HAMMERSHUS A NEW WORKHORSE FOR BORNHOLM

HAMMERSHUS

SHIPPAXINFO



Since 1887



R&M Ship Technologies Finland Oy is part of an R&M Group with a history of over 130 years. In Hammershus project R&M Finland proudly delivered complete "steel to steel" Turnkey deliveries of all public areas, crew & passenger areas, cabin areas, galleys & provision store areas, the bridge and all the staircases.

"We promise what we deliver, we deliver what we promise, Period!"



Published by: Shippax AB P.O.Box 7067 SE-300 07 HALMSTAD Sweden Tel: +46 (0)35 218370 Fax: +46 (0)35 130129 E-mail: info@shippax.se

Visiting address: Horngatan 4 SE-302 33 HALMSTAD Sweden

Website: www.shippax.se

Publisher: Elizabeth Mandersson elizabeth@shippax.se

Editor-in-chief: Philippe Holthof, Shippax philippe.holthof@shippax.se

Advertising: advertising@shippax.se

Subscriptions and Accounts: subscription@shippax.se

Graphic production: shipproduction@shippax.se

Founder: Arne Steving, in 1965

Printers: Danagård Litho, Ödeshög

Contributing correspondents and news items do not necessarily reflect the opinions of the editors.

Information believed to be correct but cannot be guaranteed.

No reprint or further distribution without permission

SHIPPAXINFO is owned by Shippax AB, reg no 556937-9414.

ISSN 1102-934X © SHIPPAXINFO



READY FOR THE CHAMPIONS LEAGUE

Rauma, the third oldest town in Finland well-known for its wooden houses, has been synonymous with shipbuilding for several centuries although modern shipbuilding only started after the Second World War. During the nineteen-nineties and up until its temporary and undeserved closure following the dismantling of STX Finland in late 2013/early 2014, the yard in Rauma was one of the world's most prolific builders of ro-pax tonnage. It also had pure ro-ro freighters in its portfolio, along with Stena Line's giant HSS 1500s - among the largest and most sophisticated high-speed ferries ever built.

The yard's unstoppable success in the ro-pax niche market started with the delivery of KALLISTE to La Méridionale in 1993. The reference list of ferries built in Rauma is long and impressive – no other yard in Europe has built more ro-paxes during the last quarter of a century than the shipyard in Rauma, with household names such as Stena Line, Tallink Grupp, P&O Ferries, Color Line, Irish Ferries and TT-Line all having built ships in Rauma.

The number of shipyards in Europe specialising in ro-paxes has dwindled during the last three decades and the really big ones that have survived now have full cruise ship order books. China has meanwhile emerged as the new promised land for ferry construction, yet still has to deliver its first ro-pax from the recent ordering spree. The fun part, i.e. landing the contracts, is over and now the yards have to perform.

In the meantime, Rauma Marine Constructions (RMC) has delivered its first ro-pax, just four years after its low-profile restart. HAMMERSHUS, the new ro-pax for Molslinjen's operations to the Isle of Bornholm, represented the perfect project for the restart of the yard, both in terms of size and complexity. With its vast network of partners, the yard is ready to take the next step, being poised to re-enter the segment of larger ro-pax tonnage up to 60,000 gross tons. The last big ro-pax ferries built by the former owners of the yard were P&O Ferries' 47,592-gross-ton Spirit Class Calais-Dover super-ferries with a capacity of 2,741 lanemetres, plus 194 CEUs on a separate deck, together with 2,000 passengers.

Unlike HAMMERSHUS' predecessor, HAMMERODDE which was an off-the-shelf design, the HAMMERSHUS has been purpose-built for the Bornholm trade. Cargo is the ship's bread-and-butter and loading/unloading operations have been improved thanks to a simple vehicle deck lay-out with fixed internal ramps. All passenger facilities are concentrated on one deck, yet another improvement that will be appreciated by the ship's everyday users.

What follows on the next pages is an in-depth presentation of HAMMERSHUS and its builders who have every reason to be proud of what they achieved. We wish HAMMERSHUS fair winds and following seas.

Philippe Holthof

FORM & FUNCTION

BORNHO!

U. Hum

間田田

"HAMMERSHUS is a ferry where complexity has been avoided and function is front and centre of the concept."

In the design of the HAMMERSHUS, Molslinjen has hit all the right notes in creating a vessel which fulfils all the demanding requirements of the Bornholm islanders in a very rational and effective way.

verything Danish is cool these days. Whether it's Danish crime series on TV, Danish furniture or the ubiquitous LEGO brick, not to mention the 'hygge' lifestyle craze, Denmark punches well beyond its weight in many

areas. While the HAMMERSHUS is designed and built in Finland, it certainly has an air of coolness to it and a bit of hygge as well. So often these days there is much focus on cutting edge technology but, it is very refreshing to report on a new ferry where complexity has been avoided and function is front and centre of the concept. After all, what are Bornholmers looking for? Efficient, on-time and reliable transport comes top of the list.



and stern. To achieve a low OPEX, the vessels were equipped with two small two-stroke engines. Since then, Mols has operated the largest Incat highspeed ro-paxes profitably. In many ways, Mols has seen the benefits of Incat's philosophy which also revolves around a 'no frills' design and operational philosophy.

RAUMA MARINE CONSTRUCTIONS ENTERS THE PICTURE

With Molslinjen winning the ten-yearplus-two-option-year concession for the ferry routes from Bornholm, a newbuilding contract for a ro-pax vessel was signed with the Finnish shipbuilder Rauma Marine Constructions (RMC) in June 2016. With no vessels built since being closed by STX, Mols took a calculated risk placing the order with RMC, counting on the long experience of its employees as well as the commitment and passion of its management.

The HAMMERSHUS has now been delivered and is sailing on the Køge, Zealand - Rønne, Bornholm route. The schedule offers a late evening (00:30) departure from the mainland with early morning (06:00) arrival in Bornholm. This is timed for freight traffic, allowing trucks to service all the consumer and agricultural needs of the island. With so many tourists during the holiday seasons, pressure for space is greatest during the summer months. As the fast ferries are not primarily intended for freight traffic, the longer Køge-Rønne route is primarily freight-orientated but serves as a backup in case bad weather or malfunction stops the Ystad connection.

TAKING OVER FROM THE HAMMERODDE

HAMMERHUS' predecessor on the route, HAMMERODDE, was not tailor made for the route. The vessel started out as a 'standard' ro-pax hull built in the Netherlands. Sister ships with minor variations include the Isle of Man Steam Packet's BEN-MY-CHREE, Condor Ferries' COMMODORE CLIPPER and Strait Shipping's STRAITSMAN. However, the HAMMERODDE was radically converted with an additional freight deck as well as the addition of scrubbers. While the vessel served the route well, the possibility to start the design from a clean sheet was a major advantage for Molslinjen.

