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ANOTHER JEWEL FROM RAUMA

The SPIRIT OF TASMANIA IV is the latest in a long line of state-of-the-art ro-pax ferries crafted over the past several decades by the skilled naval architects, shipbuilders and subcontractors of Rauma Marine Constructions. Four years after having delivered the technologically-advanced AURORA BOTNIA to Wasaline for operation on the world's most northerly regular ferry route over the Gulf of Bothnia, the new SPIRIT OF TASMANIA IV is the first of two ferries for the world's most southerly - across the Bass Strait between Devonport in Tasmania and Geelong on the Australian mainland. RMC can therefore claim to have built all of the newest vessels used at the geographical extremes of global ferry operation. There may be a whole world of distance between the northern Baltic Sea and the southern Pacific Ocean - but the commonality is the exceptional quality of the vessels employed. The Bass Strait route can be a challenging sphere of operation with much longer and higher waves than are typically found on European ferry routes. An advanced hull design and unusually large stabiliser fins will ensure optimal passenger ride comfort,

while a wide range of relaxing bars, lounges and catering outlets will make the overnight crossing feel more like a brief mini-cruise. Below decks, meanwhile, dual-fuel engines are just one of a variety of features giving the new ferries best-in-class energy efficiency with minimal environmental impact. Between superstructure and engine rooms, over three-and-a-half kilometres of vehicle parking is provided to carry goods and private cars back and forth with great efficacy.

Designing, building and delivering the SPIRIT OF TASMANIA IV has been an international project, involving close cooperation between the shipowner and builder. The fruits of their efforts will be enjoyed by Bass Strait travellers during the next decades. Shippax salutes RMC and Spirit of Tasmania for their achievement.

The editorial team

ONBOARD REPORT

SPIRIT OF TASMANIA

TASMANIA



Visiting a new passenger ship such as the SPIRIT OF TASMANIA IV in the final stages of outfitting, when its accommodation is full of skilled makers – carpenters, craft metalworkers, upholsterers, electricians – all focused on their individual tasks, is fascinating. Through open ceiling hatches, one can catch glimpses of the complex technical systems, of the pipework, valves, sensors and hundreds of miles of cable of various sorts that lie behind the finished spaces experienced by passengers once the ship has been delivered. One is filled with admiration for the expertise and coordination that shortly will result in a comfortable, fully-functioning passenger environment within a larger object that is surely among the most complex of engineered creations.

TEXT: BRUCE PETER

PHOTOS: SØREN LUND HVIID

Rauma Marine Constructions' long-serving manager and current executive advisor, Timo Suistio, emphasises that the integration of advanced skills in all of the departments necessary to build a state-of-the-art and future-proofed passenger ship is one of the company's key advantages. When one thinks about it, passenger shipbuilding encompasses a very wide range of types of material and competencies, ranging from steel-cutting, forming and welding to very advanced digital technologies and craft-making of crew and passenger areas. The steel blocks thus must be designed and formed as highly integrated units in which all of these diverse items co-exist reliably.

Rauma Marine Constructions is surrounded by a well-established cluster of advanced Finnish specialist businesses serving its needs. Many of the subcontractors involved in the interior outfitting of the SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V have long-standing relationships with the shipyard and so smooth cooperation and timely production and installation are ensured. There is a strong pride in the yard and its suppliers in carrying out work to an exceptionally high standard. This was very apparent when seeing the fine finishing of the interiors as they approached completion on the SPIRIT OF TASMANIA IV.

Half a world away, in Australia and Tasmania, the ferry's future crew and passengers are in for a treat; as is typical of Rauma Marine Constructions' large ferry projects over the course of the past several decades, the vessel is highly bespoke and designed with comfort, pleasure and operational efficiency as the key considerations. Hitherto, the Spirit of Tasmania ferry company has only ever operated second-hand vessels, the last purpose-built Bass Strait passenger ferry having been the Australian National Line's EMPRESS OF AUSTRALIA of 1964. The most recent acquisitions, which the SPIRIT OF TASMANIA IV and its sister, the SPIRIT OF TASMANIA V, will supersede are the Finnish-built, originally Greek-owned former SUPERFAST III and SUPERFAST IV, the Ferrari red visual identity of which the new ships perpetuate. As Spirit of Tasmania's Project Technical Manager, John Anastassiou explains, the fact that the company has no history of commission-

ing newbuildings meant that it was important to have partners with well-proven track records, which RMC and its suppliers provided.

Nordic-Tasmanian collaboration

The interiors of the SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V are designed by the Gothenburg specialist architects Figura, who have nearly 40 years of experience in designing ferry accommodation and are best known in northern Europe for their long-standing collaboration with Stena Line. In addition, Figura have also provided designs for mid-life refurbishments of the passenger accommodation of the existing Spirit of Tasmania ferries, as well as designing also for Brittany Ferries' recent Stena E-Flexer vessels. Figura's relationship with Spirit of Tasmania actually began a decade ago when the company sent a delegation to Northern Ireland to inspect the ferries STENA SUPERFAST VII and STENA SUPERFAST VIII, for which the architects had provided conversion designs. Spirit of Tasmania's people were impressed by what they saw and thus hired Figura to design interior renovations for their own pair of Superfast vessels, this work being carried out in 2015.

While one might think that the globalisation of taste represented by a Swedish firm of architects being required to evoke aspects of a distant culture and environment might be a phenomenon only of recent and current time, it is in fact as old as modern passenger shipbuilding itself. Back in the early-twentieth century, British specialist ship interior designers and outfitters, such as Waring & Gillow of London, were designing and making public rooms for German, Italian and Japanese liners – and in the 1930s, it was a New York architect, Benjamin Morris, who designed the public rooms of Cunard's famous QUEEN MARY.

Spirit of Tasmania is a domestic ferry service with a typical crossing duration of around ten hours. Mostly night crossings are provided, but daytime sailings are also scheduled at times of peak demand. The operation thus has characteristics familiar from European ro-pax routes, such as Stena Line's Liverpool-Belfast

“*Rauma Marine Constructions is surrounded by a well-established cluster of advanced Finnish specialist businesses serving its needs ... There is a strong pride in the yard and its suppliers in carrying out work to an exceptionally high standard.*”

connection, on which the E-Flexer ferries also have Figura-designed interiors. The range and types of accommodation on the SPIRIT OF TASMANIA IV and its sister are thus familiar to European eyes, but with intriguing variations of content and finish to suit local conditions.

Before beginning work on the projects for the SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V, Figura's senior architect, Richard Nilsson, was invited to tour Tasmania to gain insights and inspirations from its culture and landscapes so that the completed interiors would give visiting tourists a foretaste of the territory. Nilsson recalls that 'from the tour, we developed the idea that a walk around the ships should be like a tour of Tasmania itself, the themes hinted at in the names and colour schemes of the different spaces being reminiscent of various Tasmanian places and environments.' Nilsson regularly collaborates with artists and galleries to provide artworks to complement Figura's interior design and, for the Spirit of Tasmania sisters, he worked with Allannah Dopson, curator of the Handcraft Gallery in Hobart, who supplied a number of paintings and sculptures (these are to be installed when the vessels reach Tasmania). Long-term Figura collaborators much closer at hand in Gothenburg are Lexidor, who made the name signs for the public rooms, and Radiator, who produced the directional signage. Within Figura itself, Nilsson worked closely with his long-serving design partner specialising in lighting design, John Hallgren.

