REMONTOWA
SHIP REPAIR NEWS

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We've started building new ferries for the Baltic

in magazine

Into the New Year with new hope...

Cover photo: Maciej Bielesz

The year 2022, in which Remontowa Shiprepair Yard celebrated its 70th anniversary, was crowned by the Ro-Pax ferry production launching.

After a year of intensive preparation and excellent cooperation with the Shipowner, we cut the first steel for a new low-emission ferry designed to connect Poland and Sweden in the Baltic.

Remontowa is a large and experienced shipbuilding group that has successfully implemented the most demanding projects for years based on the highest technical, social and quality standards. We are one of the few European shipyards that have retained broad-based competence in providing service to Shipowners. We have developed these skills by continuously improving cooperation with our Clients, who invariably entrust their ships to us.

Based on Remontowa's workforce and vast cooperative and logistical assets, operating 24/7 and requiring perfect organisation of all processes, this constant interaction has brought us to where we are today.

Building ferries for the Baltic in one of the largest shipyards around the Baltic is a good solution for a European shipowner. Given the global geopolitical tensions, pandemics and logistical difficulties currently rising, it's also a safe solution.

This safety is determined by the geographic proximity of the ferry builder, enabling the possibility of direct communication, effective supervision and following service. These, in addition to a competitive offer, are important risk-reducing factors. We believe this project's successful implementation could open up new opportunities for the European ferry market.

We are building these ferries according to technology developed in-house and well-proven commercially. The project execution will not disrupt our core business in the slightest.

We remember the needs of Shipowners who entrust us with their ships for the repair, conversion, or installation of various systems. On the contrary - with them in mind, we have recently developed new services, confirmed by obtaining the relevant certificates.

In this issue, as always, we take a closer look at some interesting projects completed in Remontowa.

Together with Shipowners, and our Clients, we are entering the New Year with new hope.

May 2023 bring overcoming the global political crisis and calming markets. We wish you wisdom in discovering opportunities, courage in facing challenges, and success in achieving your goals. And… the fruitful, mutually beneficial cooperation with Remontowa!

Grzegorz Landowski
Communications Director
REMONTOWA HOLDING

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This is how the new Polish Ro-Pax ferry under construction in Remontowa will look like...
Image: RMDC

Construction of Polish Ro-Pax ferries has begun!

Cutting the first steel

On Monday, 24 October 2022, the production of the first Ro-Pax ferry with a newbuilding number 101, for Polskie Promy (Polish Ferries), which will be operated by Unity Line, a company belonging to Polsteam, was launched at Remontowa Shiprepair Yard.

The ceremony was attended, among others, by Grzegorz Witkowski, Undersecretary of State in the Ministry of Infrastructure, Andrzej Wróblewski – Director General of Polsteam, Adam Ruszkowski – CEO of the Management Board of Remontowa Holding SA, Michał Habina – CEO of the Management Board of Remontowa, as well as representatives of banks and insurance companies, classification societies, institutions and companies involved in the project and shipyard workers.

The ferries are being built under a contract signed on 26 November 2021. Remontowa will build three units for the state-owned company Polskie Promy. Two of the vessels will sail in the colours of Unity Line, a subsidiary of Polsteam, and Polferries will use one. A letter of intent, including an option to build a fourth ferry, is part of the agreement.

These will be among the most modern vessels of their kind in the Baltic, powered by four liquefied natural gas (LNG) engines with battery assistance in a hybrid system. Instead of conventional propellers, each ferry will be equipped with two azimuth stern thrusters and two bow thrusters, improving manoeuvring in ports.

Each ferry will be 195.6m long and 32.2m wide. The ferry features 4100 lane metres and a maximum speed of 19 knots, carrying 400 passengers and 50 crew members.

The concept, technical design, and workshop documentation were prepared by the Remontowa Marine Design & Consulting office of the Remontowa Holding group in cooperation with the Shipowner. Before the production phase, theoretical calculations and model tests of the vessel were carried out in the Maritime Advanced Research Centre in the Gdansk basin, confirming basic parameters such as stability, hull shape, draught, deadweight, cargo line and speed, among others.

Remontowa has secured steel supplies and signed contracts for equipment, including power systems, engines and propellers, automation and control systems, heating and ventilation, and ro-ro equipment (to enable loading and unloading). It has also obtained performance and payment guarantees and entered into a line agreement with a consortium of banks for guarantees and letters of credit, securing supplies related to the project.

The hull will be manufactured, mounted and outfitted at Remontowa with a block assembling technology developed at our shipyard, using docking infrastructure.

The first steel cutting marks the beginning of the building process. A CNC plasma machine with a Multi3D head cuts the sheets. Once the suitable steel parts

Interior view of the new ferries - passenger cabins, cocktail bar, reception, shop.
Images: Polsteam

Cocktail bar

Cocktail bar

Reception

have been cut, they are transported to the flat sections' prefabrication halls and the semi-fabrication halls.

At prefabrication sites, space sections will be formed from these elements and then transported to the site for constructing the hull blocks.

Each ferry will be built of 13 blocks (six hull blocks and seven superstructure blocks), which will be made of 265 sections. Some of these sections will be prefabricated and supplied by the shipyard's subcontractors. The complete blocks will go to Remontowa's floating dock, where they will be assembled into a single hull weighing 11,000 tonnes.