FAST TURNROUND

Achieving a faster turnround time was critical in Mols's business plan so the triple deck layout of the HAMMERODDE using hoistable ramps would be superseded by a wide aft access and a pair of fixed internal ramps. The contract specification demanded a 1,500-lanemetre capacity which is split between 805 lanemetres on the main deck and 695 lanemetres on the upper deck, both decks having a 4.5m free height. As the majority of cargo shipped from the mainland is unaccompanied, drive-through access was not required but for the sake of flexibility, **>**

MOLS - VAST EXPERIENCE

Molslinjen came to the table with a vast amount of experience operating both fast ferries and ro-paxes. Having concluded that its two 14,000+gt ropaxes, the METTE MOLS and MAREN MOLS, could not be operated economically on its high-capacity Aalborg/ Ebeltoft-Odden route, the ships were sold to the German FRS Group and are operating on its FRS Iberia service between southern Spain and Morocco. The ships are slightly smaller than the HAMMERSHUS but, they incorporated a number of novel features. To achieve a very quick port turnround, the vessels could be loaded and discharged via double-level ramps at both bow



Wide access results in fast handling.



Trailers on the main deck supported by LOT trestles.

the HAMMERSHUS is structurally prepared for the addition of bow access in the future.

The hydraulically-operated stern ramp/door, supplied by MacGregor, is a full seven lanes wide at the stern, reducing to 16.5m at the shore end. The ramp has a length of 13.0m plus 1.5m long flaps. Some 19.2m forward of the stern entrance, the fixed internal ramps on both port and starboard sides start their ascend to the upper decks. This layout is also used by Destination Gotland on their two ro-paxes. Top-hinged watertight doors seal off the ramps from the open weather deck. The ramps have a clear width of 3.25m which is comparatively narrow by most modern standards. It is noticeable that tugmasters towing trailers are slowing down on the ramp to avoid any damage to the trailers or ship's structure. Both the stern ramp and internal ramps have herring bone anti-slip pattern.

While the fixed ramps obviously take up space, reducing the vessel's lanemetre intake, the ability to access the upper deck almost immediately after the stern ramp is lowered, gives considerable operational flexibility. During the most intense period of loading, just before departure, one-way traffic on the ramps is both safer and faster, eliminating the need for drivers to wait. The present schedule requires the HAMMERSHUS to arrive in Køge at 22:30 every evening. This leaves just two hours to unload 1,500 lanemetres of cargo and load the same again.

FREIGHT OF ALL KINDS

As the HAMMERSHUS transports

virtually all the freight to and from Bornholm, a wide variety of cargo types are expected. Reefer trailers predominate, transporting what fresh produce the island does not farm itself. There are a few forwarders and transport operators such as BHS Logistics on the island and they have private warehouse and distribution facilities close to the harbour in Rønne. Most trailers are unaccompanied but, on every sailing there are some truck drivers travelling with the ferry. All kinds of liquids, including fuels, are transported by tanker so the open aft end of the upper deck is reserved for vehicles transporting IMO class dangerous cargoes. The vessel also can transport explosives as it is used by the Danish Army to transport military material. For this reason, an A-60 fireinsulated barrier has been fitted at the aft end of the accommodation.

TRAFFIC CIRCULATION

Using the portside internal ramp as the up lane and the starboard ramp for down-coming traffic, the terminal tractor units are able to maintain a very high efficiency despite the distance between the main trailer parking area and the ship in Rønne. However, as the trailers intended for stowage on the starboard side need to make a 180° turn in the seven-lane wide area forward of the central casing, hardly surprisingly there is a lot of tyre squealing. All the trailers are loaded coupled together with LOT



The fixed internal ramp with tophinged door.

"Compared with the HAMMERODDE, the new ship takes advantage of almost an extra 30m in length which pays dividends in many areas, not least in the seakeeping."

trestles which confer great stability to the forward end of the trailers, being attached to the trailer kingpins. In normal conditions no other lashings are attached to the trailers. Only if rough weather is forecast will web lashings be employed to secure the back end of the trailers.

Ventilation openings along the sides of the upper deck obviate the need to employ mechanical ventilation but recent fire safety concerns may outlaw the open deck concept on future ro-pax designs. Survitec water sprinklers are fitted to provide fire protection.

In general, passenger cars, mobile homes and caravans are loaded last on the upper deck, parking in the outside lanes forward of the internal ramps. The ramp layout allows these vehicles to be loaded last and discharged first, which is the ideal situation.

FAST MOORING

Slicing minutes off the port stay is critical to operating a service that satisfies the Bornholmers. Semi-automatic mooring devices have been installed in Rønne and Køge, so two bollards are located at main deck level positioned above the very substantial fender line. A hydraulically extending arm with eye hook engages with the bollard, drawing the ship to its optimal longitudinal location on the berth, positioning the stern ramp to rest in the correct position on the shore linkspan, helping to smooth the transition. The whole shore mooring device can move vertically up and down according to the tide and the position of the ship's main deck relative to the quay. The whole process takes just a few minutes. Normally the ship's 12t capacity Rolls-Royce electric mooring winches are not employed.

FIRST IN THE WORLD WITH WÄRTSILÄ'S 31 MAIN ENGINE TYPE

One of the most noteworthy features of the HAMMERSHUS are the main engines. Very early in the project, Wärtsilä offered its new 8V31 engine



The first Wärtsilä 8V31 in the world.

which claims to have the lowest fuel consumption of any four-stroke diesel so far developed. While a few other vessels ordered the engines before Molslinjen, the HAMMERSHUS is the first commercial vessel in service using the V31 engine design. Each engine has an output of 4,880kW at 750 rpm and are very compact by virtue of their V-configuration. While V-12 engines are relatively common, V-8 main engines are very rare. The engines are therefore short in length but their two-stage ABB turbochargers are large by comparison. Two-stage turbochargers are more complex but the elevated pressures result in very high efficiencies and it is one of the reasons why the V31 has such a low fuel consumption, understood to be as low as 165g/kWh in some configurations.