The Tasmanian government's stipulation that a substantial part of the vessels' inventory should be sourced in Tasmania has impacted upon the materials and furnishings used to outfit the interiors. The furniture was thus bought in Australia (though is made in Italy and was delivered to Finland for installation) and the table tops in several of the public rooms were made in Tasmania by Fairbrother Joinery of Devonport, who earlier provided these for the refits of the previous Spirit of Tasmania ships.

The majority of public rooms fill the entirety of Deck 8 while cabins, reclining seats and special lounges are on decks 9 and 10. The interior public spaces on Deck 8 and the stairwells on all decks were made and installed by the Finnish specialist contractor NIT (Naval Interior Team),

headquartered in Piikkiö, Finland and well-known for its turnkey outfitting of numerous ferry and cruise ship interiors. According to NIT's marketing manager, Sara Lahdenperä:

'NIT is proud to be part of construction of the new Spirit of Tasmania vessels. Our role in the project included creating restaurants, bars, family and children's areas, cinemas, and staircases. The ship's architectural design honours the natural beauty and culture of Australia and Tasmania and NIT used its expertise to bring this vision

to life with the highest quality standards and the finest detail. In addition to ships interiors, NIT's scope of delivery extended to include background work such as steel outfitting, insulation, piping, HVAC, and electrical installations. Through collaboration between the shipyard and our network of partners, we have contributed to the building of a ship that everyone can be proud of.'

Richard Nilsson is full of praise for NIT's consolidated team and for the precise work carried out. On decks 9 and



The sign for Enter The Zone teenage room.



Stairs between decks 8 and 9.



Passenger elevator from the vehicle decks.

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A typical cabin corridor.

10, the cabins were made and installed by Almaco, located in Turku, and the corridors were finished by the turnkey outfitter Orsap of Raisio. Some of the ceilings are by Lautex of Nummela, while others were supplied by the Danish DAMPA. The wall panelling and cabin beds were manufactured and supplied by SBA Interior, located on Karjaa in south-western Finland. Of their extensive involvement in the realisation of the interiors, SBA state that:

'We are proud to have played a key role in the construction of this state-of-the-art new ferry, contributing high-quality materials to enhance both its comfort and functionality. Our involvement in the project showcases commitment to excellence and innovation in the marine industry. For the guest cabins, we delivered premium Pullman beds with ladders, sofa beds, and Pullman beds, ensuring that every cabin provides maximum space, efficiency and comfort. Beyond the passenger areas, we delivered essential materials for the ship's infrastructure, including corridor panels and service doors for key areas such as the engine control room, wheelhouse and various stairways. Our materials are designed to meet the highest standards of safety and reliability.'

The major contractors for the interiors are thus all located within a radius of around 200 kilometres of the shipyard, this nearby cluster of specialist expertise in high-quality passenger ship outfitting being a key attraction of building ferries at RMC.

Catering for many tastes

On Deck 8, Tasmanian themes from the north of the state to its south are arranged sequentially between the bow and stern. Throughout, SBA's pale wood-effect wall panelling creates a soothing background,

unifying the various interiors with their particular colour accents, while the carpeting has a standard pattern throughout, designed by Figura but inspired by Aboriginal decoration, the colours changing from space to space.

In the forward third of the deck, surrounding a central galley block, are the main catering outlets. Their décor reflects Tasmania's main settlement, Hobart – particularly its street market, culture and music. Over the past decade, Spirit of Tasmania have successfully expanded their catering offer, providing ranges of outlets in line with typical northern European overnight ferries. Along the port side is the waiter service Leatherwood Restaurant, which has an adjacent private dining space for use by small groups, such as classic car owners' clubs, who are a regular clientele, travelling to tour Tasmania in their vintage vehicles. The centre and starboard sides are filled by the very commodious Tasmanian Market Kitchen, a pay-on-entry buffet restaurant, in which there is a centrally-located free-flow servery area. The centrepiece of the buffet servery will be a large copper sculpture. Also



Leatherwood restaurant.



Tasmanian Market Kitchen.

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“The ship’s architectural design honours the natural beauty and culture of Australia and Tasmania and NIT used its expertise to bring this vision to life with the highest quality standards and the finest detail.”

adjacent to the galley is a dedicated lounge and cafeteria for freight drivers.

The midships section of Deck 8 is occupied by a very large café-lounge, which fills the entire width of the superstructure and contains a wide variety of types of seating area, ranging from stools with counters and groups of chairs around dining tables to informal lounge chairs and coffee tables. Between are display shelves, which split the space into smaller sections. The colour palette is in shades of green, suggestive of the fields and farmland in the centre of Tasmania, which provided the design inspiration. At the forward end, there is a café servery while at the aft end is the Guest Services desk. Adjacent to this is a display area for visitor information, called the ‘Tourism Hub.’

Space for relaxation

Continuing aft, and forming a block surrounding the funnel casing and aft stair tower, are a number of smaller public rooms. On the port side, the Huon Lounge reflects Tasmanian vinyards and craft beer-making through its copper colour accents and a large illuminated photomural of grape vines in sunshine adjacent to the bar counter. In front are high tables and stools, while across the main circulation passage is an area with comfortable chairs in which to relax. The equivalent space on the starboard side is occupied by a Family Lounge, also with a variety of seating, next to which are separate entertainment spaces for children and teenagers. Further astern again, there are two well-equipped cinema auditoria, one on each side of the funnel casing. As with all of the passenger



Huon Lounge bar counter.



Family Lounge seating area.



One of the two cinema auditoria.



The part of the main café-lounge seating area amidships.





The entrance to the Maatsuyker Bar.

accommodation, these have been designed for easy disabled access, combining optimised sight-lines with a gently raked floor.

The Maatsuyker Bar in the super-structure's after end reflects southern Tasmania's history as a starting point for Antarctic exploration. There, and on Maatsuyker Island, which is half way between Tasmania and the Antarctic, one can find old explorer's huts. The detailing of the bar counter front and striped ceiling finish hint at the huts' vernacular construction. Most attractive of all is the aft-ward outlook, through an expanse of windows to a sheltered outdoor terrace. This and a small terrace above are the only outdoor deck spaces accessible by passengers and the seating is protected from strong sunlight and high winds. The turnkey outfitter for this area only was Scanmarine, who have used Australian oak for the linings and table tops, engendering an appropriately nautical atmosphere.

Ascending to Decks 9 and 10, where the entire overnight cabin and reclining seat accommodations are located, there are further public room spaces. Facing astern on Deck 10 is the Cradles Lounge, a commodious and calm space with a variety of relaxing seating and incidental lighting,



The Maatsuyker Bar servery.



The exterior deck area, aft of the Maatsuyker Bar.



