



APPLICATION REPORT

Marine

Fuel bunkering and consumption monitoring on seismic vessels

- Complete overview of bunker and consumers on board to increase efficiency and reduce emissions
- Combined solution including monitoring system and flowmeters
- Mass flow, temperature and density measurement of MGO to verify bunker quantities and control fuel consumption of engines
- One-stop project management from consultation to instrumentation to integration, service and support



1. Background

The marine geophysical company Polarcus offers contract marine seismic acquisition services and data imaging to the global exploration and production industry. Its modern fleet of high performance 3D seismic vessels is the youngest and cleanest within the industry. In order to minimize the environmental footprint, all vessels of their fleet have been equipped with emissions reducing or eliminating technologies.

2. Measurement requirements

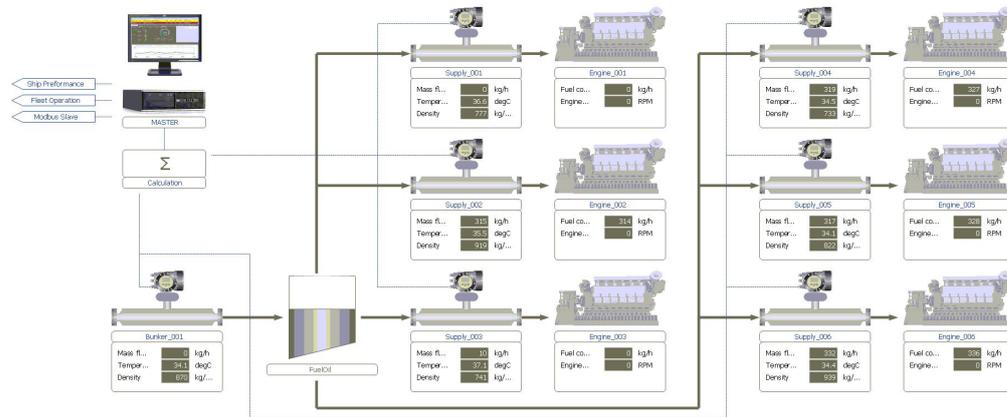
Consumption monitoring is crucial to the company's effort to increase energy efficiency and to reduce emissions. This requires clear and consistent daily, weekly and monthly fuel consumption data as well as information for bunkering verification. The customer was therefore searching for a complete solution to accurately and reliably monitor the bunkering and consumption of their low-sulfur MGO fuel (Marine Gas Oil). This also required the use of flowmeters with a high accuracy (of $\pm 0.05\%$ of MV) even at lower flow rates. DNV marine approvals were compulsory.

3. KROHNE solution

Polarcus decided in favour of a solution combining the EcoMATE™ fuel consumption and carbon emission monitoring system with KROHNE Coriolis mass flowmeters. EcoMATE™ enables onboard monitoring and reporting of fuel consumption, provides key emission data as well as bunkering verification. It consists of hardware (I/O box with power supply, signal interface, network connections, Marine type approved computers and printers for reports) and a modular software solution for consumption and bunkering monitoring, report generation and email communication to shore offices.

KROHNE

The monitoring system uses the mass, density and temperature measurements of the Coriolis mass flowmeters. Six OPTIMASS 6400 F Coriolis mass flowmeters were installed in the fuel supply lines to the various consumers. One OPTIMASS 2400 F was mounted directly before the MGO bunker. All sensors and field converters of the flowmeters have the required Marine approvals (DNV GL).



Comprehensive overview of bunker and consumers on board provided by EcoMATE™

4. Customer benefits

Polarcus was so satisfied as to equip various vessels of their fleet with the KROHNE solution. The shipowner is now able to monitor each vessel type with a single integrated tool. The EcoMATE™ system and Coriolis flowmeters provide the customer with continuous, reliable and accurate data, without any need for periodic maintenance. The acquired data help the company optimize engine performance and reduce emissions. In order to monitor fuel oil costs and to be able to verify the amount of fuel oil received during bunkering operation, EcoMATE™ provides an overview of all corresponding flow readings. In this way, the system also allows the onboard crew to double check the fuel supplier's delivery information and fuel oil costs. Working together with the main instrumentation vendor KROHNE payed off for the customer. From consultation and project management to the supply of the monitoring system and the flowmeters to the integration of the whole solution into the existing infrastructure of the customer – everything has been provided from one source.



OPTIMASS 2400 F bunker meter



Fuel consumption measurement

5. Products used

EcoMATE™

- Fuel consumption and carbon emission monitoring system for ships
- MRV compliant and verified acc. to EU regulation 2015/757

OPTIMASS 6400 F

- Coriolis mass flowmeter for bunkering and fuel consumption measurement
- High accuracy mass, density and volume flow measurement (optional $\pm 0.05\%$ of MV)
- Various marine approvals (CCS; DNV GL; RINA etc.)

OPTIMASS 2400 F

- Coriolis mass flowmeter for highest capacity bunkering measurement on ships
- Various marine approvals (CCS; DNV GL; RINA etc.)



Contact

Would you like further information about these or other applications?

Do you require technical advice for your application?

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Please visit our website for a current list of all KROHNE contacts and addresses.

