REMONTOWA
SHIP REPAIR NEWS

MEMBER OF REMONTOWA HOLDING S.A.

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The art of docking!

in magazine

Three hundred metres!

This is exactly the overall length of the container ship *Buxcliff*, drydocked at the Remontowa Shiprepair Yard in July this year (look on the front cover), thus making a breakthrough in our history.

The previous longest ship in our dock - *Atlantic Star* - one of the largest Con-Ro ships in the world - was only four metres shorter (LOA 296m, beam 37.60m and weight - 37,170 tonnes without ballast). We enjoyed her visit in August last year.

This year's record-breaker *Buxcliff* is another proof that Remontowa has perfectly mastered the art of docking the largest ships entering the Baltic Sea through the Danish Straits. Our ace docking masters, supported by the shipyard's general designer, are experienced in developing precise procedures to enter the shipyard's largest floating dock and safely lift the ship.

However, the *Buxcliff* does not exhaust the list of large container ships called at Remontowa so far in 2021. In the third quarter of this year, we also hosted the *Irenes Resolve* (LOA 257m, beam 32m) and the *Maersk Newbury* (LOA 210m, breadth 30.20m). Although these ships are slightly smaller, the numbers involved in their refits are still impressive!

Big ships and so the numbers are something that shipyards enjoy. However, this wouldn't be possible without shipowners who invest in fleet renewal to ensure their vessels' smooth and safe operation - container ships and all. Thanks to the good cooperation between our customers, our engineers, and the entire shipyard team, we have achieved this goal.

Besides our six floating docks, two semi-submersible heavy lift barges can also support these common efforts. When suitably adapted, they serve efficiently as docks for selected projects (see inside this issue).

According to the most recent Clarkson's World Fleet Register (as of September 2021), Ballast Water Management System retrofits have continued to increase, from a handful per week in early 2018 to around 80 per week in 2021.

The projects currently being carried out in the Remontowa shipyard correspond to this trend. We are retrofitting more and more ships with BWT systems while carrying out repairs related to class renewal.

The variety of ships and total unique repair events have made Remontowa the most active shipyard in our region. In the World Fleet Register by Clarkson Research mentioned above, Remontowa Shiprepair Yard ranked third in terms of activity among the largest shipyards in the world operating outside China and first on the European continent!

Grzegorz Landowski
Communications Director
REMONTOWA HOLDING

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REMONTOWA HOLDING

The Golden Anchor award for the late chairman Pior Soyka was accepted by his wife Bogna.
Photo: Sławomir Lewandowski

Commemorating the founder of REMONTOWA Holding

Golden Anchor for Piotr Soyka

During this year's XXI International Maritime Trade Fair and Conference BALTEXPO held in Gdansk in September 2021, the maritime industry in Poland awarded Piotr Soyka, the originator and chairman of the REMONTOWA Holding capital group, posthumously.

The BALTEXPO has been the most important fair event for the maritime economy and shipbuilding in Central and Eastern Europe for thirty years. One hundred and sixteen exhibitors from nine countries visited this year's fair. In addition, BALTEXPO traditionally presents the Golden Anchors' awards for the greatest achievements of the Polish shipbuilding industry. This year, the BALTEXPO Council awarded three Golden Anchors, including a special one, following the industry's voice.

- We had no doubts that Piotr Soyka is one of the most outstanding figures in the national pantheon of Polish maritime industry in its entire history. Thanks to his willpower, experience, managerial talent and a gift of working with people, he established a great, modern, one hundred per cent Polish shipbuilding enterprise - said Slawomir Majman, Vice-President of Warsaw Exhibition Board, the organiser of BALTEXPO.

In 1989, Piotr Soyka became a general director of Remontowa Shiprepair Yard after winning a competition. He led to its privatisation in 2001 and started building the REMONTOWA Holding capital group. From 2011, he headed it as chairman of the board. Currently, it is the largest shipbuilding group in Poland and one of the largest in Europe.

The award was accepted by the wife of the late Piotr Soyka - Bogna Soyka.

- On behalf of the Family and Remontowa Holding Group, I would like to thank you wholeheartedly for this special distinction of Piotr Soyka. Thank you for appreciating his contribution to the development of the shipping industry in Poland and worldwide. I will not repeat all of my husband's merits for the shipbuilding industry, but I will say one thing: shipyards were his passion, pride, family and his love! It was his life - Bogna Soyka stressed.

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The *Kontich* underwent the first 5-year class survey at Remontowa.
Photo: Marcin Koszałka

Special surveys of LPG carriers

The *B-Gas Monarch* and the *Kontich*

In the third quarter of this year, Remontowa Shiprepair Yard continued its cooperation with the owners of LPG carrier fleets by renewing the class of the *B-Gas Monarch* and the *Kontich*.

From 2018 until 2020, the gas carriers, owned by B-Gas A/S and under the technical management of V. Ships of Monaco, already used the yard's services. These were *B-Gas Maud*, *B-Gas Champion*, *B-Gas Crusader*, *B-Gas Summit*, *B-Gas Neptune*.