The small deck terrace, immediately above.



The servery in the Cradles Lounge.



Part of the Cradles Lounge seating area.



“The calm colours and neat details, such as reading lights that automatically come on and go off when pulled out or pushed into their mountings, are notable.”

comparable in concept to Figura’s popular Stena Plus lounges on Stena Line’s ferries. In the centre, there is a café-bar servery while, in the space adjacent on the port side, there is a separate lounge containing very large reclining seats. Another reclining seat lounge to starboard contains ones of more standard dimensions, which are the SPIRIT OF TASMANIA IV’s entry level offer. Otherwise, decks 9 and 10 are

comprised of four categories of cabin, all manufactured and installed by Almaco. Towards the stern on the starboard side of Deck 10 are a block of luxury cabins with double beds, inboard of which is a small lounge for the exclusive use of their occupants. In addition, the forward corners of the superstructure contain a couple of suites, but the majority of the cabins are standard inside and outside units, all with

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Executive reclining seat lounge.



Standard reclining seat lounge.

private shower/toilet cubicles. The calm colours and neat details, such as reading lights that automatically come on and go off when pulled out or pushed into their mountings, are notable. The inside cabins feature illuminated wall panels featuring images of Tasmanian scenes, lit from within by daylight bulbs. There are cabins for allergy sufferers and those with physical disabilities. Altogether, the overnight accommodation is extensive, well-planned

and of high quality. Four-legged passengers are confined to kennels, located within the casing of Deck 6, but each kennel has a small camera, meaning that passengers can input a code into their mobile phones and thereby keep an eye on their pets remotely at any time during the passage.

The most obscure accommodation comprises two prison strongrooms, located within the forward casing on Deck 8.

The forward third of Deck 10 comprises

crew cabins. An intriguing feature of those that are nominally 'insides' is that they actually have windows into a central void space, enclosed by a glazed clerestory, meaning that all crew enjoy daylight when off duty. Furthermore, on Deck 11, there are well-equipped officer and crew lounge-cum-mess rooms.



INTERIOR DESIGN OF THE SPIRIT IV & V

dk 10 CRADLE BAR

dk 8 CAFÉ

INTERIOR DESIGNERS OF THE SPIRIT OF TASMANIA IV & V

buildings interiors design
FIGURA

dk 8 HUON BAR

dk 8 MAATSUYKER BAR

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Externally, the new SPIRIT OF TASMANIA IV and V are of handsome appearance. The styling of their hull and superstructure shows influence from Spirit of Tasmania's existing former-Superfast ferries – the Ferrari red livery is very successful – and Wasa Line's recent RMC-built AURORA BOTNIA, the initial concept design of which involved the same naval architect, Harri Suistio.

The SPIRIT OF TASMANIA IV's passenger accommodation – and that of its sister ship – represent a very high standard of design and outfitting. Regular passengers and tourists transiting the Bass Strait have much to look forward to when these new vessels enter service. ■



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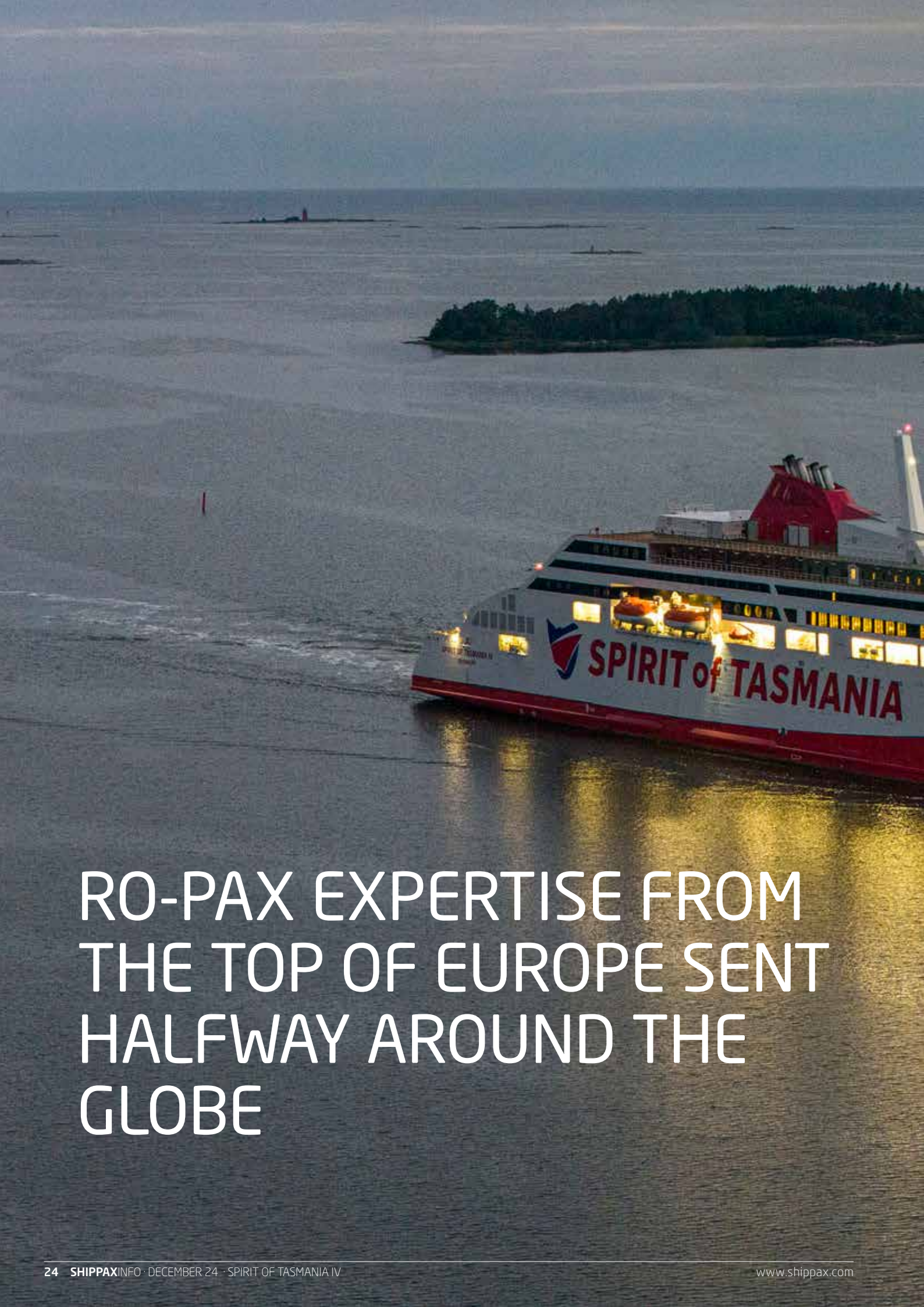


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RO-PAX EXPERTISE FROM THE TOP OF EUROPE SENT HALFWAY AROUND THE GLOBE



PHOTO: RMC

SPIRIT OF TASMANIA IV
DEVONPORT

With SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V, Rauma Marine Constructions has exported the very best of European ro-pax expertise down under to Spirit of Tasmania. The Australian operator's goal was to increase capacity and significantly improve energy efficiency on the route between Tasmania and the Australian mainland, while also continuing a well-functioning concept based on fast-sailing conventional ro-pax tonnage. This is a field in which Rauma Marine Constructions today has the most up-to-date reference list in the World. Spirit of Tasmania has operated several generations of ferries from Europe, but SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V are their first newbuilds, and therefore their first tonnage that could be tailored to the customers' specific requirements.