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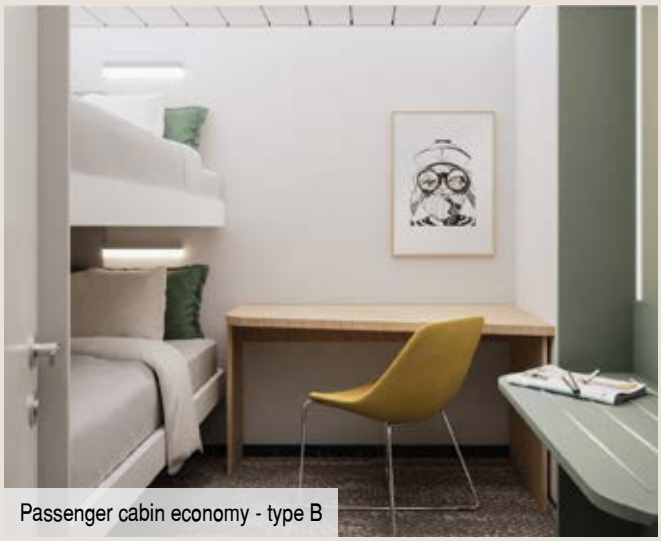
A CNC plasma cutter has initiated the new Ro-Pax ferry building process at Remontowa
Photo: Sławomir Lewandowski

Passenger cabin lux - type E

Gift shop

Passenger cabin economy - type A



Passenger cabin economy - type B

Thames Highway (in the foreground), *Isar Highway* and *Ems Highway* - seen at Remontowa in 2022
Photo: Maciej Bielesz

Isar Highway, *Ems Highway*, *Thames Highway*

Expanded repairs of KESS car carriers

In Q3, Remontowa Shiprepair Yard overhauled three car carriers of "K" Line European Sea Highway Services, one of the largest regional shipping operators in the Baltic and North Sea, owned by "K" Line.

Ships of Japanese shipowners ("K" Line - Kawasaki Kisen Kaisha, MOL - Mitsui O.S.K. Lines, Nissen Kaiun, Kowa Marine Service) regularly call at Remontowa. Car carriers with the KESS logo have also visited our shipyard before. In 2017, the *Seine Highway* and *Thames Highway* were overhauled here.

Isar Highway and *Ems Highway* entered our shipyard first in 2022. They are medium (99.9m long, 19.76m in breadth, capacity of 850 units), specially constructed purpose-built vessels for small ports, with a little draft, equipped with two main engines, two variable pitch propellers, two Becker rudders and strong bow thrusters for excellent manoeuvring in narrow places. Wide, open decks, straight stern ramp, and side ramp deliver safe car handling. For winter navigation in the Baltic, the vessels are built according to Finnish / Swedish ice class 1A.

In the mid-summer, the *Isar Highway* arrived at Remontowa. During the ship's

stay, the scope of work commissioned by the Shipowner was expanded, and all shipyard departments and professions were involved.

Our specialists cared for the car carrier's propulsion and rudder system components. They overhauled the bow thruster and replaced the cavitation belt in the thruster tunnel.

The stainless steel belt around the perimeter of the thruster tunnel at the location of the blades protects the tunnel against the cavitation impact caused by the movement of the blades. The underlying steel is exposed to cavitation when the belt in the thruster tunnel suffers cracks. The belt must then be replaced to prevent the thruster tunnel from getting damaged.

The two propeller shafts and hubs also underwent overhauls. The Becker system rudder blade was reconditioned.

In the sea chest on the starboard side, we replaced the steel and renewed the box coolers along with replacing their tops. The car carrier's two generators and shaft alternator also needed repair.

The overhauls on the deck are worth mentioning - the anchor windlass on the starboard side and the stern ramp actuators. We replaced hydraulic hoses on two ramps and overhauled the free-fall boat hydraulic system as well as electric motors.

The hull surface underwent maintenance and painting. Ice coating was applied to the sea chest and the bow thruster tunnel to protect them during operation in severe winter conditions.

The second ship of this type that appeared at Remontowa was *Ems Highway*. We carried out a special survey, extended with many additional jobs.

A crucial piece of equipment on a car carrier is the ramp system, on the good operation of which efficient and safe loading and unloading depend. We took care of the ramps - stern and side - even before the docking scope when the ship was still moored at berth.

On the stern ramp, the main actuators had to be reconditioned. Our teams performed recess maintenance on both ramps, replaced seals, and conducted leak tests. On the side ramp, the hinge pins were also renewed. The wire sheaves were overhauled once they had been disassembled and the old wires removed.

The wire ropes replacement also included the free-fall boat davit and the provision one as well as two gangways.

Ems Highway underwent class renewal here
Photo: Sławomir Lewandowski

While at berth, we also did a lot of work in other areas of the ship. A full-scale overhaul was carried out on one of the generating sets. Once it had been completed, it served as the energy source when the second generator was being repaired later during drydocking.

While the ship was still at berth, we modified over a dozen vents and begin to replace piping. Our electricians overhauled the bow thruster motor and shaft alternator. The work also included electric motors for fans and pumps.

Once the vessel was in drydock, we tackled the car carrier's propulsion system. The scope included repairs to two Becker rudder blades and the bow thruster. After dismantling the latter, our workers replaced the cavitation belt in the thruster tunnel. They also overhauled two shaft lines and hubs, having them previously disassembled.