The *Gas Monarch*

The *B-Gas Monarch* (LOA 87.5m and beam 15m) is a new acquisition of the shipowner B-Gas, technically managed by Donnelly Tanker Management. The LPG tanker sails under the Portuguese flag, with Madeira as her registry port. She carries 3315cbm Liquid Gas semi refrigerated.

She called Remontowa under the name *Luke*. The shipyard specialists took measurements of the hull thickness and car-

ried out steel replacements in several places, including the cargo tanks and - to a greater extent - the chain lockers.

They also reconditioned some parts of the propulsion system. After removing the propeller shaft, they inspected the controllable pitch propeller hub and replaced the shaft and rudder blade stock seals. They also inspected the electric motors and the shaft generator as well.

In addition, they overhauled the anchor windlass and carried out pressure tests on the cargo system equipment - heater, condenser and separator. The project also included an overhaul of the bottom and side fittings, maintenance, and painting of the hull.

The *Kontich*

Once the *B-Gas Monarch* departed, the *Kontich* LPG carrier, owned by Exmar N.V., arrived in Gdansk. Earlier this year, we repaired two other ships from the fleet of this Belgian shipowner – the *Knokke* and the *Libramont*.

The *Kontich* is a sistership of the *Knokke*. She arrived at Remontowa for the first 5-year class survey.

The primary task on this ship was to overhaul the main engine. In addition, the shipyard workers replaced exhaust pipes in the funnel and mooring winches hydraulic motors' seals.

Following several pipeline inspections in the shipyard, the shipowner ordered repairs on ballast and cooling systems. Mentioned inspections also included cargo tanks' and cargo lines' safety valves overhauled in the yard's pipe workshop.

The ship's stay in the dock allowed to inspect and overhaul the tailshaft's seals and paint the hull. Minor repairs of cargo tanks and works on the main deck complemented the entire project.

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The *B Gas Monarch* drydocked at Remontowa.
Photo: Marcin Koszałka

Polish ferries from Unity Line fleet

The *Gryf* and the *Wolin*

The ferries of the Polish Steamship Company (Polsteam) operated by its subsidiary Unity Line are frequent visitors to the Remontowa shipyard. Two of the seven-ship fleet of this shipowner called at Gdańsk in Q3 2021.

The *Gryf* (LOA 157,9m and breadth 24,0m) is a car-freight ferry designed to transport lorries and passengers with cars. The vessel joined Unity Line in 2005, and since 2007 she has been sailing on the route Świnoujście-Trelleborg. On her three loading decks, she can carry around 100 freight units in one trip. The ferry has a capacity of 180 berths for drivers and passengers.

The ferry has been subject to repairs at Remontowa. Her last visit a few years ago lasted only four days and was because of an emergency repair. In 2004, the shipyard workers installed an additional thruster in the bow section of the hull, which was therefore partly reshaped.

This time the dry-docking of the *Gryf* enabled work to be carried out in various areas of the ship. One of the major tasks was the maintenance and painting of the 9,200 m2 hull surface.

It also involved a great deal of work in overhauling the propulsion system components. Our teams replaced the propeller shaft seals on both sides and under the propeller blades as they did so with the cavitation liners in the thruster. They also inspected the reduction gear and replaced several intermediate shaft bearings.

Maintenance work carried out at Remontowa also included the stern ramp and the funnel. The replacement of brake linings on the mooring winch and cleaning of circulating oil tanks is also worth mentioning. The locking system of the stern ramp also needed an overhaul. In the engine room, the shipyard workers replaced pipelines and inspected electric engines.

When the *Gryf* left the shipyard, another Unity Line ferry, the *Wolin*, arrived. The purpose of this ship's visit was her class renewal after five years of operation.

She is the longest (189 metres overall) ferry on the route Świnoujście - Trelleborg

The ferry *Gryf* leaving Remontowa after repairs.
Photo: Marcin Koszałka

The purpose of this ship's visit was her class renewal after five years of operation.
Photo: Marcin Koszałka

in the Unity Line colours. The ferry has two cargo decks and can carry 85-90 road units, 50 cars and 370 passengers. One deck is also adapted to carry railway carriages.

The ferry's propulsion system required much attention. The shipyard team inspected the bearings of the intermediate shaft and made measurements on the rudder blade, together with the replacement of seals. They also replaced the seals under the propeller blades after having them lifted. In addition, the replacement of the seals also affected the thruster blades, of which two required to be removed first and one was dismantled and transported to an external contractor for overhaul.

Remontowa also performed a standard overhaul of the outboard valves. An additional task was to replace the seals on the fire protection line. Replacements also included anodes and ventilation shutters.

The hull, ramp, bridge wings and funnel needed maintenance and painting. In addition, the hull had to be marked with new homeport markings. On deck, the shipyard workers carried out measurements and hydroblasting of anchor chains while in the engine room - an inspection of electric motors and cleaning of switchboards. They also cleaned the oil tanks.

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The *ML Freyja* on the first special survey

Job completed ahead of schedule

Thanks to excellent cooperation with a shipowner and arrangements made before the vessel's arrival, Remontowa accomplished the class survey ahead of the agreed contractual deadline.