TEXT & PHOTOS: SØREN LUND HVIID

Spirit of Tasmania's (TT-Line Company Pty Ltd) route across the Bass Strait between Tasmania and the Australian mainland transported around 450,000 passengers over a 12-month period in 2022/2023. This is a new record, not only demonstrating a strong comeback after COVID-19 but also reflecting a general increase in demand for capacity over the past decade on the company's two current ferries, SPIRIT OF TASMANIA I and SPIRIT OF TASMANIA II. The need for additional capacity on the Bass Strait, especially driven by Tasmania's tourism industry, is now being met by a new generation of ro-pax tonnage for Spirit of Tasmania, which is being delivered from the opposite side of the globe by RMC (Rauma Marine Constructions) in Finland.

The new ro-pax generation, consisting of SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V, represents a 30% increase in passenger capacity and more than doubles the freight capacity. These two newbuilds will replace SPIRIT OF TASMANIA I and SPIRIT OF TASMANIA II, which were originally delivered by Kvaerner Masa Yards in Turku to Greek Superfast Ferries in 1998 and purchased second-hand

by Spirit of Tasmania in 2002. SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V are also the first ever newbuilds for Spirit of Tasmania. The previous five conventional ro-pax ferries for Spirit of Tasmania, owned by the Tasmanian Government, were all acquired second-hand from European operators. The first one, ABEL TASMAR, was purchased in 1984 from the German TT-Line, and in 1993, SPIRIT OF TASMANIA followed from the same operator.

The framework for Spirit of Tasmania's current basic ro-pax concept between Devonport (Tasmania) and Geelong (near Melbourne), which operates alongside the privately-owned SeaRoad's pure ro-ro route between Devonport and Melbourne, is today based on fast-sailing conventional ro-pax tonnage. This approach will continue with SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V. It was largely Superfast Ferries that introduced this ro-pax concept in the mid-1990s with SUPERFAST I and SUPERFAST II, built by Schichau Seebeckswerft in Germany. The export of this concept to Australia from the Mediterranean occurred with Spirit of Tasmania's

second-hand purchase of SUPERFAST II, which sailed as SPIRIT OF TASMANIA III from 2003 to 2006, operating alongside SPIRIT OF TASMANIA I and SPIRIT OF TASMANIA II, which also originated from Superfast Ferries' major expansion of fast-sailing conventional ro-pax tonnage during those years, built by Finnish and German shipyards.

HYDRODYNAMIC EXPERTISE

The concept of fast-sailing ro-pax tonnage, with a service speed in the range of 25 to 28 knots, spread rapidly to other European ferry operators in the years following the turn of the millennium, both in the Mediterranean and Northern Europe. As a result, this specific hydrodynamic expertise also spread to several European shipyards, which at the time continued to dominate the market for large ro-pax ferries. Today, RMC is the shipyard with the most up-to-date expertise and reference list when it comes to this speciality within hull design.

This expertise was one of the decisive factors for Spirit of Tasmania when they chose RMC in their global shipyard tender, after the original newbuild project, that was supposed to take place at FSG (Flensburger Schiffbau-Gesells-

craft), had to be cancelled due to financial difficulties at the German shipyard.

John Anastassiou, Project Technical Manager at Spirit of Tasmania and head of the company's site office at RMC, explained this to Shippax.

"We developed our new ships, which are also our first newbuilds, together with Foreship, with the aim of making them an evolution of our existing vessels. We set this direction when it quickly became clear that this time, we wouldn't be able to find suitable ships in the second-hand market. Of course, this is partly due to the current market supply, but it is also very much about, aside from the desire for significantly increased capacity, ensuring that in the coming decades we comply with a number of stricter requirements for CO2-reduction and energy efficiency."

"It is a concept with the same capacity specifications that FSG and later RMC bid on, but the ships we are now getting from RMC are still quite different from the original proposal. A key factor in our choice of RMC was that they have a successful reference ship operating, where primarily the hull, but also other elements below the main deck, would be an optimal solution for our operations. This applies both to our requirements for high service speed, LNG dual-fuel, and of course, the general requirements for SRtP (Safe-Return-to-Port), which our new ships must also comply with in our operations," explains John Anastassiou.

REFERENCE IN THE GULF OF FINLAND

RMC's reference, which proves the yard's expertise in developing and building a highly efficient, fast-sailing conventional ro-pax with LNG dual-fuel and SRtP compliance, is MYSTAR, which Tallink received from RMC in December 2022 for their shuttle ferry route between Helsinki and Tallinn.

SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V thus share the hull design with MYSTAR, which has a service speed of 27 knots, while Spirit of Tasmania must maintain a service speed of 26 knots to stay on schedule. However, the two newbuild projects also differ a bit in terms of the hull, as Spirit of Tasmania has not specified the high 1A ice class, which is necessary for year-round operation in Tallink's route



The two 400 cbm type C LNG-tanks.

in the Gulf of Finland. On the other hand, the Bass Strait, with regards to waves, both in terms of occurrence and average height, is far more demanding than the Gulf of Finland, which is why Spirit of Tasmania has specified fin stabilizers with a larger surface area.

Both MYSTAR, SPIRIT OF TASMANIA IV, and SPIRIT OF TASMANIA V therefore share the same outer dimensions, with an overall length of 212.1 meters, an LBP (Length Between Perpendiculars) of 192.1 meters, a width of approx. 31 meters, and a design draft of 7.1 meters. These ships are significantly larger than SPIRIT OF TASMANIA I and SPIRIT OF TASMANIA II, which have outer dimensions with an overall length of 194.3 meters and a width of 25 meters.

SIGNIFICANTLY MORE ENERGY EFFICIENT

"The size is well-suited to how much we can increase the dimensions, considering the limitations we have when entering Devonport, which is essentially a narrow river with rapidly changing tides. In terms of capacity, our new ships represent a significant increase. This will provide a great boost to the Tasmanian community, and despite the

“We set this direction when it quickly became clear that this time, we wouldn't be able to find suitable ships in the second-hand market.”

additional capacity, we won't consume more energy in our operations than we do today. This is possible because SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V are also significantly



A LNG GVU-unit.

more energy efficient than our current ferries," points out John Anastassiou.

He explains that the plan is for the two new ferries to use LNG from the start. Initially, they will bunker from tank trailers during the stay in Devonport, but in the longer term, LNG bunkering will also be possible in Geelong. Besides the increased energy efficiency, measured in terms of kilowatt-hour consumption per nautical mile/per

hour relative to the amount of available lanes between the two generations of ferries, the use of LNG instead of conventional bunker fuel also offers a further 20% reduction in CO2-emissions.

