# Lube Oil
# 4-Stroke Main Engine MaK 8M20, 1,520 kW

## CJC® Application Study

**Application Study written by:**

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### CUSTOMER

Vessel: "MV Eidsvaag Vega", Bulk carrier for the transport of fish feed (salmon farms)
Shipping company: Eidsvaag AS

### SYSTEM

Engine: MaK 8M20, 4-stroke engine, 1,520 kW
Oil: 900–1,000 litres, lube oil type Marway 1040

### PROBLEMS

The engine oil was heavily contaminated with soot, oxidation products and particles. The existing lube oil centrifuge was not able to achieve the required level of oil cleanliness. In addition, the centrifuge was time-consuming and expensive to operate: high maintenance and energy costs, high expenditure in manpower and high oil consumption. The Chief Engineer tended to use approx. 200 working hours a year for the centrifuge. Half of these working hours were spent to clean centrifuge components – in an environment loaded with the diesel fumes from the washtubs.

### SOLUTION

The centrifuge was replaced by a **CJC® Oil-Care System 27/108**.
Dirt holding capacity: approx. 8 kg (in this case: > 38 kg)
Water absorption capacity: approx. 4.8 l
Filtration degree: 3 µm absolute, 1 µm nominal
Filter material: 100% renewable raw material
At the same time, the engine was overhauled and oil was replaced at the workshop shutdown. The filter insert was changed after about 5 months of operation and the oil at the time was still brown and not black.

### TECHNICAL BENEFITS

The low-maintenance CJC® Oil-Care System is easy to operate and offers high operational reliability. Only the pump and the motor have moving parts but the mechanical load is very low due to the slow volume flow. In comparison, the two pumps and the numerous moving parts of the 10-year-old centrifuge had their mechanical weak points. In continuous operation, the moving parts of the centrifuge operated many hours under an extremely mechanical load. When components broke, the centrifuge was very time-consuming. After installing the CJC® Oil-Care System, they saved major expenses for components avoiding the hassle and annoyance of repairs.

### FINANCIAL BENEFITS

The filter insert of the CJC® Oil-Care System 27/108 has to be changed about 2–3 times a year. This involves filter costs of max. EUR 1,071 a year. In comparison, the operating costs for the centrifuge amounted to about EUR 3,640–4,158 a year. Working hours for operation and maintenance are not included. While the Chief Engineer previously timed approx. 200 working hours for operation and maintenance of the centrifuge, today they need less than 10 working hours a year for the CJC® Oil-Care System – this is a reduction by 95%. By replacing the centrifuge with the CJC® Oil-Care System, the Chief Engineer was able to save 190 working hours a year that they can use for other tasks.

### ENVIRONMENT BENEFITS

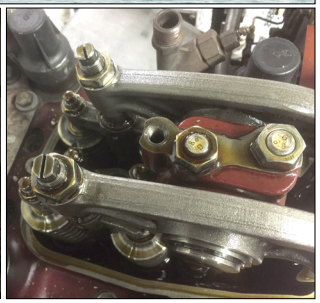
Eidsvaag AS is a shipping company with a very clear environmental profile and has a really active environmental commitment among employees. It is the first shipping company that has been environmentally certified by the Eco-Lighthouse Foundation. Among other things, this means that they report their consumption of oil and fuel. As the shipping company has decided to replace the lubricating oil centrifuge with a CJC® Oil-Care System, this resulted in a significant environmental benefit in terms of reduced oil consumption and less sludge. Based on these positive environmental effects, the shipping company has decided that they should also replace the diesel centrifuge. A CJC® Filter Separator 27/54 for cleaning the diesel was installed one year later during the annual workshop shutdown.

### EMPLOYMENT PROTECTION

The centrifuge must be cleaned manually every four days. This process took about two hours, and half of the time was spent washing the centrifuge bowls in a diesel bath. After installation of the CJC® Oil Filter, the Chief Engineer does not have to perform manual cleaning and avoid degassing and diesel fumes from washtubs with centrifuge components. All in all, the conversions from a centrifuge to a CJC® Oil-Care System fall into line with the shipping company's Health, Environment and Security System (HES system) and environmental profile.

*"MV Eidsvaag Vega"*
*Bulk carrier for fish feed (salmon farms)*


*Mr. Morten Krognes, Chief Engineer*


*MaK 8M20 Engine, 1,520 kW*

### SAVINGS
**Centrifuge vs. CJC® Oil Care system**

| | |
|---|---|
| **Costs, operation:** | |
| - Centrifuge | EUR 3,640–4,158 per year |
| - CJC® Oil-Care System | EUR 1,071 per year |
| **Total savings, operation:** | **2,569–3,087 EUR per year** |
| **Costs, working hours:** | |
| - Centrifuge | 200 hours per year |
| - CJC® Oil-Care System | 10 hours per year |
| **Total savings, working hours:** | **190 hours a year** |
| | **= -95%** |

### COMMENT

***Morten Krognes, Chief Engineer "MV Eidsvaag Vega":***
*"Our operating experience up to filter insert replacement is very good! We weighed the used insert and its weight showed 49.2 kg (drained net weight), i. e. the CJC Oil Filter removed in total > 38 kg dirt! The oil in the engine is still brown and not black! This CJC Oil Filter is really good :) !"*

Further Benefits:
Highest oil cleanliness leves improv engine performance and reliability:
- less wear
- less downtimes/lay-times
- longer oil lifetime

Longer oil change intervals results in high savings and protect environment and resources:
- less new oil required
- less waste oil and $CO_2$ *)

**) The thermal disposal of waste oil causes approx. 4.8 kg $CO_2$ per 1 litre.*

$CO_2$
4,320 up to 4,800 kg per avoided oil change

**ASMA7032-UK**
Bulk Carrier
Engine 4-stroke lube
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