Developing a completely new engine type is hugely expensive and not necessarily guaranteeing market success. Wärtsilä started from scratch when designing the new engine type, combining all their tried-and-tested solutions into a new modular design which promises to be both simpler to build and maintain. While Wärtsilä has incorporated common-rail fuel injections systems on other engines, an electronicallycontrolled second generation version on the V31 engine builds on all the valuable lessons so far learned and may pave the way for camshaft free valve operation in the near future which has the potential to both reduce emissions and improve fuel consumption even more. The engine is designed from the outset to burn diesel, pure gas or dual fuel but Molslinjen were clear that the vessel would be operated on only one fuel type, ultra-low sulphur MDO. Tank spaces for HFO are prepared but not in use. For Molslinjen, using one fuel type across all its fleet, including the fast ferries, makes economic sense, also putting it in a better commercial position with the bunker suppliers. In operation, the engines are noticeably smoke-free and have low vibration levels.

MANOEUVRABILITY IN SMALL HARBOURS

Rolls-Royce has supplied much of the propulsion equipment, including the horizontally offset gearboxes, shafting, propellers and rudders. The two controllable pitch propellers have a diameter of 4.0m. The two high-lift flap rudders are equipped with an integrated Promas bulb, fairing and propeller hub, improving propulsive efficiency by approximately 5%. Rolls-Royce has also supplied two 1,560kW bow thrusters which, together with the flap rudders, gives the HAMMERSHUS > considerably greater manoeuvrability compared with the previous generation HAMMERODDE. This is necessary given the greater length of the ship and the confined harbour conditions, especially in Rønne.

HULLFORM

The hullform of the ship is quite conventional with a block coefficient of less than 0.6. The stern comprises a centre skeg with twin shafts supported by two sets of streamlined brackets. CFD calculations and model tests revealed that a stern wedge would be advantageous. The vessel has a required service speed of 17.7 knots to achieve the 5.5-hour transit between Køge and Rønne but the vessel achieved a trial speed of well above 22 knots. She regularly sails at a speed of over 20 knots when sailing in deeper water between Bornholm and Sassnitz. However, the water depth into Køge is comparatively shallow, limiting the possibility to make up for lost time by increasing the speed. Unusually, the 23.5m beam of the ship at the waterline is 1m less than at the main deck level.

Compared with the HAMMERODDE, the new ship takes advantage of almost an extra 30m in length which pays dividends in many areas, not least in the seakeeping. Despite the provision of stabilizers, the 129.9m long ship had a reputation for high accelerations and passenger discomfort in poor weather. While the southern Baltic is not known for high seas, with the right westerly wind directions, the "Rather than having a uniform seating area, it has been broken down into smaller spaces along the starboard side which all fulfil a particular role."

waves can be short and steep in the shallow water areas. In contrast, the HAMMERSHUS is a better sea ship and is also equipped with Rolls-Royce fin stabilizers. The vessel has a larger than usual bow flare.

PTO AND PTI

ABB has supplied the electrical outfit comprising the 1,600kW, 690V motor/ generators coupled to the gearboxes. These can operate either in power take-off (PTO) mode, supplying all the ship's electrical needs while at sea, or as a power take-in (PTI), allowing the generators to supply power to the propellers in an emergency take-home mode if one or both of the main engines were disabled for any reason. Frequency converters are used to provide the correct output voltage over a wide range of propeller rpm. In the past, vessels needed to maintain a constant propeller rpm to use shaft generators effectively but now, the use of frequency converters has freed operators to use more efficient combinations of propeller pitch and rpm.

Four gensets are installed, each with a 450kW output at 1,500rpm. The engines are truck-derived DI16 V8 diesels



The compact dimensions of the 8V31 and two-stage ABB turbocharger.

from Scania but marinized by Nordhavn. Two engines are located in each engine room orientated longitudinally and transversely.

SAFE RETURN TO PORT

To comply with the Safe Return to Port (SRtP) regulations, there are two main engine rooms, each with a compartment length of 12.0m. The aft main engine room houses the portside main engine with the forward room the starboard engine. The primary control room is located on the starboard side just forward of the forward engine room. As the SRtP rules are also concerned with the redundancy of control systems, ventilation and many other auxiliary systems, the second switchboard room is behind the aft engine room on the portside but most engine control and oversight functions will be controlled from a console located on the bridge.

INTERNAL LOGISTICS

Possibly due to the compact size of the main engines as well as the choice of high-speed diesels for gensets, the engine compartments seem to be spacious with more than sufficient area for overhaul of components. In the midships area, a large service area has been provided with direct access to a lifting platform on the centreline. This can lift provision pallets and heavy items of machinery between the centre casing of the main deck and the service area. A sidehinged watertight cover closes off the hatch opening. From the service area, a wide access way goes through all the engine compartments via a series of sliding watertight doors supplied by Tebul.

FUNCTIONAL CASINGS

The 2.8m wide centre casing includes three stairwells, a single Kone-supplied passenger lift and a stores/crew lift. At the forward end of the casing at the upper deck level, a waste container is conveniently located which is removed by shore-based contractors when necessary. The waste system has been



The open cafeteria seating area. German Rheinhold & Mahla (R&M) was in charge of the complete outfitting of the passenger spaces.

supplied by Loipart. The space underneath the internal ramps is also fully utilised for store rooms and for bicycle or motorcycle parking. A verticallysliding bunker port gives the option for the vessel to be bunkered from a barge or from tanker vehicles. There is even a dedicated room for the transport of coffins, such is the wide range of functions that the vessel has to fulfil.

R&M OUTFITTING

The complete outfitting of the passenger spaces has been subcontracted to the German company Rheinhold & Mahla (R&M). Starting from the naked bare steel hull, R&M was responsible for almost 4,000m² of public spaces, including the cabins, cafeteria, galley and rest areas. R&M has considerable experience with this kind of turnkey project in many shipbuilding countries such as Germany, Norway, China, USA and Finland, including Meyer Turku. R&M also has won the contract to do the outfitting work on the new Stena ro-paxes in AVIC Weihai as well as the Color Line hybrid ferry under construction at Ulstein. A major factor in the success of the project was that R&M was involved from the early stages of the planning and design process.

CABINS & CAFETERIA

Compared with the Færgen ro-pax, the government specification did not

require more than 16 four-berth cabins plus two large barrier-free disabled cabins. These are located on the upper passenger deck. The cabins, prefabricated in China, are quite basic with two beds plus two Pullman beds above. All are equipped with a TV and mirror. In contrast to the HAMMERODDE, which had passenger spaces spread over three decks, all the main spaces, apart from the cabins, are on one deck, improving passenger orientation and flow. The overwhelming impression of the large 200-seat cafeteria, occupying the forward part of the deck, is one of openness. Molslinjen is used to that on its fast ferries and was keen to replicate the concept on the new ro-pax. Of course, the designers of the fast ferries have an >





The cafeteria serving area.



The open plan galley with multi-purpose checkout.



Dormitory-style resting area.

 ulterior motive for open constructions as they save construction weight, a critical factor.