Spirit of Tasmania already uses vacuum-based auto mooring from Cavotec at its terminals, but these facilities will now be upgraded with shore power transfer, which SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V are, of course, ready to utilise.

Wärtsilä has been the system supplier for the power production and fuel processing system onboard SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V. The main engines consist of four Tier-III compliant 9-cylinder Wärtsilä 46DF engines, each with an output of 10,305 kW at 600 rpm. The auxiliary machinery includes three Wärtsilä 20DF engines, each producing 1,440 kW at 1,000 rpm, and the LNG portion of the fuel system comprises two 400 cbm, tank-type C-based Wärtsilä LNGPac systems.

PLENTY OF POWER FOR THE BASS STRAIT

John Anastassiou explains that the goal has been to ensure there is always a power surplus during normal operations - a sea margin - so the ships always have enough power to maintain the schedule on the 242-nautical-mile crossing, which can experience very rough weather and challenging sea conditions at certain times of the year. The crossing time is either 9.5 hours or 11.5 hours, depending on the season, and whether each ship completes just an overnight sailing or both a night and day sailing within a 24-hour period.



One of the four Tier-III compliant 9-cylinder Wärtsilä 46DF engines.



Here a lower view of the main engine 3.



The two shaft generators provides the full power need at sea.

"In the beginning, we also looked more closely at the advanced LNG-electric azipod drive train that RMC equipped AURORA BOTNIA with, but there is a big difference between the Gulf of Bothnia and the Bass Strait. In our waters, we concluded that a much more conventional solution is the most energy efficient. We have CP (controllable pitch) propellers, and our two shaft generators cover our power needs for hotel loads, etc., when we are at sea, while we use all three auxiliary engines when operating our four thrusters during harbour manoeuvres," explains John Anastassiou.

Johanna Kaijo, RMC's Project Manager for SPIRIT OF TASMANIA IV and



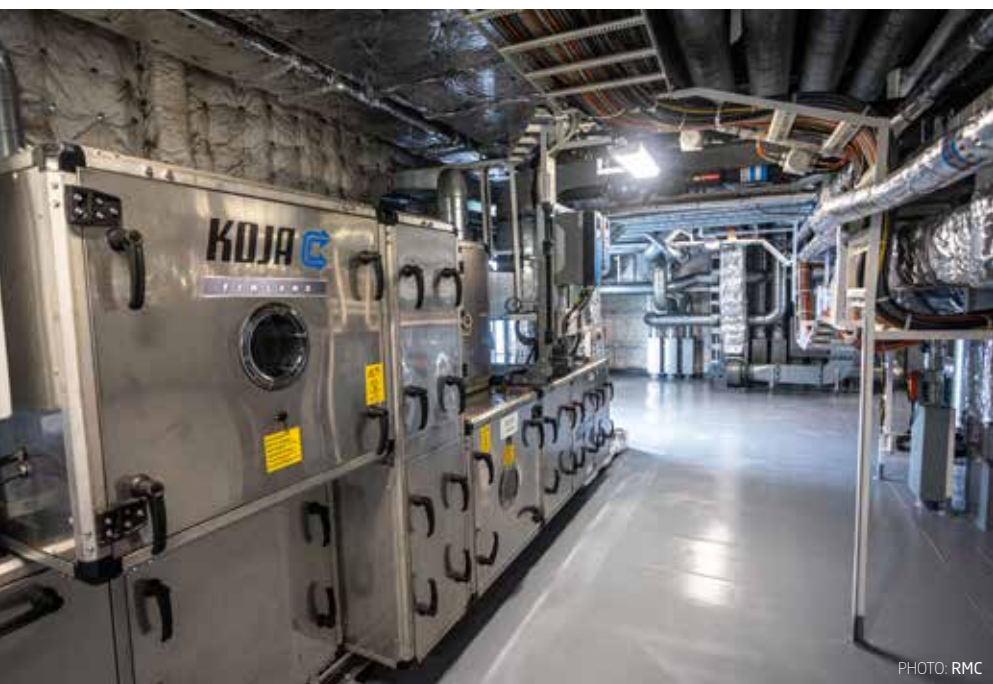
Two of the three Wärtsilä 20DF-based AUX-engines.



The switchboard installation is based ABB's new Ekip Link system.



The stabilizers are specified with an extra-large surface area for the Bass Strait.



One of the aircon installations made by Koja.

SPIRIT OF TASMANIA V, points out that this newbuild project also represents an interesting premiere regarding the power system, which is based on ABB's new Ekip Link system, delivered by Promeco. This system offers benefits for both the shipyard and the operator.

"All the switchboards are tested and commissioned on land and then installed onboard in modular form. The bus solution, which ABB's Ekip Link system uses, also saves weight by reducing the amount of copper cables, which in turn means that we, as a shipyard, have to run fewer cables to the main switchboard," she explains.

Johanna Kaijo further explains that the engine/funnel casing is another example of an optimized production process. In each ship, it is produced, and almost fully outfitted, in three sections on land at the shipyard, then hoisted onboard as three individual modules and stacked.

FREQUENCY-CONTROL AND HEAT-RECOVERY

The main switchboard has variable frequency drives. This allows the shaft generators, built by Alconza, to supply power to the main switchboard regardless of the propeller shafts' RPM. At sea, where the shaft generators are almost always used, the most energy-efficient mode is a combined mode, where both the propeller pitch and RPM are continuously adjusted, while the frequency is automatically maintained.

