

Oil filters optimize the operation of DFDS fleet

There are 15 GreenOil filters installed on board the Ro-Ro cargo ship Ark Germania. The filters maintain the oil filtration in many of the ship's critical plants. Furthermore, the filters contribute to an optimized and energy-efficient operation.

15 GreenOil filters are installed on board the DFDS Ro-Ro cargo ship Ark Germania, which plies between Immingham and Esbjerg. The 15 oil filters are distributed on six different applications on board the Ark Germania: Auxiliary engines, thrusters, Controllable Pitch Propeller, gearbox, steering gear, hydraulic ramps and stern tubes.

The majority of the filters have been used since 2014, when the ship was put into operation. Most recently, more GreenOil filters have been installed on the ship's three auxiliary engines - because of the successful installation on the other applications.

»We are now able to primarily use GreenOil filters for cleaning the lubrication oil from our three auxiliary engines, because of the auxiliary engines' few operating hours. It results in great expenditure cuts, when the separator is not needed. This process both saves power to the separator and maintenance costs« says chief engineer Per Severinsen, who shares the daily technical responsibility with his colleague chief engineer Jeppe Nissen-Jørgensen in a 14-day rotation.



M/V Ark Germania is just one of the vessels of DFDS where numerous GreenOil filter are installed for safe operation and reliable oil quality for all the oil applications.



Three GreenOil filters are installed for each of the three Aux. Engines, which are into the operation instead of the purifiers.

There is calculated a repayment period of 12 months for the three oil filters installed on the auxiliary engines. The short repayment period is a result of two optimized areas: The great expenditure cuts concerning the separator, as it has not been activated since the GreenOil filters have been installed. Thereupon, the minimal expenses concerning the replacement of the filter cartridge on the GreenOil filter. Contrary to the separator, the GreenOil filters do not need to heat the oil, and that is a great saving in terms of energy efficiency. Furthermore, it minimizes the risk of damaging the oil, because the process in the GreenOil filters is more smooth than the process in the separator.

The annual operating costs for the separator is estimated at 12,000 USD, while the operating costs of three GreenOil filters are 3,900 USD. That is a significant difference of 8,100 USD.

Particles and water separation

GreenOil filters are going to provide filtration of particles and water separation in Ark Germania's thrusters, gearbox, steering gear, CPP, hydraulic ramps and stern tubes. Thus, GreenOil has a unique and patented solution that ensures an efficient water separation. In the auxiliary engines, the filtration of unwanted particles in the oil is the primary process, because the particles may cause unnecessary attrition of the component, and thereby affecting the quality and longevity of the oil. GreenOil filters should extend the oil longevity due to a high-quality filtration.

GreenOil filters accomplish this task completely satisfactory, when it comes to the daily operation on board the Ark Germania – in addition, they ensure reliability, minimal energy consumption and easy installation.

»We have found the GreenOil filters on board Ark Germania very satisfactory, and it corresponds to the experience on board other ships in the DFDS fleet, where they use the GreenOil filters as well« says chief engineer Per Severinsen.

Different types of oil

A high filtration quality of the oil will cause positive side effects on the ship's other components such as pumps, engines, bearings etc., which are in direct contact with the oil. The cleaner the oil is, the less worn the components.

In collaboration with GreenOil, Ark Germania's two chief engineers have ensured that the filters have the right filter cartridges for the three types of oil, that need to be filtered, namely lubrication oil, hydraulic oil and gear oil.



GreenOil filters installed on Steering Gear.

GreenOil filters installed onboard Ark Germania

- 3 filters on each of the 3 Aux. engines, used instead of existing purifier/separator
- 2 filters on each of the 2 Thrusters
- 2 filters on each Controllable Pitch Propellers
- 2 filters on each of the 2 Gearboxes
- 4 filters on the 2 Steering gears
- 1 filter for the Hydraulic ramps
- 1 Mobile filter unit for Stern tubes

In total 15 GreenOil filters

»Each type of oil requires a special filter cartridge that GreenOil provides, and which we have in stock on board, so we always have them ready, whenever we need to change the filter cartridge« says Per Severinsen. The particle filtration itself is at least as good as any other offline solutions. However, there are a number of advantages, such as a low acquisition cost as well as the low operating and maintenance costs and simple operation.

Simple operation

GreenOil filters are both simple to install and operate. The ship engineers on board Ark Germania have installed the filters themselves and manage the daily operation

and maintenance of the filters, which have a longevity of 20 years. The replacement of the filter cartridges is a simple and quick process. You just loosen a clamp. Then, the filter cartridge can be replaced without any oil spill. The operation is very simple. When the filter cartridge needs to be replaced, you just turn off a switch, drain the filter, change the cartridge and press the switch again. The whole process takes only a couple of minutes, experience has shown.

»We just need to keep an eye on the pressure in the filter during our rounds. When the pressure gauge shows a certain pressure, the filter cartridge is replaced. It does not take many minutes and it happens a few times a year« says Per Severinsen. The GreenOil filters have minimal energy consumption and a pure mechanical functionality. The intention is that service, maintenance and operation should be as simple and as little time consuming for the crew as possible. This is confirmed by the chief engineers from Ark Germania.

»After two years of operation we are very satisfied with the GreenOil filters. There have not been any bad experiences or unpleasant surprises« says Per Severinsen.



GreenOil filter installed on one of the Thrusters onboard Ark Germania.

Calculated expenditure cuts

Annual expenditure cut: 8,100 USD (with the installation of three GreenOil filters instead of a separator)

Annual CO2 reduction: 4.5 tons

The advantages of GreenOil filters

- Saves the use of separators on auxiliary engines
- Power saving and less maintenance of separators
- High quality of oil filtration and extended oil longevity
- Simple replacement of the filter cartridges – done in a few minutes and without contact with the oil
- Special filters for all types of oil
- Purely mechanical solution, no electronics
- Low power consumption in the filter
- Simple installation – can be performed by the engine crew
- No maintenance when it comes to water separation – patented solution that removes 250 ml/ day of water
- Simple stainless design with very low maintenance costs

The three auxiliary engines on board Ark Germania are equipped with their own GreenOil filter which clean the lubrication oil on the engines. As a consequence, there is no need for a separator - which provides both energy and maintenance savings.