REMONTOWA
SHIP REPAIR NEWS

MEMBER OF REMONTOWA HOLDING S.A.

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We facilitate the green transition

in magazine

The decarbonisation landscape

The September issue of Drydock Magazine features a review of the global ship repair market for H1 2024, based on World Fleet Register data, with insights from Clarkson Research managing director Steve Gordon.

We include a summary of this interesting article in this issue of Remontowa News, as we consider the description of market trends contained therein to be important for shipowners and shipyards.

Clarksons' insightful market intelligence was tailored for the SMM exhibition in Hamburg, where the growing demand to enhance the efficiency of the global fleet and reduce fuel and energy consumption, in line with legislation forcing a reduction in the carbon footprint of maritime transport, was most evident.

However, the decarbonisation landscape is changing dynamically. There is a decline in the scrubber and Ballast Water Treatment System retrofits. This trend has clearly slowed down and one of the reasons is filling the existing fleet with these solutions, especially for ballast water management.

However, nature abhors a vacuum, so these projects are being replaced by others related to the whole range of Energy Saving Devices (Technologies). Which device, system or improvement to use on a particular vessel? Which to choose to best reduce greenhouse gas emissions and operating costs at the same time?

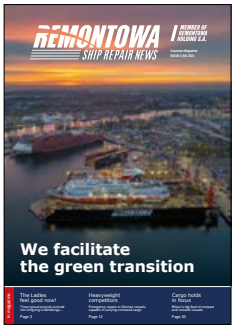
This is the field clear for owners, shipyards, design offices and equipment suppliers, who are competing for ideas. There are many solutions on the market, varying in terms of possible applications, availability, price and expected benefits for the shipowner.

We are thrilled that Remontowa continues to rank at the top of Clarksons' listings - one of the first in Europe and seventh in the world among repair yards operating outside China, which holds more than 50 per cent of this market.

Indeed, we do most projects in Europe, such as repairs, drydocking, class surveys, conversions and "green" retrofits. We are well familiar with the vast majority of ship emission reduction improvements involving optimisation of the hull, propulsion and steering systems or upgrades to the ship's engine room.

We are developing thanks to shipowners, those who have been working with us for years, as well as new ones. Both of them present us with challenges, which we always accept and meet. We are delighted with the growing confidence of our clients, who entrust us with their ships. Thank you!

Grzegorz Landowski
Communications Director
REMONTOWA HOLDING



Cover photo:
Maciej Bielesz

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The *Bond* was also thoroughly overhauled at Remontowa.
Photo: Sławomir Lewandowski

We thoroughly revitalised three Greek tankers

The Ladies feel good now!

In Q3, we welcomed three Hellenic tankers at Remontowa. What started as typical refurbishment projects evolved into large and intriguing undertakings, expanding in scope as we delved deeper into the work.

Bond (ex-FSL *Singapore*) was the first to arrive. Initially, the shipowner commissioned a typical work for the vessel's class renewal, but as time went on, the scope of the project significantly expanded.

Bond

Upon the *Bond's* arrival at the dock, we conducted meticulous measurements that led to the identification of clearances in the steering system. We then proceeded to dismantle the rudder blade, inspect it, and carry out a comprehensive overhaul.

The vessel is fitted with an energy-saving device under the hull - the Becker Twisted Fin - which also needed attention. To restore its effective operation, some parts of the fins were reconditioned by one of our companies, which specialises in machining.

In addition, the shipowner commissioned the replacement of a significant amount of piping on the deck, particularly in the steam system. We also overhauled the PV valves.

When we were cleaning the boiler, the tubes defect emerged, so we fixed them all. Once the thickness of the steel in the chain lockers had been thoroughly measured, our specialists replaced around 10 tonnes of steel.

Of the other scopes, it is worth mentioning inspecting two systems on the main engine and overhauling the electric motors.

Friend

Another Greek tanker at Remontowa was *Friend* (ex-*Stena Performance*).