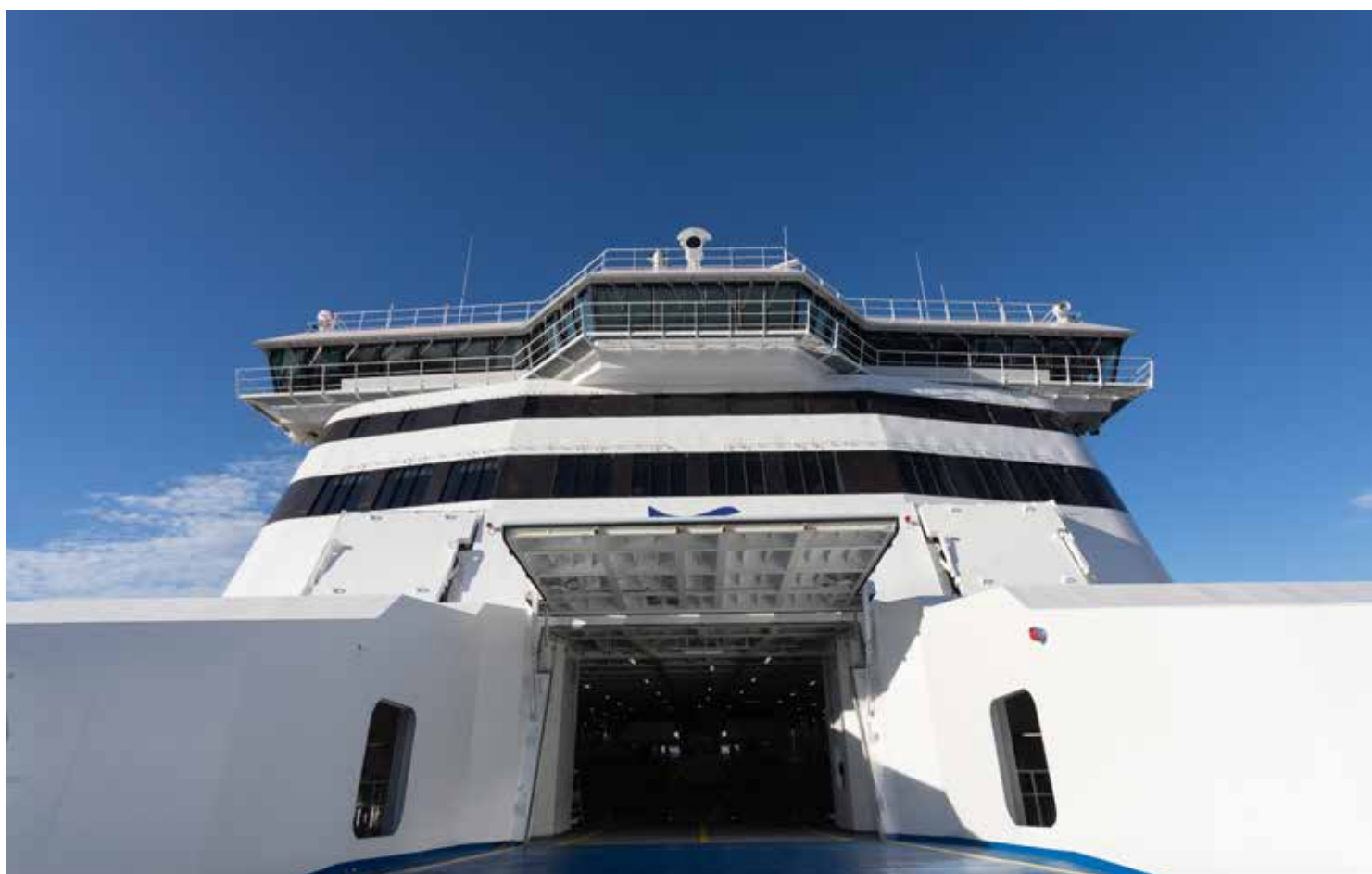
During harbour manoeuvres, where power from the auxiliary engines is connected to the main switchboard for the two bow and two stern thrust-

“ This will provide a great boost to the Tasmanian community, and despite the additional capacity, we won’t consume more energy in our operations than we do today. This is possible because SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V are also significantly more energy efficient than our current ferries.”

ers from Kongsberg, a constant (RPM) mode is used, where only the propeller pitch changes. Kongsberg has also supplied the two Promas rudders and the two Kamewa propellers. One of the other major suppliers, both in terms of engineering and installation, outfitting, and commissioning at the shipyard,

suppliers into the newbuild project, it’s not surprising that the major European system suppliers still feature prominently on the makers list. However, John Anastassiou emphasizes that he is completely confident in the service support the major European suppliers have established down under, where

we already have in our current operation, and that we want to improve further with the new ships, which also have significantly greater capacity, lies in making the turnaround in the ports as efficient as possible. Here, the drive-through principle obviously plays a central role. SPIRIT OF TASMANIA I



Front access to the car decks on deck 5 and 7.

is Koja. They have been responsible for delivering the HVAC system, the turn-key delivery of the AC room, and the ventilation systems for the engine room. All pumps onboard are frequency-controlled, and the heat energy from the cooling water is utilized for heating domestic hot water, just as the heat energy is also recovered from the auxiliary engines’ exhaust gases based on the Waste-Heat-Recovery principle.

Although Spirit of Tasmania has integrated deliveries worth 100 million Australian dollars from Tasmanian

SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V will be sailing for the next 25 to 30 years.

EFFICIENT TURN-AROUNDS

Despite the significant increase in width between the two generations of tonnage at Spirit of Tasmania, from 25 meters to 31 meters, providing ample space for trucks to turn around onboard, it was never considered during the newbuild project to save money by not installing a bow access, John Anastassiou explains:

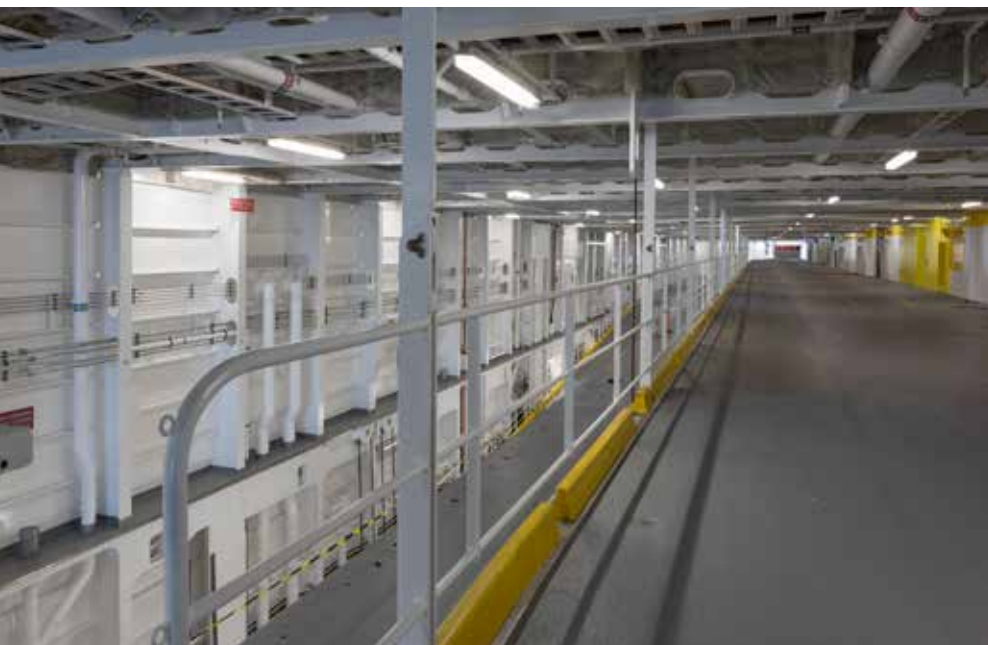
“A significant part of the efficiency

and SPIRIT OF TASMANIA II load and unload on two levels simultaneously, and SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V are built to load and unload on three levels simultaneously.”

The difference in lanemetres between the two generations of ferries is from 1,800 to a remarkable 4,000. SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V have three car decks. The main deck, Deck 3, has extra height clearance for the transport of High-Cube containers on trailers. Spirit of



CBG Systems has delivered lightweight panelised A60 structural fire protection to the bulkheads between the car deck 7 and the outside MES-areas in both sides. There are 20 charging points for EVs on Deck 7.



One of the hydraulic hoistable decks (deck 6) on deck 5. One of the internal ramps connecting deck 5 with deck 3 (main deck) can also be seen on this photo.