Italian shipowner Levantina Transporti Srl (Visentini Group) has used the services of Remontowa Shiprepair Yard for the second time in recent months. In late April and early May 2021, we dry-docked and repaired the Ro-Ro ferry *Scottish Viking*.

Another contract with our yard concerned the vessel *ML Freyja*. It is a Ro-Ro ship (LOA 191.44m, beam 26.2m, 24 133 GT, 12 784 DWT) with a lane of more than 2,900m to carry 860 cars or 210 trailers at a time.

The *ML Freyja* entered Remontowa for her first special survey. Besides the typical work associated with class renewal, the most important task was a comprehensive overhaul of the two main engines. The scope included the overhaul of all sub-assemblies, such as piston rings and pistons, cylinder covers and liners, fuel pumps, big-end bearings, main bearings and vibration dampers.

The shipyard planned the repairs in advance, as the shipowner was keen to be on time because of the ship's previously scheduled voyage with cargo on board. Thanks to the excellent cooperation with the client, the shipyard workers had earlier made special tools for fixing cylinder liners, heads, and cranks.

The *ML Freyja* underwent at Remontowa her first special survey.
Photo: Marcin Koszałka

Along with overhauling the main engines, they also carried out a stern tube seal inspection, rudder measurements, a standard overhaul of the thrusters, and cleaning of the shaft generators. The entire ship's hull, from the keel to the masts, underwent maintenance.

In addition, they replaced steel on fenders, repaired the bridge plating and reinforced the aft mast structure, replaced parts of the exhaust system and fixed the hot-water pipes in the superstructure.

Because of earlier thorough preparations, Remontowa completed the entire project two days ahead of the time specified in the contract.

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At Remontowa the *Oberon* was adapted for navigation in Arctic regions.
Photo: Sławomir Lewandowski

Chemical tanker and general cargo vessel from Russia

New coatings and the bow section

Shipowners from Eastern Europe regularly visit Remontowa Shiprepair Yard. Along with the deep-sea fishing fleet, more and more refrigerated ships, bulk carriers, chemical tankers, and general cargo vessels call at the yard for repairs. Representatives of the latter two types entered Remontowa in the third quarter of this year.

The *Gogland* (LOA 91m, beam 16m, 4450 DWT) oil/chemical tanker built in 2018 at the Volgograd Shipyard sails under the flag of Cyprus. The vessel belongs to a shipowner who used Remontowa's services for the first time.

The shipyard's primary task was to preserve the hull and apply a new coating. Our teams removed the previous coating, and thoroughly high pressure washed the entire hull, which was then grit-blasted and covered with the new paint system.

They applied four layers on the flat bottom and five on the vertical bottom in the underwater part. In addition, they also laid three coatings on the open deck and

the sides of the superstructure. The bow thruster tunnel and the sea chest main were also subjected to maintenance and painting.

Besides painting the entire ship virtually, our specialists took care of the propulsion system. They replaced the camshaft and injectors on the auxiliary engine. They also overhauled the Becker rudder blade angle mechanism, which received new stock. The bearings were also replaced.

Another ship from a Russian shipowner serviced at Remontowa was a newly gained general cargo vessel sold by the Dutch shipowner Wagenborg. The ship entered the yard under the name *Ijborg*. Whilst in the yard, the ship was given the new name, *Oberon*. The buyer entrusted us with the ship's class renewal. He also wanted to increase her versatility, adapting the ship for navigation in Arctic regions with ice floes.

The most important task was the replacement of the ship's bow section. Our teams replaced the existing bulbous bow with a new one, shaped to allow navigation in northern waters with the help of icebreakers.

Naval architects from Remontowa Marine Design designed the new bow section. The Remontowa's workers prefabricated the new bulbous bow, whereas specialists from Stal-Rem mounted it on the ship.

The shipowner also commissioned Remontowa to install the ballast tank heating system to ensure that the bottom and side tanks do not freeze during voyages in extreme weather.

The shipyard carried out this task by installing around 800 metres of piping and three heaters. In addition, we laid wiring for the heaters, some of which are powered by electricity and others by thermal oil.

Along with the standard class renewal work, our team overhauled the main engine and generators. In addition, the hull and two cargo cranes underwent maintenance.

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The *Gogland* underwent extensive maintenance and painting at Remontowa.
Photo: Sławomir Lewandowski

Special surveys of General Cargo vessels from the Oslo Bulk fleet

A semi-submersible **barge as a drydock**

In Q3 of 2021, some MPP/General Cargo vessels owned by Oslo Bulk used the services of Remontowa Shiprepair Yard. These ships were lifted on board the shipyard's semi-submersible barge, which most times can effectively be taken into play instead of a typical floating dock.

The *Oslo Forest 1* went through i.a. maintenance and painting of the hull.
Photo: Sławomir Lewandowski

Three ships visited Remontowa, the twins *Oslo Bulk 7* and *Oslo Bulk 9* (LOA 108.2m, beam 18.2 m and 8,030 DWT) underwent special surveys here.