The entire scope was completed by repairs to the box coolers, steel replacement in sea chests, overhauls of the overboard valves, and maintenance and painting of the hull. Due to the weather conditions in the car carrier's operating areas, ice paint was applied to the sea chests and the bow thruster tunnel.

The third KESS-operated PCTC refurbished at Remontowa, which has been serviced here most often to date, was *Thames Highway*.

The vessel, bigger than the two mentioned above (LOA 148m, breadth 25m, capacity 1600 units), represents the latest generation of car carriers for short sea shipping. These are very flexible vessels with high and heavy decks and liftable car decks, equipped with strong straight stern and quarter ramps and wide, open decks for safe and easy car/truck handling. The PCTCs are fitted with bow and stern thrusters to ensure high manoeuvrability.

For winter navigation in the Baltic, they are built according to Finnish / Swedish ice class 1A. The hull and propulsion system is designed to cope with winter conditions in the Gulf of Finland.

On the car carrier, we comprehensively overhauled the main engine. We also repaired the auxiliary boiler and the scrubber nozzles. The steel in the sewage tank has been replaced, a dozen electric motors underwent maintenance, and hydraulic hoses have also been repaired.

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The third KESS-operated PCTC refurbished at Remontowa, which has been serviced here most often to date, was *Thames Highway*
Photo: Maciej Bielesz

The first ship in Europe coated with XGIT FUEL

Finnsky with a new bulbous bow

During this year's visit to Remontowa Shiprepair Yard, we outfitted the *Finnsky* with a new bulbous bow. We also applied a new environmentally friendly coating to reduce the ship's fuel consumption.

This Ro-Ro vessel owned by Finnlines, a regular Client of Remontowa, is well remembered by our people, as are the other five representatives of the Finnbreeze series. *Finnsky* was the third ship in line, which we extended 30 metres in 2018 as part of the Finnish shipowner's pro-ecological program.

Remontowa previously performed a similar operation on *Finntide* and *Finnwave* and later on *Finnsun*, *Finnbreeze* and *Finnsea*. Each of them, having their hulls cut at our yard, received a steel insert weighing 1,500 tonnes and measuring 29.5 metres in length, 26.5 metres in breadth and 23.5 metres in height. The lengthening significantly improved their cargo capacity, reducing harmful emissions per each transported tonne.

Finnsky was serviced in our shipyard twice this year. The first visit in January was for a scheduled dry-docking. In August, the vessel entered Remontowa to repair damage to the bulbous bow and hull due to a minor incident that occurred during manoeuvring in Helsinki harbour.

The *Finnsky* went to our dock for the first time in early August. A detailed survey and additional measurements taken by our specialists discovered other damage in the hull's flat bottom that had not been apparent during the earlier underwater inspection by divers. As a result of that discovery, the scope of steel replacement increased by 50 tonnes.

After thoroughly determining the extent of replacing the damaged plating, preparing the components for prefabrication and ordering the materials needed for repair, having already made the bow section and one flat bottom section, we decided to get the *Finnsky* docked again.

The Shipowner additionally ordered the reinforcement of a sterntube sealing and painting of the underwater section with XGIT FUEL, a special coating from a Canadian manufacturer, to reduce the ship's fuel consumption. *Finnsky* is the first ship in Europe and the fifth in the world with that coating applied.

The *Finnsky*, one of several Finnlines Ro-Ro ships serviced in 2022 at Remontowa
Photo: Sławomir Lewandowski

We entrusted that important task to Remontowa Coating & Equipment, which specialises in ship maintenance and painting services. They efficiently performed the job in one day under the supervision of the Canadian manufacturer and Shipowner.

According to the manufacturer, the XGIT FUEL product, recently introduced to the market, allows for lower fuel consumption. It's a high-performance, biocide and TBT-free, hard foul release coating system for extended in-service periods and both newbuildings and maintenance or repair services. The product free of organotin compounds acting as biocides complies with the International Convention on the Control of Harmful Anti-fouling Systems on Ships as adopted by IMO in October 2001 (IMO document AFS/CONF/26).

Covering the *Finnsky* with XGIT FUEL is a test. During the next dockside survey, the ship will undergo an assessment of the claimed benefits and savings associated with the application of this novel product.

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At Remontowa the vessel has got a new name *CF Explorer* and the blue livery of its current Owner
Photo: Sławomir Lewandowski

A research vessel that will become a Walk To Work ship

CF Explorer is seaworthy again!

We are now happy to inform we have purchased *Petrel Explorer* from Seabird. We intend to mobilise her as a Walk To Work vessel – Marcel Reloafs, general manager at Chevalier Floatels BV, revealed on the company's social media profile in August 2022.

As he continued, the *Petrel Explorer* was then classed as a powerful DP2 survey ship with a helideck and huge storage space. She also featured 40 cabins with 54 beds at that time. - Our intention is to increase the number of beds and cabins – Marcel Reloafs emphasised.

The vessel was towed to Remontowa Shiprepair Yard with the tug's assistance as her propulsion needed maintenance. Due to an earlier lay-up of the vessel at the quay that lasted several months, we first and foremost had to restore seaworthiness.