Another view of deck 5 with the hydraulic hoistable decks on both sides of the casing.

Tasmania prefers lock-in trestles for lashing unaccompanied trailers, why Decks 3 and 5 on the new generation of ferries are optimized for this. There is also a large number of reeferplugs available.

“A very large portion of the freight we transport from Tasmania to the mainland is high-value seafood in reefer trailers, particularly abalone and oysters, which then are exported from the mainland to Asian markets. Another major reefer segment on our ferries is Tasmanian fruit. In the opposite direction, we transport a lot of reefer trailers with goods for supermarkets in Tasmania. A completely different, but also typical freight category, is livestock transport. We’ve taken that into account when designing the ventilation on Decks 3 and 5. We have a mix of accompanied and unaccompanied trailers, why we also have a driver’s lounge in the accommodation area,” explains John Anastassiou.

VIDEO LINK TO YOUR PET

At the aft of Deck 5, there is an open weather deck with space for nine trailers/trucks carrying hazardous freight. Deck 5 also features hydraulic hoistable decks for private vehicles (Deck 6), which can boost car capacity during peak seasons. The operating principle for Spirit of Tasmania is to separate passenger vehicles, which typically also include a large number of motorhomes and caravans, from freight vehicles and trailers as much as possible. Therefore, Deck 7 is dedicated to passengers traveling with their own vehicles.



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The void for the hydraulic hoistable catering-ramp on deck 2.

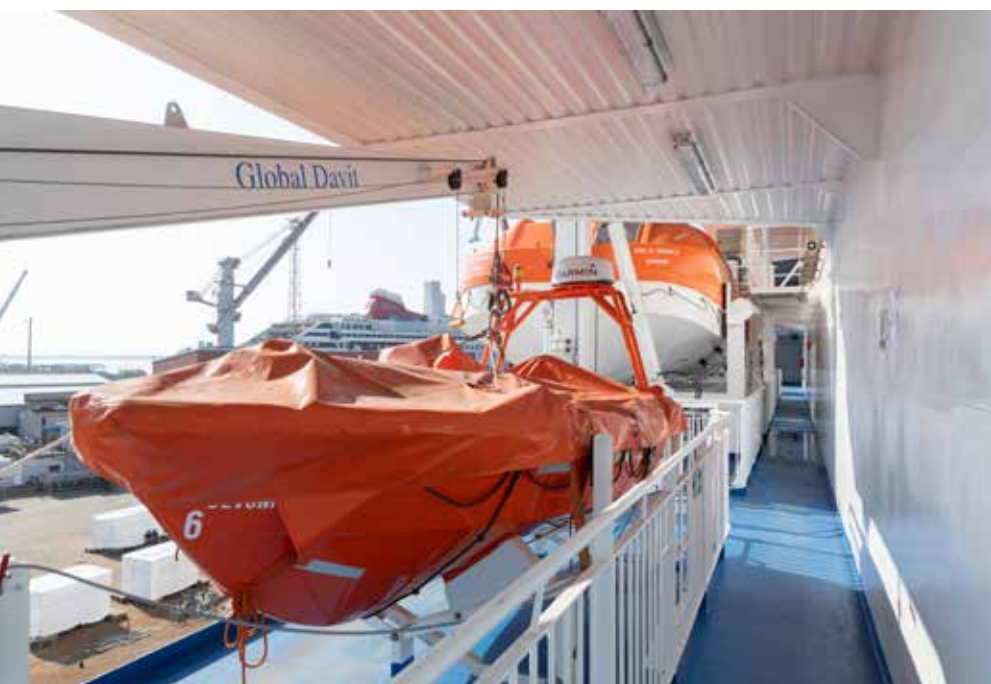
Deck 6 and 7 also has two special features that resulted from a customer survey conducted before specifying the newbuilding project. On Deck 6 there is a pet kennel with video cameras, which offer passengers traveling with pets to access a live video link via an app during the crossing, unless they opt for one of the 18 pet-friendly cabins located aft on Deck 8 instead.

The other feature, resulting from customer requests, is 20 charging points for EVs on Deck 7. A key feature of the system is that it continuously monitors

the individual charging process and can alert the crew to any potential issues that could ultimately cause overheating or even a fire. Thus, the system not only facilitates an increasingly necessary service for a ro-pax product but also enhances safety when transporting electric vehicles with large lithium-ion battery packs onboard ro-ro and ro-pax ships - an area of growing focus in recent years as more private vehicles become electrified.

EQUIPMENT FROM THE LOCAL CLUSTER

Deck 7 aboard SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V, like almost all other new large ro-pax ferries, also give space for the life-saving equipment: lifeboats, MES slides, liferafts, and MOB/FRS boats on exterior side decks on both sides. To enhance the fire integrity of the longitudinal bulkheads that separate the enclosed car deck from the open MES decks, the bulkheads have additional fire insulation.



The port MES-deck (deck 7).



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A WORLD OF CONNECTIONS

This insulation is supplied by Tasmanian company CBG Systems, one of the locally-based firms that are part of the large High-Speed Ferry cluster in Tasmania, where the world-leading producer of large high-speed ro-pax ferries, Incat, is located. CBG Systems specializes in lightweight panelised A60 structural fire protection and has now also received approval for their product for use on SOLAS ships. SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V mark their debut in this segment, where there is a growing awareness of the importance of weight savings with inspiration from the High-Speed segment and driven by the increasing demand for CO2-reduction. By using fire protection originally developed for the high-speed segment, approximately 10 tons have been saved on each of the two new ships.

MacGregor supplied all ramps and hoistable car decks. Although the ro-ro concept behind SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V is based on linkspans at three levels in both ports to maximize turnaround efficiency, all three ro-ro decks are also connected by internal hoistable ramps. Once the infrastructure for the two much larger "three-decker ferries" is ready in both ports, the internal ramps will not be part of the daily operation of the ships but will serve as a backup in case of issues with the linkspan facilities ashore.

STREAMLINED STORES

Another special feature provided by MacGregor is an elevator lift at the front of Deck 3, which can lower a 40-foot trailer below the main deck, allowing it to be unloaded onto Deck 2 without disrupting the flow on Deck 3 during turnaround. This system streamlines the stores process, which no longer

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Both the bridge and the crew accommodation are located on Deck 10. Kongsberg has supplied the bridge equipment package.

involves unloading on Deck 3. Instead, the supply trailer is unloaded directly into the stores area on Deck 2, from where supplies on demand are sent up to the galley and catering areas on Deck 8 via the stores-elevator in the casing.

There is a muster station in each of the three fire zones on the primary passenger deck, Deck 8. In an evacuation situation, passengers are guided from here down to the two open MES decks on Deck 7. Along the way, they pass cabinets from which life jackets are distributed. LSA (Liferaft Systems Australia), based in Hobart, is among the local equipment suppliers, providing the two slide-based MES modules and life rafts. The four

enclosed lifeboats, on the other hand, are a European product, from German Hatecke.