OPEN & BRIGHT

However, rather than having a uniform seating area, it has been broken down into smaller spaces along the starboard side which all fulfil a particular role. For example, immediately adjacent to the cafeteria entrance, there is a separate 38-seat lounge area for passengers travelling with their pets with direct access to the open deck area. Closest to the check-out, a barrier-free area is reserved for passengers using wheelchairs. There is even a separate lounge with tables and 24 chairs reserved for people with allergies, fortunately not adjacent to the pets! Not detracting in any way from the openness of the space, these areas are separated from each other by means of unobtrusive slatted dividers.

SEEING IS EATING

Not content with creating openness in the passenger areas Aprocos, the ship's Finnish interior designers, have also managed to incorporate a completely open galley and serving area as well. As is the trend in modern restaurants for 'transparency', part of the experience is to see the food being prepared. The presence of deep fat fryers and other fire hazards obviously posed a considerable challenge for the interior designers. In case of fire, A-60 fireproofed shutters can quickly be lowered closing off the galley area from the cafeteria. Watching one's 'pølser' being prepared may not be quite the same as seeing a Michelin star chef orchestrating a culinary show but the result is still interesting. The large windows on all three sides also give the space a lot of natural light. A children's play area is strategically located on the portside

A by-product of the open layout is that kitchen staff are interacting with passengers more, which can only be a good thing. The checkout desk is also responsible for purchases from the small shop and doubles as the information desk. The combining of functions is eminently rational and helps Molslinjen keep crew numbers at a modest level.

REST & RELAXATION

Aft of the cafeteria on the starboard side, a large room is outfitted with >



The bow mooring area.

Profit from our expertise

We have the competence and experience to support your newbuilding project from the concept stage through to the delivery and integration of a cargo handling solution that optimises your ship's operational efficiency and maximises its traffic flow.

We focus on improving the lifetime profitability, reliability and safety of your fleet. Wherever your ships are, you can rely on our global service network.

MacGregor is part of Cargotec (Nasdaq Helsinki: CGCBV).

www.macgregor.com







The Palfinger-supplied 130-person lifeboat.

200 reclining seats. Three widescreen TVs are in place although not used at the moment. On the portside, 100 dormitory-style bunk beds are provided which can act as sofas or for lying down. This unusual resting area is surprisingly popular as people are reluctant to pay for a cabin for the relatively short journey. Apparently, drivers, military personnel and students take the opportunity for a quick nap. All the beds come with a locker. Just outside the entrance to the resting area, four shower cubicles are available for drivers. The open deck



Little & large.

areas for passenger use are quite limited but on the upper passenger deck aft, 16 tables have been provided, each with six chairs.

Lifesaving comprises two large fullyenclosed lifeboats supplied by Palfinger, each with a 130-person capacity. These are complemented by an eight-person fast rescue boat and six-person rescue boat with davit, all supplied by Palfinger. Viking has provided its VEMC mini-chute marine evacuation system (MES) along with two 150-person and two 50-person liferafts. As on all ro-pax newbuildings, a large helideck is incorporated on the top of the vessel, capable of handling the largest search and rescue helicopters presently in service.

CREW & OFFICERS

Given the low number of operating crew, the accommodation is limited with four captain class cabins with separate dayroom, two officer class and six single crew cabins, all located on the bridge deck, Deck 8. Apart from the basic 12-person crew, extra service personnel join the ship according to the demand. A small combined mess room, crew day room and officer day room



Cockpit-style bridge.

occupy the area on the portside of the galley. On Deck 8, there is a small gym, the ship's office, a laundry and changing room for the catering crew. The bridge is typical for any modern Scandinavian ro-pax. Large windows and enclosed bridge wings are outfitted with the latest integrated Furuno navigation and communication consoles. Behind the main cockpit-style console, three additional control consoles give full bridge control of the machinery as well as a navigation desk.

Rauma Marine Constructions must surely gain a lot of plaudits from the timely completion of the HAMMER-SHUS. Resurrecting a shipyard, especially one specialising in such design and outfitting, craving vessel types is a massive undertaking. The dedication and passion shown by the senior management deserves to be rewarded by new orders. After all, the 'back catalogue' is second-to-none, having delivered cutting-edge ro-pax and ro-ro designs for several decades.





HAMMERSHL

07	- 4
121	diate
86	
Ρ	
Š	
Ĩ	
ц Ч	
Я	
Σ	
Σ	
Ì	
ils	
taj	
q	Ę
Ē	iteti
1ai	ficit
2	÷

 I +Hull, +Mach, Ro-ro passenger ship SRTP, Unrestricte navigation

-SYS-NEQ, COMF-NSHIP, ICE CLASS +AUT-UMS, SHAFT, CLE/

nsions	h o a158.00 m	h w l	mld24.50 m	ht, Design5.70 m	ht, Scantling5.85m	aught, max40.50 m	to deck 3	Tonnage18,009	
Dimension	Length o a	Length w I	Beam mld.	Draught, Di	Draught, So	Air Draugh	Depth to d	Gross Tonn	

ight, Design	ger Cabins Outside	bins Class
Deadweight, De Max. persons (L	Passenger Cab Pass 4p. Outsid Sickbay/disable TOTAL CABINS TOTAL BERTHS.	Crew Cabins Captain Class Officer Crew single bec TOTALT BERTH!

MES

Е Е Е 805 695 500 Cargo L Trailer I Trailer

d 17.7 knots	1 pair	1C
Max Service Speed	Fin stabilizer	ce Class



> Koja Marine air conditioning systems improve energy efficiency and passenger comfort. We deliver reliable solutions for the entire ship, from design to training. As a leading HVAC supplier, we know how to provide unbeatable efficiency with a small footprint. We control all conditions on board.



Yes. Premium is possible.

KOJA Ltd. Head Office, PO Box 351, F133101 Tampere Finland, kojamarine@koja.fi



cables. A great example of our expertise is our new product group Marine cables with aluminium conductors. With over fifty years of experience in cable manufacturing Helkama stands for quality, flexibility and outstanding personal service. We enable the perfect connection for your business.



the perfect connection for your business

helkamabica.com

Helkama Bica Oy, Lakimiehenkatu 4, 20780 Kaarina / tel. +358 2 410 8700, sales@helkamabica.fi

BACK ON TRACK

An interview with Håkan Enlund, EVP for Sales & Marketing – Newbuilding products, Rauma Marine Construction (RMC)

Can you give us a timeline of events leading up to the establishment of RMC?