Upon arrival at the yard, the ship was immediately taken to the floating dock. The most important task, ordered by the Shipowner, was a thorough inspection and repair of the azimuth thrusters, which for that purpose, were dismantled and transported to the workshop. Once repaired, the thrusters were returned to the ship, where they were reassembled.

In addition, we overhauled, among other things, box coolers and overboard valves. We also replaced several piping sections and carried out maintenance of the hull, which was covered with an antifouling coating. She has also got a new name *CF Explorer* and the blue livery of its current Owner.

Chevalier Floatels is a Dutch company with over ten years of experience in the flotel industry, operating two W2W service support vessels and four floating hotels.

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The *Petrel Explorer* was towed to Remontowa with the tug's assistance as her propulsion needed maintenance
Photo: Sławomir Lewandowski

More Ro-Ro ships from Belgian shipowner CLdN

Dockside encounter

Last year we hosted *Amandine*, while at the end of August 2022, we completed work on *Catherine*. For several days, this ship and the next one, *Celine*, stood side by side in the shipyard's two largest docks.

Celine, after completion of the repair project, while leaving Remontowa
Photo: Maciej Bielesz

On *Catherine*, the most important task was reconditioning her shaft line, including dismantling the entire propeller shaft with the hub and its inspection and machining in the workshop.

Due to the non-typical design of the ship, that was a complicated task. The small amount of space above the shaft line in the engine room made it impossible to pull out the shaft line with traditional methods. So we applied a different technology using specially adjustable supports on which this propulsion system component rested during the entire disassembly operation.

Much attention was paid to the stern ramp. Once the measurements were taken, it was necessary to machine and fabricate the ramp components and replace the bearings.

The scope of work also involved many overhauls, including - three tunnel thrusters, the main engine air cooler and covers, the electric motors of the engine room fans and the steering gear. Our teams also replaced the shaft alternator bearings.

We repaired the pipelines along with replacing the sounding pipes' deck caps. While at the dock, the ship underwent maintenance.

The second vessel of the CLdN fleet was *Celine*, which arrived at Remontowa for her first special survey. The scope of the repair was extensive. In addition to the typical tasks of the vessel's class renewal after the first five years of operation, we did a lot of other work.

Our teams took care of the propulsion system. The hub was overhauled, along

with the machining and bushing of the propeller shaft. The oil distributor to control the propeller pitch was overhauled, and the propeller blade was machined.

We repaired the Becker rudder blade and welds in the thruster tunnels and replaced the cavitation rings with wider ones. The two thrusters underwent a five-year survey. Overhauls also included auxiliary engine turbochargers, fuel pumps and a charge air cooler.

We enhanced the Ro-Ro system operation. We replaced one of the two main cylinders of the stern ramp, and over a dozen different types of cylinders from doors and ramps also underwent repairs. We have modified the systems of deck washing and fresh water, as well as firefighting, adding extinguishing cannons on one of the decks.

The ballast system pipelines underwent repairs. We replaced the seals on the exhaust manifold, which pipes are 1.8 m in diameter. We inspected the overboard valves.

A lot of work was also done by our hull specialists. Modifying *Celine*'s bow included replacing the plating, stiffeners and beams. Among the tasks were also repairing cracks in the afterpeak and chain locker as well as modifying the hawsepipes.

Numerous repairs were also made to the car decks and internal parts of the hull, including replacing bulkhead door seal flat bars. The fenders were refurbished. Insulation was replaced on the car decks in two cabins and bulkheads.

Our specialists, supported by our Remontowa Coating & Equipment cooperating company, applied silicone paint to the entire underwater part of the hull and refreshed the above-water part. All the thruster tunnels were coated with Eco Speed, as was the rudder blade. Besides the forepeak and after peak, the chain lockers and the bosun locker underwent maintenance and painting.

In turn, our electricians inspected and repaired the electric motors of fans and hydraulic pumps.

CLdN is one of the largest Ro-Ro operators in Europe. It owns a fleet of more than 30 vessels operating between ports in England, Ireland, Scandinavia, Belgium, the Netherlands, Spain and Portugal. Eight of the vessels have entered into operation in the past two years. This includes the twin *Delphine* and *Celine*, the last serviced at Remontowa. They are currently the world's two largest Ro-Ro vessels operating in short sea shipping, featuring nearly 8,000 lane metres.

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Celine and *Catherine* - already in new livery dry-docked side to side at Remontowa
Photo: Maciej Bielesz

The *Stena Estelle* ferry - newly built in China while leaving Remontowa once she was adapted to the requirements of the Baltic service
Photo: Maciej Bielesz

Overhauls and adaptation to the Baltic service

Stena Line ferries

The Swedish shipowner constantly cooperates with Remontowa, entrusting us with various ferries - both in-service and brand-new ones.

The *Stena Estelle* is one of Stena Line's latest acquisitions, built at a Chinese shipyard and handed over to the Shipowner on May 24, 2022.

She represents the E-Flexer MkII class, an extended version of the initial E-Flexer design. The 240-metre-long ferry has 263 cabins, featuring ample space for 1,200 passengers and an overall freight capacity of 3,600 lane metres, which means 15 per cent more cargo capacity versus current E-Flexers. Both ro-ro decks are drive-through.

The *Stena Estelle* can be connected to a shore power supply (the so-called cold ironing). The ability to shut down onboard generating sets and rely on the ship-to-shore connection to cover her energy needs at berth translates into reducing harmful emissions into the atmosphere. The ferry is equipped with an additional - third bow thruster to ensure adequate manoeuvrability.

