps or new generation pumps (MK3) with a sealing ring that substitutes the sealing oil system
- review of other items (see scope of supply)



For further information:

Should you have any queries, our Retrofit & Upgrades team will be pleased to be of assistance.

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Low Sulfur Fuel Upgrade

Scope of Supply

- valve seat lubrication system at the inlet valves
- sealing oil system for the injection pumps
- or new generation pumps (MK3) with a sealing ring around the plunger that provides an effective separation of the fuel and lube oil
- Further items to be checked:
 - Nozzle cooling water system switched off
 - Cooler in fuel oil system return line of booster circuit to keep MDO MGO temperatures below 45°C at engine inlet
 - Change of automation system to handle alarms

Applicability

In general, the Low Sulfur Fuel Upgrade is available for the following engine types:

- 32/40 (CD/CR), 32/44 CR, 40/54, 48/60 (A/B/CR), 51/60 (DF), 58/64
- Thereof, the MK3 pump as an alternative to the sealing oil system is available for:
 - 32/40 CD (excl. 440 kW/Cyle. version), 48/60 (A/B), 51/60 & DF (≥ C1 Serial Standard); 58/64

Field-Proven

> 250 Low Sulfur Fuel Upgrades have been installed successfully until Q3/2025

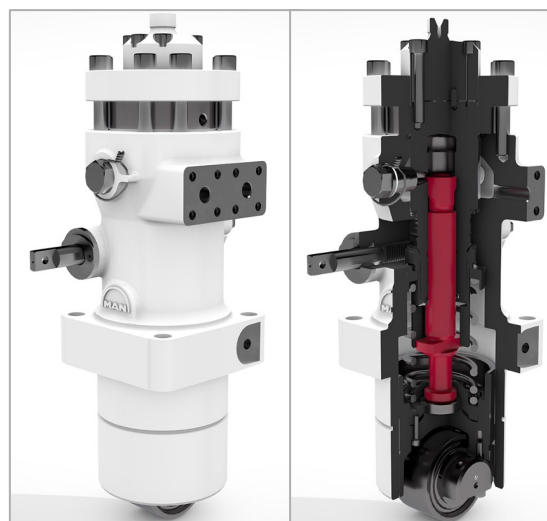
Option: MK3 Pump

Advantages of MK3 pumps:

- Fuel and oil separation without sealing oil
- Minimized lacquering & sticking fuel pumps
- Leakage re-use¹
- Less disposal

Detailed information about the MK3 pump available on request.

¹ for reusing clean fuel oil, an additional piping and leakage oil collecting tank is required



MAN Energy Solutions is now:

Everllence

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