Kongsberg also supplied the bridge equipment package, including the radars. Both the bridge and the crew accommodation are located on Deck 10. The crew cabins that are not positioned next to the open decks on Deck 10, where passengers do not have access, still receive natural light. This is ensured by an open area running along the centreline behind the bridge, functioning as an open skylight that channels daylight to the windows of the crew cabins on the inside of the two cabin corridors. The required backup bridge, as per the SRtP (Safe

Return to Port) regulations, is located on Deck 11, the top deck, where the funnel, LNG vent-mast, and helipad are also situated. ■

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WHAT NEXT: HIGHLY SPECIALIZED MEDIUM-SIZED VESSELS IN THE PIPELINE

Rauma Marine Constructions is well-positioned when Western ferry operators are ready to contract a new generation of far more targeted ro-pax newbuilds, designed to fit into specific regional green fuel supply contexts that ensures true CO₂-neutrality. Thus, the climate crisis is becoming a driving force for the future market of the Rauma shipyard. Currently, another pressing crisis, the escalating geopolitical situation in Europe, is a market driver likely for the rest of the decade. During this period, Rauma Marine Constructions could contribute to the capacity building desired by the Nordic NATO countries in Arctic waters.

TEXT & PHOTO: SØREN LUND HVIID

RMC (Rauma Marine Constructions) has continued a proud tradition of building state-of-the-art ro-pax tonnage in Rauma, most recently with SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V for Spirit of Tasmania. Before RMC was established 10 years ago, various companies, under well-known shipyard brands, had built ships in Rauma for several decades, especially ro-pax ferries for many leading European ferry operators. With SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V, RMC now has five ro-pax projects on its reference list. The first three are Molslinjen's HAMMERSHUS from 2018, Wasaline's AURORA BOTNIA from 2021, and Tallink's MYSTAR from 2022.

Once both SPIRIT OF TASMANIA IV and SPIRIT OF TASMANIA V, RMC's largest project to date, are delivered, there are currently no more ro-pax newbuild projects in the pipeline at the shipyard. At the same time, a record percentage of ongoing newbuild projects for large ro-pax ferries for European operators are currently being built in China. However, Timo Suistio, Executive Advisor to RMC's management, outlines a clear plan for the shipyard well into the next decade.

"We now need to attract medium-sized and highly specialized vessels, and we should use our capacity to establish ourselves further in lifecycle services. Looking further ahead, I am confident that the long tradition of ro-pax newbuilds from Rauma will continue," explains Timo Suistio.

FOUR POHJANMAA-CLASS CORVETTES

Medium-sized and highly specialized ships are another long-standing tradition from the shipyard facility in Rauma, running parallel to the output of ro-pax ferries. This includes naval vessels and icebreakers. RMC is already continuing this tradition with the construction of four 117-meter Pohjanmaa-class corvettes for the Finnish Navy.

The order was placed in the fall of 2019, and the steel for the first of the four corvettes was cut in November last year in RMC's newly-built 186 x 44 x 32-meter multipurpose construction hall with heavy-lift docks, which makes RMC independent of the harsh winter weather in the Gulf of Bothnia. The

four corvettes, as nautical platforms, are expected to be completed by 2028, after which they will be equipped as warships before entering active service with the Finnish Navy. This process, which can take up to a year and a half, will also take place at RMC, but with Swedish arms manufacturer Saab as the system integrator for weapons and sensor systems.

"The fact that both Finland and Sweden are now members of NATO gives our order for the four corvettes even more perspective. The ships are being built to NATO standards, and with the Finnish Navy as the recipient, they are also being built for Arctic operations. Several NATO countries, including the Nordic countries, will be in the market for new warships capable of operating in Arctic waters in the coming years. Additionally, the new Finnish corvettes, as a concept, are well-suited for modification for other NATO countries with strategic interests in the Arctic area. Finally, we also have strong Scandinavian subcontractors in the military field, which the Finnish corvette project is already drawing upon," explains Timo Suistio.

A COMPLETE IN-HOUSE PROCESS

Unlike, for example, the latest Norwegian coastguard vessels, which were contracted at a Norwegian shipyard with hull deliveries from Romania, RMC is responsible for all the steelwork, meaning the complete hull construc-

tion, within the Rauma facility. Thus, the entire process, from keel-laying to final delivery as fully equipped warships, takes place in-house. According to Timo Suistio, RMC will be able to follow the same complete build process for future newbuilds, even in the medium-size segment, where hull deliveries are typically outsourced to Eastern Europe or Turkey at other Scandinavian shipyards.

Timo Suistio, originally trained as a Naval Architect at Helsinki University, has 40 years of experience in the Finnish shipbuilding industry. He previously worked at the Rauma facility, then Aker Finnyards, where he was the shipyard's Project Manager for Stena Line's pioneering HSS 1500 newbuild project. Some of his early projects as Project Manager were the Finnish icebreakers FENNICA and NORDICA, delivered from the Rauma yard in 1993 and 1994. He later became Sales Director at Aker Finnyards during the period leading up to orders for ULYSSES for Irish Ferries, SEAFRANCE RODIN for Seafrance, and BIRKA PARADISE for Birka Line.

READY FOR THE NEXT WAVE

Timo Suistio does not see RMC's potential market for medium-sized and highly specialized ships as limited to naval vessels.

"With our expertise, particularly in vessels for Arctic operations, we can also bid on other types of typically state-



“The fact that both Finland and Sweden are now members of NATO gives our order for the four corvettes even more perspective. The ships are being built to NATO standards, and with the Finnish Navy as the recipient, they are also being built for Arctic operations. Several NATO member states, including the Nordic countries, will be in the market for new warships capable of operating in Arctic waters in the coming years.”

owned specialized ships, such as coast-guard vessels, icebreakers, and research vessels. And as I've already emphasized, we're not finished building large ro-pax ferries here in Rauma either. But right now, we see many of these types of orders going to China, partly due to the success of Stena RoRo's E-Flex program. When we look at the charter rates these newbuilds are achieving, I believe the best European shipyards can still be competitive. Right now, ferry operators are in a transitional period regarding compliance with many new CO2-reduction requirements. This means that operators are, in a way, treading water by incorporating various dual-fuel flexibility into the ro-pax ferries currently on order, to keep their options open.”

“But looking a few years ahead, the next wave of ro-pax newbuild projects, with either full maturity or the exclusion of some of the new technologies that today require so much flexibility, will be significantly more specialized than the current generation being built in China. I believe the next generation of ro-pax ferries will, in many cases, need to be integrated into a local ecosystem that includes locally produced, truly CO2-neutral fuel around the specific route. This, I think, will create a new market where a shipyard like RMC can be highly competitive,” emphasizes Timo Suistio.

Although the ro-pax segment is generally characterized by a high degree of specialization compared to other

ship segments - such as tankers, dry cargo, and container vessels at the opposite end of the scale - RMC's reference list already includes two one-off newbuild projects with particularly high specialization requirements. These are HAMMERSHUS and AURORA BOTNIA. The first was built to meet very specific capacity requirements in an operator contract and the second was optimized for a specific route that is regionally integrated with the maritime industry cluster and has visions of locally sourced green fuel. ■



PHOTO: RMC

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