In the autumn of 2013, STX decided to close the Rauma shipyard despite the fact that the yard still had work in hand. We were making a conversion and were finishing an offshore patrol vessel (OPV) for the Finnish Coastguard. Work continued but people started to leave. Many were offered jobs at the STX Turku shipyard but did not want to move. I left the yard in January 2014 but immediately, together with a team of key people, started to plan a restart. The closure of the yard was not viewed as a catastrophe but rather as a good opportunity for a restart, after all, the yard had a very high reputation and possessed unique facilities.

The City of Rauma bought the land and the yard facilities in the winter of 2014 and RMC was established in April 2014. I came 'on board' as the first employee in June and we commenced operations in July. Very soon afterwards we made the first contract which was a three-year service contract for two multi-purpose icebreakers. Since then we have slowly grown culminating in the milestone contract signing with Mols in June 2016.

How many employees did you have before and how has it changed now?

We had 700 persons when STX was in control. From a city perspective, these would be unemployed, so there was an intense effort to attract new investment and broaden the industrial portfolio in Rauma. In fact, 1,200 new jobs were created as a result of the city buying the infrastructure but also from government support to attract other companies.

Now we have 90 direct employees

but during the construction of the HAMMERSHUS, up to 500 persons were engaged in the building project, most of whom were subcontractors.

Please explain the system of subcontractors that you have had to put in place?

We should give some of them a new definition; rather than a typical subcontractor, some have become more like partners and are involved in the planning process. It is a new way of operating as they take on their own risk. Of course, we have learned some lessons from the Molslinjen project and we know now how to be even more successful. Like any industrial operation, we are constantly improving and incorporating the lessons we have learned.

The HAMMERSHUS was a perfect project to start with.

Yes, from all points of view it was the ideal vessel to start with, both in terms of size and its complexity which was manageable for us.

When did you establish the first contact with Molslinjen?

The first contact came through a broker who knew our plans to restart the yard. We knew the Mols management from before so it was easy to reestablish the contact.

How did the design develop?

The concept was developed in early 2016. In the very beginning, Deltamarin made the design for the shipowner. RMC's own design engineers then developed the concept and all the documentation in-house.

So, your naval architects and engineers are part of your core competence?



Absolutely, they are among the 90 key persons that have the core knowledge.

What backing did you get from Finnish financial institutions?

One of our main partners has been the Rauma Handelsbanken. Of course, there was backing from Finnvera, as normal on almost all export projects.

Of course, Molslinjen were themselves in a competition for the Bornholm business which must have increased the insecurity for RMC?

Yes, there was uncertainty in the late winter and spring of 2016, would Mols win the tender? Of course, there was big joy when they won the competition but that was followed by many questions in Denmark concerning the status of the yard and how it would perform. But here we are in 2018 with the HAMMERSHUS delivered before the start of the service contract.

During the course of the building period, the passenger certificate



changed. How were you able to cope with that?

The first passenger certificate was based on the government tender which was for 400 persons on the Køge-Rønne route. But during the development phase, Molslinjen wanted the option to sail between Bornholm and Sassnitz during the day. So, the passenger numbers increased from 400 to 600 and then to 720 at a later stage. We had to modify the superstructure and add extra space in the restaurant and bar. However, we didn't change the MES or lifesaving outfit.

Compared with the outgoing HAMMERODDE, what changes did Mols want in the new design?

Primarily operational efficiencies. They looked for improvements in cargo handling and better facilities for passengers. The accommodation is well-planned with a good flow. The existing ship had been converted and refurbished. In some ways the operation was clumsy and complicated with the three decks and hoistable ramps. We had a high ambition to include nothing that was unnecessary, resulting in a design that is very functional.

The twin fixed internal ramps is an unusual solution on a small ship.

Yes, it does reduce the lanemetre intake, but we achieved the prescribed 1,500 lanemetres. Having a fixed ramp solution is straightforward. There are no risks of the ramp failing. Trucks are able to circulate on the upper deck, reducing the turnround time. We have tried to eliminate unnecessary items. Why make a ship more complicated than necessary?

What is available for passengers?

On the Køge route, mostly truck drivers travel with the ship. The late arrival and early departure allows the HAMMERSHUS to make a convenient daytrip to Sassnitz. For the day passengers there is the saloon with seats as well as the restaurant. The sailing time is relatively short. For the drivers, the 5-hour-30-minute sailing time is considered as a statutory rest period. Apart from the 18 cabins, we have a rest area where truckers can use a sofa. This solution is not unusual in Denmark and is preferred by some truckers. There are lockers next to each bed where they can store their valuables.

Back to the shipyard, how did you handle the inevitable communication issues with the subcontractors?

Undoubtedly, the number of communication surfaces increased with more planning layers. Planning was a challenge and we have learned our lessons. We need to focus more on this area and we intend to use our own area managers in the future, also our own foremen who are able to directly interact with the subcontractors.

Who were your main subcontractors?

For the interior, we used the German R&M, who also has a sizeable operation in Finland. It was a big turnkey supplier responsible for the whole of the interior.



> On the propulsion side, Rolls-Royce was responsible for the propeller, shafting and gearbox and, of course, Wärtsilä for the 8V31 main engines. These are the first in operation commercially. ABB was responsible for the electrical system.

What about the steelwork? Did you build any sections elsewhere?

Everything was done in Rauma. Our subcontractor supplied the skilled manpower for the hull assembly.

But it seems very common for Finnish yards to build sections in Poland, Lithuania et cetera?

It is very size-dependant because we need to keep the production time as short as possible. The Mols project was optimal for us, so we could make all the production in Rauma. If we were building a bigger ferry, a portion of the superstructure or the difficult fore and aft underwater parts could come from the Baltic area. Actually, we are presently building sections for the cruise liners built at Meyer Turku. We have to strike the right balance between ship size and our own capacity.

The HAMMERSHUS has a comparatively uncomplicated machinery layout.

Yes, the relative simplicity was perfect to start with. The shaft generators are primarily used for the bow thrusters but, like a hybrid car, they can also be used as a motor to drive the shafts so from an automation point of view, the ship is not so simple.

What is your experience with LNG?

The last ship built during the STX era was a dual fuel vessel for the Finnish Coastguard. So, our personnel have experience. But on the Mols project, we have only one fuel – ultra low sulphur MGO. Despite the Wärtsilä 31 being offered as a dual fuel engine, the HAMMERSHUS is a single fuel ship.

Looking to the future, what potential do you see for new ro-pax contracts?

There is good potential. We are negotiating with a few shipowners. The market has been anticipating the delivery of the HAMMERSHUS. We have the feeling that eyes are focussing on us. I have received many congratulations on the telephone and by email from old customers who are happy that we are back in the game. We feel we have earned back our position in the market.

What size of vessel are you capable of building now?