The major work involved an overhaul of the entire shaft line with the dismantling of the rudder blade and stock and the propeller shaft. The latter was reconditioned by the shipyard workers, who then mounted new bearings on it. The thruster also had to be dismantled before it could undergo a thorough overhaul at Remontowa.

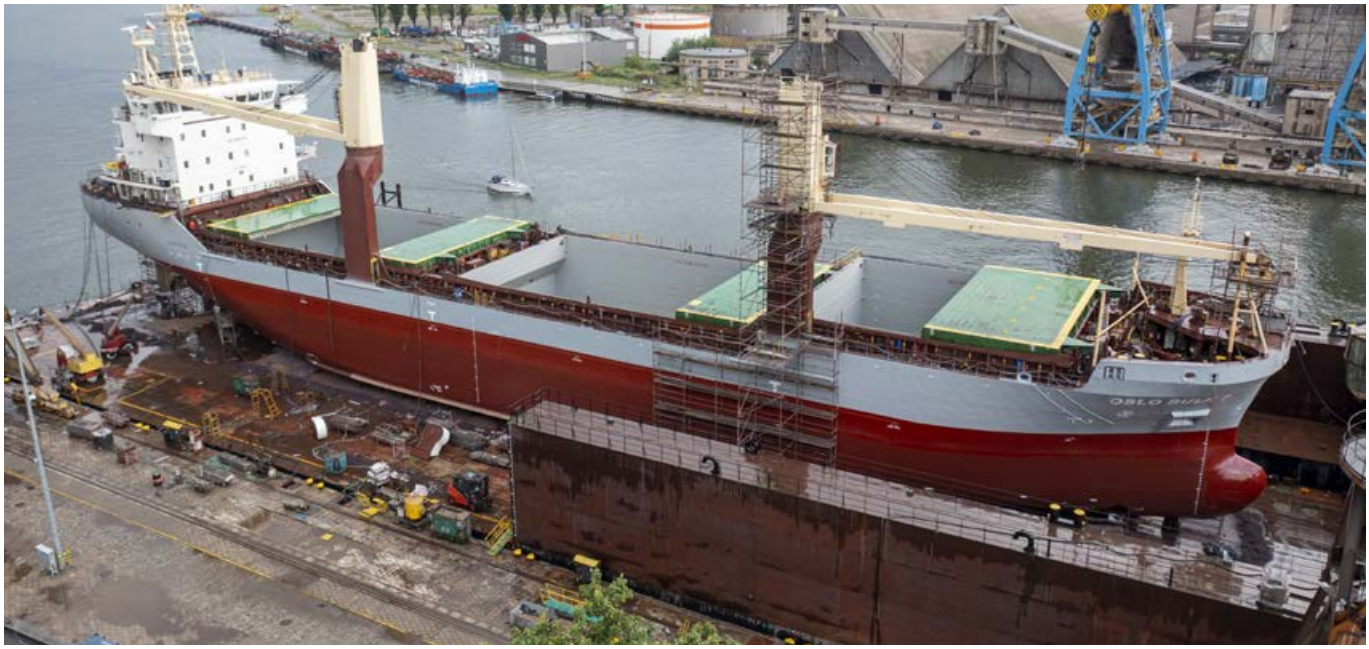
An important task was overhauling the main engine with the removal of pistons and cylinder covers. The shipyard workers also inspected the two generator sets, the shaft generator and the electric motors. In addition, they replaced the ballast system pipes, cleaned the boiler, and inspected the boiler valves. The cargo cranes' sheaves also needed replacing. Finally, the cargo holds underwent maintenance.

The next ship from this shipowner to enter Remontowa was the slightly larger *Oslo Forest 1* (LOA 116.26m, beam 17.8m and 10,001 DWT).

On this vessel, the main scope of work focused on the maintenance and painting of the hull. The deck of the semi-submersible barge, serving as the dock, partially surrounded by the sides, was additionally sheltered to protect the dockside surroundings as the repairs were carried out.

The ship's side tanks and hold, which can be divided into several bulkheads to transport different cargo, have also undergone maintenance and painting.

The ship is equipped with pontoon hatch covers. The shipyard workers replaced the steel in the trays of the hatch covers and the profiles housing the rubber seal of the covers. They also performed maintenance and painted eight hatch covers, which they had previously dismantled and transported to the quay for this purpose.



The *Oslo Bulk 7* lifted up on board the *REM LIFT 25000* semi-submersible heavy lift barge.
Photo: Marcin Koszałka

The propulsion system components also required a great deal of attention. First, our specialists carried out a comprehensive inspection of the shaft line. Then, after dismantling the rudder blade, they inspected the bearings on the stock.

Remontowa has also fitted the ship with the Ventus system, which uses a constant airflow to separate oil and water and regulate pressures inside the shaft seal and stern tube. Any fluids that enter the shaft seal are drained into an internal drain tank.

The shipyard workers also took care of the bow thruster. On the main engine, they replaced the seals in the air cooler and the shock absorbers. They also repaired the injector housings.

They replaced sections of the seawater pipeline in the engine room, overhauled the outboard valves, and modified the sea chest venting system.