Stena Line's new ferry takes full advantage of the capabilities of the new Ro-Ro terminal in Gdynia, which accepts ships up to 240 metres in length with a quay equipped with shore power facilities. She made her first voyage on the Gdynia - Karlskrona route on September 4. Before that, however, the Swedish shipowner entrusted our shipyard with adapting the *Stena Estelle* to the regular service requirements on this line.

The ferry arrived at our shipyard directly from China, calling in late August. Remontowa installed signage on the ship for the communication and information system for passengers and crew, following the standards applicable to Stena Line ferries.

Remontowa did much complementary work, including installing an extra ventilation system for the main engines and addi-

tional shaft covers. We also modified the ventilation in several compartments and mounted additional fixing points for motorbikes on the car deck. All of the work was completed with maintenance and painting. Our teams also assisted the crew in testing the MES evacuation system.

Another Stena Line new E-Flexer ferry, adopted by Remontowa for the Baltic service, was *Stena Ebba*. The vessel underwent a similar scope of work. The *Stena Ebba* was scheduled to set sail for her first voyage on the Gdynia-Karlskrona route as of 2 January 2023, joining the *Stena Estelle*, which has been operating on this route since September 2022.

Another Stena Line ferry called at Remontowa, not for the first time, was the *Stena Gothica*, operating on the Travemünde - Liepaja line. In 2001, we extended this vessel, at that time named *Ask*, by more than 20 metres, as we did with its twin ferry *Urd*.

Stena Gothica was last overhauled here in 2020. This year's stay was primarily due to steel replacement in many places. We carried out the work in the stern frame area, following technological recommendations, in several stages. Our specialists took preliminary measurements on the shaft bearings and bearing gear while the ship was still afloat. Once the vessel was drydocked, the measurements were repeated.

Once the ferry *Stena Estelle* was adopted for her Baltic service requirements, in October 2022 *Stena Ebba* followed her at Remontowa to undergo the same scope of works.
Photo: Maciej Bielesz

In the next stage, we pulled out the shaft line to take laser measurements and proceeded with the steel replacement. Having that work completed, we took measurements again, first in the dock and then in the water.

The ballast tanks also received new steel. We replaced about 50 tons at the places where they connect to the plating.

Stena Gothica has also undergone a standard overhaul scope. We replaced the pipelines of the seawater and cooling systems. We also took care of the propulsion system components, overhauling the two bow thrusters, dismantling one of them, inspecting the shaft lines and machining the propeller blades and hub.

Other tasks included disassembly, inspection and reassembly of the machinery space ventilation fans and work on the boilers. The ferry *Stena Gothica* also underwent a major painting scope. We applied silicone paint on the hull, and the topside and funnels also received new coatings.

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Earlier in 2022, the *Stena Gothica*, one of several Stena Line ferries, was overhauled at Remontowa
Photo: Sławomir Lewandowski

British Multi-Purpose Cargo ship with an unusual hull shape

Onego Isle on a special survey

Shipowner Carisbrooke Shipping Limited, after several years of break, turned again to the services of Remontowa Shiprepair Yard, ordering the overhaul of a very interesting ship.

The *Onego Isle* is not a typical bulk carrier, belonging rather to the Multi-Purpose Cargo ship type. Like several other vessels in the British shipowner's fleet, she is designed to carry large-sized cargoes, including the blades of wind turbines for offshore energy projects.

The ship can, of course, also carry other cargoes, and even several types simultaneously, such as bulk cargoes, which are facilitated by a tweendeck. However, she distinguishes herself from a typical bulk carrier regarding classification society requirements.

The *Onego Isle* has an unconventional hull shape, the result of years of research and analysis on the "Green Ship" project, which has led to an innovative, streamlined bow shape, which translates into operational efficiency.

In addition, thanks to several environmentally friendly solutions, the ship boasts reduced emissions. She is ice-classed. Her propulsion features the large-size Cort Nozzle, which protects the propeller and rudder against ice.

The ship was already retrofitted with a Ballast Water Treatment system several

years ago, which shows the forward-thinking of the British shipowner.

Onego Isle has arrived at Remontowa for the second class renewal.

We overhauled the propulsion system components. We also replaced Thordon bearings from the Shipowner's supply after dismantling the shaft line and transporting it to the marine power plant department's hall. Measuring almost 8 metres and weighing nearly 7 tonnes, the shaft underwent a comprehensive mechanical treatment.

We repaired the propeller blades and inspected the bow thruster. The scope also included cleaning the box coolers and replacing the pipes. We fixed the on-deck piping and checked the overboard valves. We replaced almost 80 square metres of steel in the void spaces and the bottom, which runs through the vessel's four tanks.

On the cranes, we renewed wire ropes for changing the outreach and wire rope sheaves for lifting the cargo. In the underwater section of the ship, we replaced the Marine Growth Prevention System and the Impressed Current Cathodic Protection System anodes.

The ICCP system is a technologically advanced and long-term solution to corrosion problems and is regarded as a superior alternative to sacrificial anode systems. In the ICCP, the metal to be protected is connected to an insoluble anode. The current is passed using a DC source opposite to the corrosion current so that the corroding metal gets converted from anode to cathode and is protected from corrosion.