We see a natural development going from medium- to large-sized ro-paxes. The facilities are the limiting factor. I think 60,000gt would be the maximum although the drydock could be used for larger ships. the COLOR MAGIC was 75,000gt but the real limit is 62-63,000gt. For sure we won't do it in one jump.

How do you see the demand for new ferries developing in the coming years?

Unquestionably, a renewal of the fleet is needed. In Northern Europe there are eight big operators. Rauma shipyard has delivered ships to ALL of them! I see two drivers for fleet renewal. Firstly, what I call the 'black smoke' ferries, need replacement because of the new and upcoming environmental rules and public expectations. Secondly, there is a demand from consolidation where, say two new ferries could replace three old ones.

As a 'sideline', we have a cooperation with the Finnish Defence Logistics Command. The target for the negotiations is to sign a contract for four new corvettes to the Finnish Navy. This will keep the yard busy with a basic load from 2019 to 2025.

Will this prevent you from bidding

"We feel we have earned back our position in the market."

Håkan Enlund, EVP for Sales & Marketing - Newbuilding products at RMC



for new ro-pax contracts?

No, not at all. The volume is not so big. We need commercial contracts in parallel. The navy ships will be constructed separately and under cover. We need new ferries.

What is the situation with the planned new Vasa-Umeå ferry?

I can't say anything at the moment. I think we would be very suitable for the Vasa contract.

Since the STX days, China has now emerged as a major ro-pax builder, how does that affect you?

Prices are certainly under pressure. It is a new element in the competition. For sure they will take some portion of the market. However, there are some Northern European ferry operators who don't want to go to China. Some of the big equipment suppliers set up in China but they are coming back to Europe. China certainly has a position but the honeymoon may be over.

What is the ownership structure of RMC?

As the only Finnish-owned shipbuilder, RMC is carrying the flag. We have three local investors who were all instrumental from day one and have been 'on board' as the company grew. Our second biggest investor is the Teollisuussijoitus, the industrial investor of the Finnish Government. They act purely as a commercial investor not giving any kind of financial support. This gives us considerable stability.

The board of directors are close to the daily operational activity. It has been a big investment for all of them and they are passionate about the success of the yard. They saw the opportunity and have driven the project forward with great passion.

The shipyard is squeezed between the harbour and the huge paper factory, so the yard area never had any potential for other uses such as housing.

As you expand, you will obviously need to take more people in-house? Obviously, as our work volume grows with the navy project and the next ferry,

we will need more RMC employees.

How will you attract young people to work at RMC?

To be honest, there are too many with grey hair. We have a need to recruit young people, also in management and



"China certainly has a position but the honeymoon may be over."

Håkan Enlund, EVP for Sales & Marketing - Newbuilding products at RMC

on the naval architecture and engineering side. In the late nineties, every engineer wanted to be employed by Nokia. But we have to convince young people that shipbuilding requires a very broad range of technology. We need different kinds of engineers. There is complexity with the combinations of technology that no other industrial sector can offer. We must pass on this message to young people that the 'sky is the limit'. For sure this is a challenge.

Rauma, with our 40,000 inhabitants, is not a big city but it is an industrial area where we can recruit locally. The challenge is whether we can draw people to move from Helsinki to Rauma! At least the cost of living is less here!

Significant ro-pax ferries built by Rauma shipyard since 2000 (name and details as built)

Ship name	Year of build	Operator	GT	Lanemetres	Passengers
ULYSSES	2001	Irish Ferries	50,938	4,101m	1,875
SEAFRANCE RODIN	2001	SeaFrance	33,796	2,000m	1,900
ROMANTIKA	2002	Tallink	39,864	1,000m	2,500
HJALTLAND	2002	Northlink	orthlink 11,486 450m		600
HAMNAVOE	2002	Northlink	8,780	306m	600
HROSSEY	2002	Northlink	11,486	450m	600
VICTORIA I	2004	Tallink	40,975	1,000m	2,500
GALAXY	2006	Tallink	48,915	1,130m	2,800
STAR	2007	Tallink	36,249	1,981m	1,900
COLOR MAGIC	2007	Color Line	75,156	1,265m	2,700
SUPERSPEED 1	2008	Color Line	34,231	2,036m	1,928
SUPERSPEED 2	2008	Color Line	34,231	2,036m	1,928
BALTIC QUEEN	2009	Tallink	48,915	1,130m	2,800
SPIRIT OF BRITAIN	2011	P&O Ferries	47,592	2,741m + 194 CEUs	2,000
SPIRIT OF FRANCE	2012	P&O Ferries	47,592	2,741m + 194 CEUs	2,000

Shippaxdatabase 病

BACK IN BUSINESS AGAIN AND AIMING FOR THE TOP



You have every reason to be proud of your new delivery!

Yes, thankfully it is a success story. We have delivered a beautiful vessel exceeding her contractual speed; a light vessel and with good manoeuvrability. We have made all the good impressions.

It is a good re-entry into the market...

But not an easy re-entry. When we had to start from zero – a 'clean table' – we had to gather people with the necessary skills. We could not rest on our reputa-

Short interview with Jyrki Heinimaa, President & CEO of RMC

tion but only in the talent of our skilful labour, putting value into the bare steel. That is why it is a great success for us and proves that we have very capable people in our team. We are in the ferry building game again as a frontrunner!

It gives you a good platform for the next project.

Yes, the market is very active right now. I am pretty optimistic about new orders but we will tell when it is the right time to tell!

How important is the shipyard to Rauma?

It is crucial for Rauma. The city now owns the shipyard area and we have a long-term lease with them. The fixed cost for the shipyard is therefore very modest. It gives us a competitive advantage in that we don't have equity tied up in the facilities. Instead we can use the equity for construction financing, for example.

What lessons have you learned during the construction of the

HAMMERSHUS?

We have used turnkey suppliers for decades in Rauma, so the way we are working is no different from what we have done in the past. But success depends on building new relationships with these suppliers and subcontractors. This takes time. We are open for new candidates to take part in our future projects. The key experience that we can learn from the HAMMERSHUS project is that our role of overseeing the shipbuilding process needs strengthening. We need stronger co-ordination with the turnkey suppliers which supports them.

What role can the Finnish Government have in the future of shipbuilding?

In the same way as in other EU countries, we need support and aid for innovation. Also, of course, as a customer for naval vessels and icebreakers. So, they do have a major role to play. We want to give a clear message to our customers that we are back in business again and we want to regain our leadership in the ferry and ro-ro sectors.

THE CITY BEHIND THE SHIPYARD

Short interview with Kari Koski, Mayor of Rauma

How important is a functioning RMC for Rauma?