The electricians also significantly contributed to the ship's repair, taking care of the shaft generator, auxiliary engine alternators, bow thruster, and auxiliary generator. They overhauled all this equipment in the production hall. The shipyard's floating sheerleg transported all these devices ashore once our teams had removed them from the ship.

Overhauled and fully operational electric motor alternators were essential for repairs to follow on the ship's cranes, with a lifting capacity of 80 tonnes. In addition, the shipyard workers replaced the cranes' wire ropes and carried out load tests. •

The *Oslo Bulk 9* – a sister ship of the *Oslo Bulk 7*.
Photo: Marcin Koszałka

On the way to emission-free ferries: the hybrid ferry *Berlin* was prepared in 2021 by Remontowa to install the Rotor Sail.
Photo: Marcin Koszałka

Pro-environmental projects on the ferries *Berlin* and *Prins Richard*

Wind propulsion and new thrusters

The ferries *Copenhagen* and *Berlin,* owned by Scandlines, are among the world's largest hybrid ships of this type. They are equipped with propulsion, which combines the traditional diesel engine with a battery power supply.

Both ships have already called at Remontowa earlier. In 2019, the hybrid ferry *Berlin* underwent an intermediate survey at Remontowa Shiprepair Yard SA. Its ferry-twin, the *Copenhagen*, arrived here soon after. On the latter, Remontowa built a foundation for a 'Rotor Sail'. Once the rotor sail had been installed on board in Q2 2020, the *Copenhagen* became a wind-assisted ship.

The rotor sail uses the Magnus effect. A force acting on a rotating body in a moving air stream generates a force perpendicular to the air stream's direction and the rotor axis. Under favourable wind conditions, the ship's propulsion is supported by the large vertical rotor, occasionally called the rotor sail.

Another name for this device is a Flettner rotor. It comes from the German engineer Anton Flettner (1885-1961), who built a ship using the Magnus effect.

Both Scandlines ships sail on the route between the Danish Gedser in the north

and German Rostock in the south. As Scandlines emphasises, the route is almost perpendicular to the prevailing wind from the west, thus creating favourable conditions for rotor sails on the ferry crossings in this area. Thanks to wind-assisted propulsion, the Scandlines' ferry sailing on the route lowers its CO2 emissions by 4-5 per cent.

The *Berlin*

In 2021 Remontowa was entrusted with preparing a second hybrid ferry – the *Berlin* – to implement a wind-assisted technology. As with the case of the *Copenhagen*, the yard built a steel foundation on the Berlin ferry.

The foundation work included the superstructure and decks. The shipyard workers reinforced the deck intended for the rotor sail by installing additional pillars. In addition, insulation and framework had to be removed to enable access to the foundation building area.

Having the foundation built, the ferry *Berlin* is ready to be retrofitted with one large-sized Norsepower Rotor Sail unit 30 m in height and 5 m in diameter. This solution is a modernised version of the Flettner rotor.

Remontowa also carried out much other work on the ferry. One of the most important was the dismantling, cleaning and reassembly of the box coolers.

The shipyard workers took care of the propulsion system. First, they replaced the seals on the azimuth thrusters and the shaft. Next, they carried out a comprehensive overhaul of the hub and the controllable pitch propeller, which required the rudder blade to be removed beforehand. In addition, they replaced bolts on the thrusters.

The modern car-passenger ferry *Berlin* can take 96 heavy goods vehicles or 460 passenger cars. Scandlines offers 1300 seats for passengers during each cruise. To ensure the smooth and safe embarkation of vehicles, the shipyard workers overhauled the bushings on the bow visor hinges and reinforced the hinges of the stern ramps. They also painted the ship's hull and superstructure.

It's worth mentioning that the rotor sail is just one of the many investments Scandlines makes to reduce emissions. Another example of using various energy-saving technologies on board is that the shipowner has invested in upgrades to the ferry's propulsion systems.

Remontowa has been cooperating with Scandlines in this area for many years. In 2019 and 2020, we replaced the azimuth thrusters on the *Schleswig-Holstein* and *Deutschland* ferries with new ones, including their control systems.

The *Copenhagen* once prepared at Remontowa for the Rotor Sail, mounted on board the ship a few months later, in 2021 returned to the Polish yard for dry-docking.
Photo: Marcin Koszałka

The *Prins Richard* hybrid ferry was renewed at Remontowa in 2021.
Photo: Sławomir Lewandowski

These double-ended (symmetrical) ferries do not have to turn around when arriving at the quay. This design, additionally supplemented by the automatic mooring system, minimises the transit time. In addition, the azimuth thrusters significantly increase the ship's manoeuvrability.

The *Prins Richard*

In 2021, *Prins Richard* joined the two ferries mentioned above, receiving new thrusters at Remontowa - two at the bow and two at the stern. Their control systems were also replaced - from hydraulic to electric.

Removing the existing thrusters from the ship required all control systems to be disconnected first. Once it was done, the thrusters themselves were separated from the hull. Next, the shipyard specialists placed them onto specially-prepared platforms on the dock and then dismantled them.

Finally, having the so-called headboxes, previously prefabricated at Remontowa, assembled to the hull, the yard's fitters integrated the new thrusters into the ship.