The *Onego Isle* underwent a major maintenance and painting job. The ship's hull and cargo holds were fully grit-blasted and painted, as were all the hatch covers, which were dismantled, laid onto the quay and properly secured for that purpose. In addition, some of them required repairs and steel replacements.

Once the ship was dry-docked again, we reinstalled the repaired shaft and the reconditioned propeller blade.

She has got a new livery at Remontowa. Until last year, the vessels owned by Carisbrooke Shipping Ltd wore a grey colour on the upper part of the hull. The underwater section, coated with antifouling, was green and dark red. The cranes, in contrast, were bright yellow. The ship has already left our shipyard in new colours - a dark blue hull, the underwater section in dark red, and the deck cranes white.

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Onego Isle underwent at Remontowa the second class renewal.
Photo: Sławomir Lewandowski

The refurbished TSHD *Medway* departs from Remontowa. Good luck, and see you again!
Photo: Maciej Bielesz

Dutch dredgers from Royal Boskalis Westminster N.V. and Van Oord

Medway and *Vox Amalia*

Remontowa Shiprepair Yard has long specialised in repairing dredgers and marine engineering vessels of various types owned by Shipowners from the Netherlands and Belgium. In recent years, especially trailing suction hopper dredgers (TSHD) have most often visited our yard.

They are oceangoing vessels featuring large, powerful pumps and engines that enable them to excavate sand, clay, mud and even gravel from the sea or river beds. The vessel stores the dredged spoil in its hopper and discharges the leftover water overboard.

In 2022, several ships of this type arrived at Remontowa, including *Medway* and *Vox Amalia*.

Medway underwent her second special survey at our shipyard. The first time she came to Remontowa for that purpose was in 2017. This time, in addition to the class renewal, an important task was to modify the dredger's overflow system.

Our teams focused on the extensive repair of the overflow in its original location, covering the replacement of many worn-out parts.

Among other things, the *Medway* underwent intensive work during its stay in

the dock. Here, the key task was to overhaul all eight bottom doors' hydraulic cylinders, including precise alignment of the cylinders' stems with the bottom doors.

We also did a lot of work on the tailshaft, replacing the seals and the left stern tube bearing. In addition, Remontowa comprehensively overhauled and repaired two Becker rudder blades.

Many works have also been carried out in other areas of the dredger. We applied a large maintenance scope to the bow manoeuvring station, including bow coupling. The same we did to the stern manoeuvring deck once we removed the stern anchor with fender and the 24-ton anchor windlass.

We thoroughly overhauled the hydraulic cylinders and replaced pipes and hoses from the deck crane, including its maintenance and load test.

Among other jobs, we inspected the suction pipe davit's wire sheaves, installed new pilot stations on both sides and replaced the grating above the hopper.

In the accommodation area, we replaced the shower floors in three cabins and rearranged the messroom.

Worth mentioning are also repairs to the air conditioning system, the technical gas system, as well as the fans and coolers located in the engine room.

In addition, we replaced the sewage treatment plant and prepared for steel repairs in the hopper. The fuel tanks, freshwater tanks and forepeak tank were cleaned.

After *Medway's* departure, another Dutch TSHD dredger, *Vox Amalia*, arrived at Remontowa. That was her fourth consecutive visit to our shipyard over the past two years.

In 2020, as soon as she started to operate, we prepared her for the dredging of the Szczecin-Świnoujście waterway.

A year later, the dredger was dry-docked in our yard, while the third visit, in early 2022, involved preparation for another assignment held on Danish territory.

The most recent visit of *Vox Amalia* at Remontowa was in early November 2022.

During that overhaul, we installed a "snorkel" pipe (the hopper's de-aeration system) and new pipes for the hopper back-fill line. An important task was to assemble the draghead, supplied by the Shipowner, in parts.

We also repaired a section of the damaged wear-protection surface inside the dredge pipeline, featuring a ceramic layer, by replacing it with bi-metal doubler plates.

TSHD Vox Amalia is working on the Fehmarn Belt project to construct the world's longest underwater road-rail tunnel between Denmark and Germany. Among other things, the project includes dredging the seabed at a distance of 18 kilometres.

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The dredger *Vox Amalia* – a frequent visitor to our shipyard
Photo: Sławomir Lewandowski

Simultaneous repair project on two French ferries

Barfleur and *Bretagne*

The cooperation with French shipowner Brittany Ferries has lasted for 18 years. It was initiated in 2004 with the repairs of *Barfleur* and *Normandie*. Since then, every year Remontowa Shiprepair Yard has hosted several ferries of this Client.

Bretagne while entering Remontowa in the maneouvring basin
Photo: Sławomir Lewandowski

Barfleur and *Bretagne* came first in 2004 to Remontowa, but they weren't so in 2022. The *Normandie* was refurbished earlier this year, arriving at our yard for the seventh time since the cooperation with Brittany Ferries began. In previous years as many French ferries such as *Armorique*, *Cotentin*, *Mont St Michel*, *Pont Aven, Duc de Normandie, and Coutances* also went through cyclical refurbishment work here.

The scope of work on the *Bretagne* and *Barfleur* ferries was similar. We comprehensively overhauled all main engines, generating sets, pumps and electric motors, not to mention piping systems, valves and boilers.

The open car decks underwent a large painting scope. We replaced most of the lighting on *Bretagne* with over 500 fixtures made and supplied by our group's manufacturer, Remontowa Lighting Technologies.