Apart from providing direct employment for 1,300 persons [in the old days], it has great importance for the whole network in the city and the wider region. There is also a psychological importance as there has always been shipbuilding in Rauma.

How did the city react when STX announced the closure?

We had offers from Malaysia and Indonesia to continue our shipbuilding work but after the Koreans (STX) disappointed us, we didn't want to go in that direction. It wasn't easy to convince new investors, but we were able to bring together a network of 32 companies in all. That was a new thing for us. When we decided to buy the shipyard, the city council backed us 100%. Not one council member opposed it. We have been able to rent out all the facilities, including office space, so it is a success.

How has the employment situation in Rauma been affected?

When STX closed its doors in April 2014, the city was faced with a 14.5% unemployment rate but now it is less than 10%. It is very important for other sectors besides shipbuilding.

Looking to the future, will you be able to attract a new generation of shipyard workers?

We have to try to attract young people, but

shipbuilding is not popular. However, when they see that Meyer Turku has full employment all the way till 2027, maybe they change their minds. But we certainly face an image problem. We don't have enough welders in Finland, so many are coming from Romania or even from outside the EU. In the future, work will be automated so the nature of the job is changing.

The on-time delivery of the HAMMERSHUS was a proud moment for the city!

The HAMMERSHUS was number one for us. When we won the contract, it was a brand-new step for us even though we have many experienced people involved. Now the first ship is delivered and so far, we have scored the goals!



CREATING A SAFE JOURNEY FOR **THOUSANDS OF PEOPLE.**

Everybody travelling or working on a cruise ship wants to feel safe. With safety products on every second passenger vessel globally, Consilium protects more than 450,000 people and material values of USD 50 billion. Benefit from our decades of experience and 24/7/365 worldwide support to make sure you can keep on cruising without jeopardizing your finances and brand image.



FIRE DETECTION Smoke, Heat, Flame, Oil mist detection



GAS DETECTION

Sampling, Point

Contact us today or visit www.consilium.se for more information.

Talk safety with us - we are ready when you are.





The Baltic sea is scattered with literally thousands of islands, some only small wooded nature reserves home to birds and wildlife, other larger islands are populated communities of thousands, more still in the summer when the Nordic sunshine attracts tourists to their quiet charms and beautiful beaches. Bornholm, Gotland and Åland are three such Baltic islands, all quite similar in size and/or population. In the light of the recent change in operator to Bornholm it might be interesting to take a closer look at these three islands and discuss their similarities. All three have similar economies built on a mix of traditional agriculture together with tourism. In the case of Åland, shipping also adds enormously to the community, providing jobs and creating revenue.

f you ask any islander what it's like to live on an island, they will tell you that they live an ordinary life just like the mainlanders, but they will also tell you that life on an island is different and special, not least because the minute you want to travel, things demand a little extra time and planning. In most cases their journey would start at the port to take a ferry to the mainland, and the last leg of their homeward journey would be the same in reverse. While for the holidaymakers, the ferry trips are an exciting part of their holiday and in many cases something rather rare, for islanders the same trip is rather like taking a bus or train. As with all things routine, it loses a bit of its

glamour. However, all islanders feel an affinity with their ferries. The ferry is part of the community, and stepping on board for the return journey, it already feels like home.

Bornholm is the most easterly point of Denmark, and geographically closer to Sweden at just 20 nautical miles (37km) off the Swedish coast. Since halting the regular night ferry connection with Copenhagen on 30 September 2004, the backbone of services today is

combination of a fast ferry operated from Ystad in Sweden, and a ro-pax from Køge in Denmark. Passenger traffic to and from Bornholm is nowadays handled almost entirely via the Ystad-Rønne fast ferry service, with the Køge route mainly taking care of freight.

Gotland lies 40 nautical miles (74 km) off the Swedish east coast and is predominantly accessed by ferry from Nynäshamn, south of Stockholm and Oskarshamn, on the south eastern coast. Two fast conventional ro-pax ferries form the backbone of the operations, supplemented by two high-speed monohulls.

The Åland islands are a largely autonomous region of Finland, located half-way between Sweden and the Finnish mainland. The distance to the Swedish coast is between 20 to 30 nautical miles, and it is about the same to the Finnish coastline. Unlike Bornholm or Gotland, Åland not only has three dedi-



Viking Line's ROSELLA connects Mariehamn with Kapellskär up to three times a day.

cated services to and from the islands, it also benefits from a huge amount of traffic touching Åland as ferries stop-off en route as they cross the Baltic.

AFFORDABILITY

For islanders, the affordability of travel to and from their island is paramount, especially in today's world of commuting. Many people choose to live on an island and do a weekly commute to the mainland, some even more frequently. This is the case for all three islands, and from Åland this can even be an international commute to Sweden. Despite being Finnish, Åland is Swedish speaking so the islands traditionally have very close ties with neighbouring Swedish regions. Affordability of travel adds flexibility and is extremely important for those who study or work on the mainland. Affordability can be achieved in different ways, the most obvious being direct subsidies included in a public service contract or concession as is the case for Bornholm and Gotland.

Åland has chosen a different way to subsidise ferry ticket prices. Finland joined the EU on 1 January 1995, at a time when the abolishment of tax-free sales on travel within the EU was already announced for summer 1999. Due to the importance of the ferry industry for Åland, an exemption was made from the EU VAT ruling and excise tax directives. This allows the ferries sailing between Sweden and Finland via the Åland islands, to sell tax-free goods on board and thus offer tickets at greatly reduced prices. Tickets for foot passengers are very reasonably priced, except for the routes to Helsinki and Tallinn.

Registered Gotland residents on the public concession routes to Gotland, can book tickets at reduced islander prices called 'Gotlandspris' (the Gotland price). These discounted rates allow crossings, for work, sports and leisure to be a regular part of life. Another option that Bornholmslinjen and Destination Gotland offer, is travel cards to discount commuters and regular passengers. These are often agreed on an annual basis.

RELIABILITY AND FLEXIBILITY

Reliability is a key factor when it comes

to the reputation of an operator amongst the islanders. Adverse weather or technical failure can lead to delays, which for freight can have a notable impact on the supply situation of inhabitants. In today's world of just-in-time logistics, which due to perishables is the rule rather than the exception in food logistics, supplies are ordered and provided according to demand. Cases of delays can be scrutinised and debated by local media while the mainland press may not even notice.