Many other repair works and overhauls were applied to various systems, equipment elements, and areas of the ship, including in the engine room, tanks, and on deck. At the shipowner's request, Remontowa modified the MES (Marine Evacuation System) passenger stations. In addition, the hull and car decks of the ferry were painted.

The ferry *Prins Richard*, like her sister-ships *Schleswig-Holstein* and *Deutschland*, serves the line Rødby (Denmark) - Puttgarden (Germany).

During the yard stay at Remontowa in 2021, the bottom of the hybrid ferry *Prins Richard* was sandblasted and re-covered with a special silicone antifouling paint to improve energy efficiency and further reduce emissions.
Photo: Sławomir Lewandowski

The *Urd* dry-docked in Remontowa.
Photo: Sławomir Lewandowski

We helped the Swedish ferry to get out of trouble

The *Urd* on emergency repair

This ship, the employees of Remontowa Shiprepair Yard, remember very well. They converted her in 2001, whereas in 2021, they quickly repaired the ferry after a minor incident.

The ferry *Urd* (LOA 171m, beam 20.82m, freight capacity 1598 lane metres and 4655 dwt), owned by Swedish operator Stena Line, can take 325 cars and 186 passengers on board. Daily it serves the Baltic route Travemünde (Germany) - Liepaja (Latvia).

In 2001, the ship underwent conversion here. Our shipyard workers lengthened her by 20.25m, added 70 cabins for passengers and the crew, and modernised the passenger and recreational areas. In addition, they fitted the ferry with new ramps, reinforced the bottom, converted the lower hold into a car deck, and refitted the superstructure.

The *Urd* called at our shipyard in 2019 for an intermediate class survey.

The reason for the ferry's last dry-docking was an emergency repair, the cause of which was a fishing net becoming entangled in the propeller. So, along with freeing the propeller from the troublesome attachment, our teams sealed the shaft on the starboard side. They also cleaned the sea chests, the hull and welded small cracks in the plating.

Upon undocking, the *Urd* returned to the route and sailed to Liepaja.

A special survey, steel replacement and BWT system installation

DFDS
Ro-Ro ships

DFDS is one of the leading ferry operators in Europe. The ships of the Danish company with a distinctive logo based on the Maltese cross, which has been a part of the company logo since 1866, sail on the Baltic Sea, the North Sea and the English Channel, connecting continental Europe with the UK.

They have also been frequent visitors to the Remontowa Ship Repair Yard for many years. In the 3rd quarter of this year, the ships *Ark Futura*, *Selandia Seaways* and *Belgia Seaways* called here for repairs and upgrades.

The *Ark Futura*

She is a stern-loading Ro-Ro cargo ship with a deadweight capacity of 13,500 tonnes and a container capacity of 644 TEU.

The work on the *Ark Futura* primarily concerned the weather, main, and lower decks.
Photo: Marcin Koszałka

The *Selandia Seaways* moored at the Remontowa quay.
Photo: Marcin Koszałka

This year's visit was another over the last few years. The last time, in 2018, Remontowa retrofitted the vessel with a Ballast Water Treatment system. In contrast, the primary aim was her class renewal and steel replacement this year, covering around 160 tonnes.

The work primarily concerned the weather, main and lower decks, extended to the maintenance and painting of the tanks. Once these were completed, the shipyard workers carried out pressure tests on the tanks.

The ship features 2,308 lane metres for wheeled cargo. First, a technologically complex task was the repair of the hinges of the lower deck cover. Then, on the side and stern ramps, the shipyard workers replaced the seals.

Remontowa also took care of the ship's propulsion system. 8-cylinder 58/64 diesel engine delivered by MAN B&W powers the Ark Futura, producing 15,119 bhp, giving a service speed through a single propeller of 18.5 knots. To assist manoeuvrability, she has three bow and stern thrusters.

Our teams carried out a comprehensive overhaul of the stern thruster and replaced the bow thrusters and propeller seals. They also made some repairs on the pipelines.

Besides the involvement of the shipyard's departments and subcontractors carrying out work on the ship, the excel-

lent cooperation with the crew was also beneficial.

The *Selandia Seaways*

The *Selandia Seaways* calling at the Remontowa shipyard followed the *Ark Futura*. Besides maintenance and painting, one of the major tasks on this vessel was to replace spare parts and components. While the ship was in the dock, the shipyard workers replaced the shock absorbers on all three auxiliary engines and the bearings on the main engine. In addition, they carried out an overhaul of the compressed air system fittings.

The *Belgia Seaways*

The *Belgia Seaways* last visited our shipyard in spring 2020. We had installed a new access ramp on this vessel as we did on its twin, the *Gothia Seaways*, which arrived a few weeks later.

This year, we retrofitted the *Belgia Seaways* with a BWT system. While the ship was in the dock, our teams carried out a lot of work on it, including the overhaul of two thrusters. Also, the ship underwent a rebranding.

For almost 20 years, the *Belgia Seaways* had been operated under the name Schieborg in the colours of the Dutch company Wagenborg Shipping. At Remontowa, we changed the ship's livery for a new one - giving her the colours of the new shipowner.