While the ships were dry-docked, we also cared for the propulsion system components. The shaft line and hubs underwent full overhauls, as well as bow thrusters and stabilisers.

On the *Barfleur* ferry, an additional task was retrofitting her with a Ballast Water Treatment System, according to a design prepared by the Remontowa Marine Design & Consulting office of the Remontowa Holding group. At the Shipowner's request, we also installed a new IT system on this vessel.

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Barfleur lifted in the dock during intensive works
Photo: Sławomir Lewandowski

A Greek Lady already compliant with BWM Convention

Em Kea in drydock

The container ship *Em Kea* entered Remontowa Shiprepair Yard primarily to be retrofitted with a Ballast Water Treatment system. In addition to making this Lady compliant with the BWM Convention requirements, we did many other works to ensure the smooth operation of her equipment and safe navigation.

One of the primary jobs was installing Alfa Laval's BWT system. We also paid a lot of attention to the hatch covers, which underwent comprehensive maintenance.

Of course, the hatch covers were first dismantled and taken away from the ship and relocated to the quay, where we carried out a large scope of steel replacement. In addition, seals were replaced on the covers. Steel replacements were also done in the ballast tanks.

We also took care of the ship's propulsion system. Earlier dismantled and transported to the workshop, the bow thruster underwent mechanical treatment.

We applied silicone paint to the whole underwater part of the hull, refreshing the above-water area of the ship as well.

An interesting task was the reconstruction of the propeller shaft sterntube flange, carried out by our specialists from the shafting department.

Due to electromechanical corrosion, significant portions of that component's material structure were washed out. The effects of this negative phenomenon could only be assessed as soon as the *Em Kea* was lifted in the dock. During the ship's operation, they remain virtually invisible, giving no obvious symptoms.

So it was not only a matter of carrying out complex regeneration and repairing the damage but, above all, diagnosing the cause of the problem and stopping this destructive process, enabling the ship to operate further safely.

Each such case requires a tailored repair method. On the propeller shaft sterntube flange of the *Em Kea*, Remontowa used an additional spacer ring embedded in polymer plastic and protected by a ceramic layer. Such a solution will eventually stop the destructive process, effectively protecting this component of the container ship's propulsion system.

Athens-based Greek shipping company Eurobulk Ltd. was founded in 1994. However, as it is stated on the company's website, it has been continuing the Greek Pittas family's presence in the shipping industry began back in the 19th century and survived the two World Wars.

Today, nearly 30 ships are in the Eurobulk fleet, including the *Em Kea*. Interestingly, she was built in 2007 by the Szczecin New Shipyard, and it was one of the last ships delivered by the company before it was shut down at the end of 2008. The shipyard is no longer there, but like many other container vessels built there, the *Em Kea* is still in operation, successfully working in the colours of the Greek shipowner.

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The container ship *Em Kea*, during undocking at Remontowa
Photo: Maciej Bielesz

We examined the *Matteo BR* bulk carrier' ballast water using newly bought specialised equipment for microbiological measurement of samples
Photo: Sławomir Lewandowski

Remontowa certified by leading classification societies for microbiological testing of ballast water

A quick score of BWT system performance

Remontowa Shiprepair Yard retrofits more and more vessels with Ballast Water Treatment systems. To meet the Shipowners' needs, we have invested in specialised equipment so that our laboratory can rapidly check the effectiveness of a BWT system installed on a ship.

Installing BWT systems supplied by various manufacturers and based on different ballast water purification technologies have already become a speciality of Remontowa. Among the many ships calling at our yard for this purpose, there was recently the bulk carrier *Matteo BR*.

In addition to repair work, the Shipowner commissioned our lab - the Environment Protection Team - to conduct biological tests on the ballast water purified by the BWT system. The tests were to confirm that the ship's system meets the BWM Convention's standards.

According to the BWM Convention, ballast water discharged from a ship must meet the D-2 standard. There must be no more than ten organisms in ballast water with dimensions of more than 50 microns per 1 cubic metre of that water and no more than ten organ-

isms between 10 and 50 microns per 1 cubic centimetre.

IMO regulations require a vessel to undergo a commissioning test before using a newly installed or repaired BWT system, following BWM.2/Circ.70 rev.1. This regulation is effective as of June 1, 2022. A positive commissioning test is one of the requirements for a vessel to get an International Ballast Water Management Certificate.

During ballast water testing on the *Matteo BR* in Remontowa, the RINA Classification Society conducted an audit to verify that our lab performs these tests compliant with IMO and IACS requirements. The audit proved positive. Thus, Remontowa received a certificate of approval issued by RINA.

Later, our shipyard was also certified by Lloyd Register. As a result, Remontowa Shiprepair Yard has become an approved service supplier in the provision of Commissioning Testing of Ballast Water Management Systems for ships and other units classed by both RINA and LR.

We perform ballast water surveys primarily on behalf of Shipowners whose ships we repair in our shipyard. Having been certified by RINA and LR, both IACS members, we can now carry out such tests on ships sailing under the flag of over 116 countries.

Driven by Shipowners' needs and certified by leading classification societies, Remontowa has also purchased specialised ballast water microbiological measurement tools. Now we can collect the ballast water samples and test the biological effectiveness of BWTS using the most modern methods very quickly, even within hours of sampling!