While many islanders would usually prefer relatively early morning departures from the island and relatively late returns, especially when there are larger urban areas around the mainland port, tourism also influences the timetables. Schedules for single vessel operations, which is the case for the Bornholm routes from Rønne to Ystad or Køge can therefore be influenced by seasonal travel. Holidaymakers, especially those in Denmark, are often hooked on Saturday morning/early afternoon sailings to their destination and depart a week or two later on Saturday mornings. This is due to a policy often applied by the landlords in high season, when bookings are only accepted for the entire week starting on Saturdays. It was for this reason that the previous operator, Færgen offered double sailings between Sassnitz and the island of Bornholm on Saturdays and Sundays in high season. Bornholmslinjen is now taking the Sassnitz route into a year-round roster, with one daily roundtrip every day throughout the year. It will be interesting to follow >



Destination Gotland is the sole operator offering ferry services between the Swedish mainland and Gotland, Sweden's largest island.



Eckerö Linjen competes with Viking Line on the short crossings between Åland and the Swedish east coast.

my daily food shop during a recent holiday in Åland, I compared the prices of produce on the island to those coming from the mainland. The latter were in most cases cheaper, despite the fact they had been transported by truck and ferry from Turku or Naantali to Långnäs or Mariehamn (yes, the main part of supplies comes from the Finnish mainland, not Sweden, and of course there are goods that are a tad more expensive than on the mainland).

On Bornholm, as on Åland and Gotland, the size of the market and customer potential for local businesses is equal to the number of year-round inhabitants i.e. those residing there during low season, which is basically September to May. However, in June, July and

the development here. In any case, signage on board the HAMMERSHUS reflects the significance of the German route for the vessel, as it puts the German language in first place (with the largest letters), with Danish and English coming in second and third. No wonder, as the number of passengers on the Køge freight-oriented route is very limited, whereas the Sassnitz route is used by far more passengers, with Germans accounting for the large majority.

On islands like Bornholm, Gotland and the Åland islands, produce (of certain types) is naturally limited. The majority of the island's daily needs must be brought onto the island from elsewhere and usually by sea. Whilst doing



The new HAMMERSHUS in her homeport of Rønne. The ship's sailings to and from Køge in Zealand are freight-oriented.



Rederi AB Lillgaard's FJÄRDVÄGEN offers a lifeline freight service between the Finnish mainland and the Åland islands.

August, these same businesses, such as supermarkets, bakeries, gas stations, restaurants etc. are facing a much higher demand and have to cater for a population sometimes several times greater than that during the winter months.

Freight services are not always oneway full to the island and back empty, as there are always goods produced and manufactured on the island which require transport to the mainland where they have a greater market potential. Bornholm is famous for its blue cheese and other dairy products, as well as for its beer from the Svaneke brewery, Gotland produces foods and dairy products to send to the mainland, and Åland also known for its dairy products, is mostly famous for potatoes, mainly exported as chips.

These peaks and troughs in demand >



FACTS ABOUT ISLANDS IN THE BALTIC SEA

	Size in km ²	Inhabitants	Guest nights 2016
Bornholm	588	39,600	1,300,000
Åland	1,580	29,500	406,000
Gotland	2,994	57,000	1,000,000

"Cases of delays can be scrutinised and debated by local media while the mainland press may not even notice."

Data compiled from various statistical sources



Gudhjem on the east coast of Bornholm is the only town upon a hill in Denmark.

require operators to have flexibility when it comes to capacity and was the primary reason why BornholmerFærgen kept both the older fast ferry VILLUM CLAUSEN and the conventional POVL ANKER as reserve ferries and for the peak seasons - chartering seasonal tonnage is not a reliable option. While there is little problem in Åland due to the variety and frequency of departures available, and with enough capacity in the Destination Gotland fleet to cover for any outage of one of the vessels, the contract for Bornholm since 2011 (when switching to a fast ferry-only service to Ystad), has required a conventional reserve ferry to be on standby.

Ferries to Gotland

Route	1996	2006	2016
Visby - Oskarshamn	347,406	388,556	409,556
Visby - Nynäshamn	754,657	1,083,644	1,213,474
Visby - Oskarshamn	86,074	123,158	137,094
Visby - Nynäshamn	162,473	281,615	355,726
Visby - Oskarshamn	na*	19,802	22,337
Visby - Nynäshamn	na**	24,512	24,608
	Route Visby - Oskarshamn Visby - Nynäshamn Visby - Oskarshamn Visby - Nynäshamn Visby - Oskarshamn Visby - Nynäshamn	Route1996Visby - Oskarshamn347,406Visby - Nynäshamn754,657Visby - Oskarshamn86,074Visby - Nynäshamn162,473Visby - Oskarshamnna*Visby - Nynäshamnna**	Route 1996 2006 Visby - Oskarshamn 347,406 388,556 Visby - Nynäshamn 754,657 1,083,644 Visby - Oskarshamn 86,074 123,158 Visby - Nynäshamn 162,473 281,615 Visby - Oskarshamn na* 19,802 Visby - Nynäshamn na** 24,512

,	,	 	· · · · · · · · · · · · · · · · · · ·	
🛪 database 病	SHIPPAX			
_anemetres = 232,97 _anemetres = 233,52	* La ** La			

Ferries to Bornholm

	Route	1996	2006	2016
Pax	Rønne - Ystad	683,763	1,302,254	1,375,176
	Rønne - Køge	341,772*	99,579	66,869
	Rønne - Sassnitz	66,364	95,795	108,668
Cars	Rønne - Ystad	101,382	269,658	326,818
	Rønne - Køge	43,720*	20,104	16,854
	Rønne - Sassnitz	19,672	26,633	31,294
Trailers	Rønne - Ystad	5,776	6,646	9,156
	Rønne - Køge	13,814*	28,341	32,475
	Rønne - Sassnitz	229	325	192

Shippaxdatabase 🐖

* Copenhagen instead of Køge until 30 September 2004

Due to the nature of the business with the majority of the passengers taking the ferry to and from the Åland islands for day cruises without going ashore, it would be misleading to show traffic statistics in the context of this article.



You make record-breaking o profits

WÄRTSILÄ 31 BREAKS GUINNESS WORLD RECORD FOR FUEL EFFICIENCY

FUEL COSTS AND EMISSIONS ARE REDUCED – A LOT

WÄRTSILÄ CONNECTS THE DOTS

The first of a new generation of medium speed engines, the Wärtsilä 31, raises the bar for fuel efficiency and flexibility to a new level. It has the lowest fuel consumption over a wide operating range. The engine is available as diesel version optimized for heavy or light fuels, as a pure gas engine or a dual-fuel version. The Wärtsilä 31 is suitable for a wide range of ship types and applications. Read more at www.wartsila.com





Bureau Veritas

congratulate the shipyard Rauma Marine Construction and shipowner Bornholmslinjen with the new ferry HAMMERSHUS



Visit us at: www.veristar.com www.bureauveritas.com

REA

Move Forward with Confidence