The *Belgia Seaways* underwent a rebranding and got the colours of DFDS.
Photo: Marcin Koszałka

Class renewal and BWTS work

Big ships
and so the figures!

Container ships from almost all over the world regularly call at the Remontowa Ship Repair Yard in Gdansk. In the year 2021, there have already been a dozen. On 26 September 2021, two record-breaking vessels of this type left the yard.

The longest ship drydocked at Remontowa seen at night. **Photo: Łukasz Dziatkowiak/ lukaaaimages**

The *Buxcliff*

The first of these was the *Buxcliff* (overall length 300m, breadth 40m), belonging to the fleet of the German shipowner NSB Group. She is one of the longest ships ever repaired here and the largest drydocked at Remontowa (look on the front cover).

The *Buxcliff* entered the largest floating dock. As always with the docking of any ship in Remontowa - the stability, buoyancy and strength calculations preceded this

operation. In addition, to ensure that we handle the 300-metre colossus safely, we carried out a finite-element method analysis. It helps to determine the distribution of forces affecting both the hull and the dock precisely.

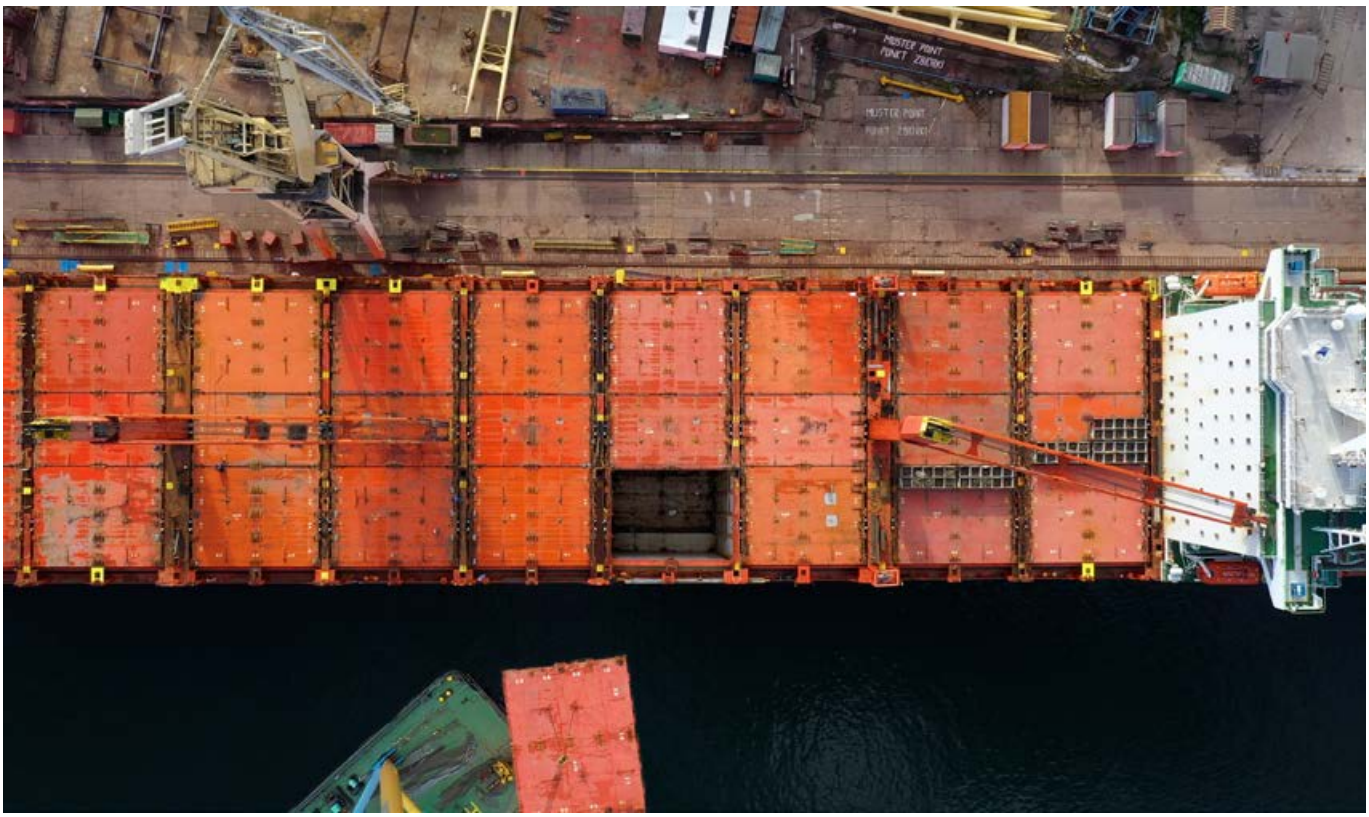
The reason for the container ship's visit was a special survey. The associated scope of work included mainly steel replacements, maintenance of the hull and holds, and container lashing equipment.

The shipyard workers also repaired 40 hatch covers, each weighing several dozen tonnes. But first, they dismantled and transported them ashore using a Remontowa owned floating sheerleg, fixed on the quay, transported again by the crane, and installed on the ship. The shipyard also gave the engine room a thorough face-lift.