We retrofitted *BBC Bahrain* with Alfa Laval's BWT system
Photo: Sławomir Lewandowski

On *Trans Fjell*, our main task was to install a dual variant of Desmi's BWT system
Photo: Sławomir Lewandowski

The Greek bulk carrier *Stella Island* received an advanced Erma First modular BWT system
Photo: Sławomir Lewandowski

The survey conducted on the bulk carrier *Matteo BR* was the first in which we applied this novel method using newly acquired equipment.

We are already receiving enquiries from Shipowners regarding their ships incoming to the seaports of Gdansk, Gdynia and Swinoujscie, among others. Being equipped like a mobile laboratory, we can now carry out such tests anywhere in the world.

BBC Bahrain

BBC Bahrain was the fourth general cargo vessel from the Briese Schiffahrts fleet overhauled at Remontowa in 2022, following *BBC Balboa*, *BBC Brisbane* and *BBC Bergen*. In 2021 we overhauled *BBC Bangkok* and *BBC Belem*.

We fitted *BBC Bahrain* with Alfa Laval's BWT system. The engine room was chosen to accommodate the system's main equipment, as the ship does not have a traditional pump room where the BWTS is usually installed. In addition, the ship underwent a standard dockside overhaul with seal replacement on the propeller shaft and bow thruster. The box coolers and overboard valves were also overhauled. In addition, we carried out maintenance and painted the hull.

Nordic Tatiana

The chemical tanker *Nordic Tatiana* arrived for a 15-year class survey and BWT system installation. On the ship, we replaced the steel in the ballast tanks, which involved replacing the outer plating and the inner structures of the tanks. On deck, fitting work included fixing walkways and replacing angle bars and cable duct pipes.

Once the ship was dry-docked, we checked the overboard valves, dismantled the propeller and replaced the stern sleeve. We also took part in inspecting the steering gear and bow thruster. The bottom of the ship was grit-blasted.

We retrofitted the chemical tanker with a BWT system supplied by Techcross. We mounted the filters in the ship's small pump room, which, due to difficult access, required the technological openings to be made. Some of the BWTS equipment was also erected in the engine room.

We overhauled the pumps - cargo and fuel ones, tested boiler valves, performed minor work on the main engine, and replaced sections of the seawater piping system.

Stella Island

On the Greek bulk carrier *Stella Island*, we installed an advanced BWT modular system from the Greek company Erma First. There was also a lot of work on the hatch covers. In addition to replacing the steel, we partially fitted the hatch covers with new seals. The hatch cover actuators were overhauled. Steel replacements also included the bulk carrier's ballast tanks.

The large scope of repair also involved piping systems, including replacing cooling water, outboard water and ballast water pipelines. On board, we refurbished the pilot ladder, among other things. While the vessel was dry-docked, we renewed the sterntube seal.

Sten Arnold

Sten Arnold is the fourth chemical tanker from the fleet of Stenersen AS, overhauled at our shipyard this year. The *Sten Hidra*, *Sten Aurora* and *Sten Skagen* were here in recent months. Previously, we also overhauled the vessels *Sten Nordic*, *Sten Baltic*, *Sten Moster*, *Sten Bergen*, *Sten Hidra*, *Sten Fjell* and *Stenberg*.

We retrofitted the Sten *Arnold* with a BWT system. The initial inspection of three systems on the main engine turned into a major overhaul, expanded to include repairs to generating sets, alternators and box coolers. A notable amount of work involved the overhaul of electric motors and repairs to pipelines.

Sten Arnold was the fourth chemical tanker owned by Stenersen AS, overhauled at Remontowa in 2022
Photo: Sławomir Lewandowski

On *Nordic Tatiana,* we installed the BWT system supplied by Techcross
Photo: Sławomir Lewandowski

We also performed tank maintenance using the Ultra High-Pressure Washing method instead of traditional grit-blasting, which allowed us to carry out several other works in the area in parallel. Three mooring winches and a Becker rudder blade also required repairs.

Themsestern

This year's overhaul of the chemical tanker *Themsestern* in September focused on the BWT system installation. The most important equipment of the system was mounted on board the ship in a dedicated container, to which pipelines and electrical installation were routed.

Ships of the German shipowner TB Marine Shipmanagement from Hamburg have already been overhauled at our shipyard several times. In 2018 it was the *Wolgastern*, and a year later, the *Weichselstern*. Including the latest visit, *Themsestern* has entered our shipyard three times over the past five years. Previously, she was here in 2018 and 2020.

Trans Fjell

Trans Fjell is another chemical tanker from the SeaTrans fleet overhauled at our shipyard in just a few years. In 2018, the following were moored at our quays: *Trans Chemica* and *Trans Emerald*. A year later, it was *Trans Iberia*, and in 2020 *Trans Catalonia*, again *Trans Chemica* and *Trans Holm*.

On the *Trans Fjell*, our main task was to install a dual variant of Desmi's BWT system. One part handles the ballast tanks in the cargo tank area, while the other serves the after-peak tanks.

In addition, we overhauled the box coolers, two shaft lines, and the propeller shaft seals. The scope of the maintenance and painting work included the full grit-blasting of the underwater part of the hull. •

This year's overhaul of the chemical tanker *Themsestern* focused on a BWT system installation
Photo: Sławomir Lewandowski

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