

ENERGY
ENVIRONMENT
ECONOMY

ENERGOPAC RETROFIT MAINTAINS SPEED FOR M/S HAMMERODDE



Bent Boris Hansen,
Superintendent, BornholmerFærgen
part of Danske Færger A/S

In 2010 Wärtsilä made a retrofit on the ferry M/S Hammerodde to install Energopac efficiency rudders and new propeller blades. The vessel is now able to maintain the same speed, despite a large extension of the vessel's lane metres.

– In addition to the increased speed of the vessel, the manoeuvring capabilities have improved significantly thanks to the new efficiency rudders, says **Bent Boris Hansen**, Superintendent, BornholmerFærgen part of Danske Færger A/S.

Danske Færger A/S is a Danish company running domestic ferry services. The company is divided into five regional ferry businesses within Denmark operating a total of 13 ferries. BornholmerFærgen operates the vessel M/S Hammerodde to provide a ferry connection between Køge (located south of Copenhagen) and the island of Bornholm.

The 130-metre-long M/S Hammerodde is a RORO passenger ship built in 2005. The vessel operates on the basis of a five-year service contract (every five years the Danish government puts the ferry services

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Challenges	Solution	Benefits
<ul style="list-style-type: none"> – The vessel needed to maintain speed despite increased weight – Improving the vessel’s manoeuvring capabilities – First retrofit of a Wärtsilä Energopac system 	<ul style="list-style-type: none"> – Replacing the existing propellers and rudders with Wärtsilä’s Energopac, a high efficiency integrated rudder and propeller 	<ul style="list-style-type: none"> – Maintained or even slightly increased speed – Significantly improved manoeuvrability – Fulfilled tender requirements for the ferry services

out to tender). For the period 2011–2017 the requirements for the vessel had changed. According to the new requirements, the Hammerodde had to be increased from 1,235 lane metres to well over 1,500 metres.

– We needed to add 300 lane metres without compromising the speed of the vessel, says Bent Boris Hansen.

INCREASING WEIGHT, WHILE MAINTAINING SPEED – A TOUGH CHALLENGE

When running ferry services, it is vital to keep to the schedules. The challenge being faced here was how to increase the lane metres, to be able to fulfil the tender requirements, and still maintain vessel speed. After thorough consideration, the best solution was to build another cargo deck on top of the existing deck. A ducktail appendage with interceptors was also installed, which made the ship approximately five metres longer at the water line. The ducktail was to compensate for weight additions, and to decrease the resistance of the vessel.

– In addition, we also relocated the rudders to a position in line with the propellers, which was quite a job. Although we knew that we still needed to do something else, so as not to jeopardize the speed, we did not want to install bigger or more engines, as it would increase the fuel consumption, explains Bent Boris Hansen.

Wärtsilä’s contribution to the overall solution was to replace the existing propellers and rudders with high efficiency, energy-saving rudders. This is a well-proven technology that Wärtsilä has used since the 1990s – the Energopac, where the propeller and rudder are completely integrated.

– We managed to maintain speed or even increase it slightly without installing more power. Taking into consideration that the ship is heavier, the speed actually increased by a knot or two. This fulfilled our original goal with the investment, so all in all, this was a great success, says Hansen.

IMPRESSIVE REFERENCE LIST BECAME THE DETERMINING FACTOR

M/S Hammerodde was originally equipped with CPP propellers and bow thrusters from Wärtsilä. The Energopac retrofit was, however, the first of its kind for Wärtsilä. Nevertheless, Wärtsilä managed to win the contract. Technically, it was a close race with the competing suppliers.

– It was more or less the impressive reference list that Wärtsilä had for the Energopac that made us believe in the project, says Hansen.

He goes on by saying that the total installation work took about two months to finalize and that there were some challenges along the way, as in all demanding projects.

– This was the first retrofit of this type and after a problematic start we managed to continuously improve the situation, which ultimately led to a successful end result.

SAFE MANOEUVRING IN HARBOURS

Danske Færger is very satisfied with the benefits they have experienced so far with the installed equipment on M/S Hammerodde. Energopac includes a sophisticated full-spade flap rudder that provides excellent rudder balance and manoeuvring performance.

– In addition to the increased speed of the vessel, the manoeuvring capabilities have improved significantly. Thanks to the new efficiency rudders we are now able to manoeuvre the vessel safely in and out of the harbours, says Hansen.

Each Energopac is designed to fit the vessel and to meet its specific requirements. This allows Energopac to be fully optimized for energy efficiency, whilst not compromising either the vessel’s manoeuvrability or its comfort levels.

– I would not hesitate to recommend Wärtsilä’s products and services for other ship owners looking for similar improvements. I think it is impressive that we were able to increase the speed of the vessel by installing new integrated efficiency rudders and propellers, concludes Bent Boris Hansen of Danske Færger A/S.