The scale of this project is best shown by the numbers involved. We replaced almost 1,000 square metres of insulation and renewed 10,000 square metres of surface in the engine room. We also replaced around 200 tonnes of steel and exchanged 1.5 km of a rubber channel with the seal. We grit-blasted 15,000 square metres of hull surface and painted 100,000 square metres of ship surface, coated four times!

The *Irenes Resolve* during undocking operation at Remontowa.
Photo: Marcin Koszałka

The hatch covers of the *Irenes Resolve* were reconditioned at Remontowa.
Photo: Marcin Koszałka



The *Irenes Resolve*

The second box ship mentioned above was the *Irenes Resolve* (LOA 257m, beam 32m) from the Tsakos Conbulk Services (TCB) Ltd. The Tsakos Group is one of the largest Greek shipowners who had previously entrusted another ship to be serviced at Remontowa. In the early days of the Covid-19 pandemic in 2020, the yard efficiently repaired the *Irenes Remedy* container vessel.

The yard paid a lot of attention to the propulsion system components on the *Irenes Resolve*, along with standard inspections of the bottom-outboard fittings and many others. After dismantling and removing the propeller, the shipyard workers checked and verified the condition of the shaft cone.

While in the dock, the ship underwent maintenance, grit-blasting and painting of the hull. In addition, steel replacements were done in the tanks and holds.

Like in the mentioned above *Buxcliff* case, almost all hatch covers were also reconditioned on the *Irenes Resolve.* So, naturally, all of them were dismantled and transported to the shipyard quay. The weight of each was 32.5 tonnes!

We also prepared the ship to be retrofitted with a BWT system supplied by the Greek company Erma First. First, the yard specialists prefabricated pipelines for the BWT system, then they were mounted on the ship and connected to the seawater system.

The *Maersk Newbury*

A large repair project also concerned the container ship *Maersk Newbury* (LOA 210m, breadth 30.20m, 2,550 TEU). The ship entered Remontowa for a special survey. In addition, the shipyard renewed all areas of the ship virtually, replacing over 100 tonnes of steel in total.

These replacements included all fuel and ballast tanks, as well as holds and hatch covers, deck cranes, hull plating, and many ventilation ducts in the ship's holds.

The shipyard workers carried out a time-consuming and comprehensive overhaul of the hydraulic winches. They also repaired four deck cranes, having them dismantled from the ship and placed onto the quay for this purpose. In addition, the work included repairs to the cylinders and the replacement of bearings.

Remontowa also retrofitted the ship with a Ballast Water Treatment System, which required many pipelines to be changed and virtually all the foundations to be rebuilt.

On the *Maersk Newbury*, over 100 tonnes of steel were replaced. The drydocked *Buxliff* can be seen in the background.
Photo: Maciej Bielesz

In 2021, Remontowa retrofitted the *Scott Spirit* shuttle tanker with a BWT system.
Photo: Marcin Koszałka

A second special survey of the Explorer Class shuttle tanker

The *Scott Spirit* with a BWT system

The *Scott Spirit* (LOA 248m, beam 44m) is the next shuttle tanker in a row serviced at Remontowa within the last two years. The ship has followed her twins - the *Amundsen Spirit, Nansen Spirit* and *Peary Spirit*.

Let us recall; the explorer class ships are named after famous travellers and polar explorers. In June this year, the *Peary Spirit* left the shipyard, followed by the *Scott Spirit*.

The repairs to all the tankers mentioned above were planned well in advance. However, before the ships entered Remontowa, its largest floating dock had to be adapted, especially for their visit. These tankers feature three azimuth thrusters that retract from under the hull (one at the stern and two at the bow).

Azimuth thrusters, rare on such large vessels, enable them to maintain their cur-

rent position at sea using their propulsion in demanding weather. This solution is very helpful when loading oil near an offshore platform. However, it requires the dock to be prepared for repairs.

The ship is dry-docked by placing on specially prepared, elevated keel blocks. Such a special foundation allows getting a greater clearance beneath the entire ship, necessary to repair azimuth thrusters.

The shipyard workers overhauled three azimuth thrusters, of which one had been dismantled and transported to the workshop. The bow thruster also needed an overhaul.

On the shuttle tanker *Scott Spirit*, besides the scope associated with the class renewal, the shipowner commissioned the installation of a Ballast Water Treatment System. Remontowa retrofitted the vessel with a system from the supply of Chinese company Headway Technology Co. This system uses the Advance Electrocatalysis Oxidation Process (AEOP) to eliminate water microbes, bacteria, and viruses.

Technically, these are two separate systems, of which one is connected to the main ballast system, and the other serves the tank in the afterpeak. Our teams installed the main equipment of the system in the engine room and the pump room.

The ship also underwent maintenance and painting. Once the repairs were completed, she left Remontowa with a new logo of the shipowner Altera on the funnel.

In June 2021, the *Peary Spirit* shuttle tanker, earlier dry-docked at Remontowa, left the yard.
Photo: Marcin Koszałka

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