

ShipBuilding

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OBLIQUE ICE BREAKER

NEW GENERATION HULL DESIGN

Danish Design

THREE INNOVATIVE VESSELS

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TIME TO PAY THE PIPER?

KNUD E HANSEN'S AWARD WINNING DESIGN THINKS OUTSIDE THE BOX

Rethinking the



SAY THE WORD 'RORO' TO MOST PEOPLE AND THEY WILL AUTOMATICALLY ASSUME THAT YOU ARE TALKING ABOUT A VESSEL THAT CARRIES WHEELED CARGO SUCH AS CARS, TRAINS OR TRUCKS AND TRAILERS LOADED ONTO THE vessel via the stern. Danish Naval Architects, Knud E Hansen A/S, have come up with a design that is more flexible, more efficient and is also an award winner. ShipBuilding Industry's Tom Scott spoke to the company's Senior Naval Architect, Christian Damsgaard, to get the low down.

RoRo



Specifically, it was the efficient and innovative design of internal cargo arrangement that was recognised by the ShipPax Award jury. "Although the vessel has some container capacity, she is specialised in handling all types of cargo," informs Mr Damsgaard. "Loading flexibility is therefore important." The broad range of cargo that the vessel can handle demonstrates this flexibility. In fact, the Bahri Abha has 364 dedicated container positions but this can be significantly increased if MAFI trailers and cassettes are used. This is combined with an impressive 24,800m² RoRo cargo capacity.

Efficiency & Flexibility

"For a RoRo cargo vessel, the most important design criteria after fuel consumption is efficient layout as it reduces the time in port," continues Mr Damsgaard. "An efficient layout also increases the flexibility during loading and unloading and reduces damages to the cargo."

The Knud E Hansen A/S designed layout is certainly flexible as loading can be completed both via ramp and cranes. "On top of this there are large flush hatches and a large sliding door, meaning that you can load directly into the forward hold and since the hatches are flush you can drive on them and into the hold," explains Mr Damsgaard. The design is also efficient as the aft loading area gives the possibility of loading all decks simultaneously. "This results in undisturbed driving lines where loading trucks can drive faster and safer." In addition to this there are a few features that give the possibility of loading very large items. "The Bahri Abha can carry all types and sizes of goods," continues Mr Damsgaard. "From standard trailers and containers and heavy-lift cargo >>

The 12th Annual Ferry Shipping Conference took place this year on board the cruise ship *Romantika* that was sailing between Stockholm and Riga. As in previous editions, the conference was the occasion to present the prestigious ShipPax Award. Launched in 1999, the ShipPax Award stimulates innovative solutions by promoting noteworthy design features on newly delivered ferries, RoRo and cruise vessels. This year's winner was Knud E Hansen A/S in recognition of the design of the deep-sea RoRo vessel, Bahri Abha. The award is considered by many to be the most

prestigious trade award in the combined ferry, RoRo and cruise industry.

Diverse Cargo

The 225m Saudi-owned Bahri Abha design certainly rethinks the typical RoRo. "This is not a typical RoRo vessel – one that has lanes for trucks," explains Knud E Hansen A/S Senior Naval Architect Christian Damsgaard. "The Bahri Abha, however, sails with so many kinds of cargo that there are no lanes or dedicated areas for special cargo." The vessel is also optimised for fast and flexible loading and unloading procedures.



to oil exploration equipment and construction machinery.”

Fuel Saver

What’s more, the vessel is fully independent with regards to manoeuvring and loading and unloading procedures, doing away with the need for shore cranes or harbour assisting tugs. What sets this vessel apart from the rest of the Bahri fleet is that she is smaller, yet boasts greater cargo lifting capabilities. She has two deck cranes, each with a 120t @ 15m lifting capacity. At present, the Bahri Abha and her five sister vessels operate a route from Saudi Arabia to the American Eastern seaboard and back again followed by a return trip to India. This new generation of RoRo vessels consumes an estimated 45 percent less fuel on this route than the older ships they replace, thereby delivering considerable cost savings.

Such significant fuel savings are achieved by a number of factors – “There is really no single item that lies behind the saving,” says

Mr Damsgaard. “The construction was optimised to avoid the excessive use of steel and in the initial stages the vessel was lengthened without increasing the deadweight, resulting in a more slender and efficient vessel.”

Tailor-Made Solutions

During the model testing phase, there were also benefits to be found: “The lines were optimised to the extent that there really was no more to gain.” Inside the vessel many systems are simply more efficient compared to those of the older sister vessels that date back to the 1980s: “The main engine was down rated and thus given a lower specific fuel consumption.” The Danish naval architecture bureau provided the concept and tender design and also supported the owner throughout the construction process. “This was a true tailor-made solution meeting the owner’s requirements,” says Managing Director Finn Wollesen Petersen. “We are extremely happy to have won this award. I am very

proud of the whole Knud E Hansen team.” On the overall success of the project, Mr Damsgaard concludes that “it is more related to a good design where the owner understood the importance of allowing time for the designers to do a good job and explore various solutions before selecting the final path.”

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