There was a significant part of the chain lockers to be renewed. We also significantly improved the condition of a large number of anchor pockets, which had undergone weld surfacing at Remontowa. We also paid a lot of attention to the pipelines on board, renewing a significant part of the steam system.

Among other things, the pipelines of several systems, including cargo tank washing, fire-fighting and hydraulic systems, were qualified for partial repairs. Some of the overboard valves needed to be replaced, so we did. In the side tanks, on the other hand, we injected a great dose of steel and fitting work.

Our dispersed teams worked in several areas of the tanker, carrying out repairs to the anchor windlass, gangway winches and the gangways themselves, where we fixed many damages.

Our efforts did not miss the engine room either, where we overhauled the main engine bearings and the boilers, including the repair of fittings and safety valves.

The electricians were tasked with inspecting the electric motors and the two main switchboards.

While the ship was dry-docked, we replaced the seals of two propeller shafts

The tanker *Friend* moored at the quay in Remontowa.
Photo: Sławomir Lewandowski

On the tanker *Fotuo*, the scope of work was literally growing almost every day.
Photo: Sławomir Lewandowski

with new ones. Here, the final stage was leak testing of the cargo tanks and the other systems on which the work was done.

Fotuo

A large repair project also tackled another Greek tanker, the *Fotuo*, which underwent a major overhaul at Remontowa after a change of ownership. Here, too, the scope of work was literally growing almost every day.

The primary repair scope, ordered before the vessel entered our dock, had already grown considerably during *Fotuo*'s berthing at the yard's quay.

Once the ship was in dock, our main task was to remove the shaft. After lifting the intermediate shaft first, we pulled the propeller shaft inside the engine room.

We carried out a large range of repairs to anchor windlasses, which involved machining and replacing some of their parts.

There was also much work in the tanker's engine room. We thoroughly overhauled the main engine. After dismantling, all the heads, pistons and cylinder liners, including the water jackets, went into the workshop. This was supplemented by overhauling the generators and electric motors as well.

There was no less work on boilers and pipelines, which also passed inspection. Extensive fitting operations, done in several hundred places, affected almost every space of the *Fotuo*. Our outfitters provided access to many vessel areas, facilitating overhauling them effectively.

We also renewed tanks by replacing the steel; the tanks also underwent maintenance, as did the entire vessel's hull.

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We regularly service car carriers owned by KESS

Specialist overhauls

The *Malacca Highway* Pure Car Truck Carrier, while departing from Remontowa after being thoroughly overhauled here.
Photo: Maciej Bielesz

KESS, a shipowner renowned for its discerning choice of service providers, consistently entrusts its vessels to the expertise of Remontowa Shiprepair Yard.

"K" Line - European Sea Highway Services (KESS) - is one of the largest operators of feeder car carriers and regional automotive distribution in Europe. The network of KESS-operated routes covers the North Sea and the Baltic Sea, where these vessels also call at Gdansk. There are 11 ships in service, also suitable for high and heavy ro-ro cargo.

Several years ago, we hosted Pure Car Truck Carriers with the KESS logo on their sides at Remontowa. In 2023, we welcomed the five vessels - *Isar Highway*, *Ems Highway*, *Thames Highway*, *Weser Highway* and *Schelde Highway*, while this year, we again hosted the first two of these PCTCs, preceded by the *Malacca Highway*, which was serviced here in May.

The *Ems Highway* has been specially constructed to operate in small harbours with little draft. Equipped with two main engines, two controllable-pitch propellers, two Becker Flap Rudders and powerful bow thrusters, the vessel ensures excellent manoeuvrability in narrow places.

Wide, open decks, as well as straight stern ramp and side ramp, allow for safe car handling. For winter navigation in the Baltic, the vessels are built according to Finnish / Swedish ice class 1A.

Ems Highway arrived at Remontowa for a repair project. The scope of work was significantly expanded during the vessel's drydocking.

The rudder stocks, after being pulled out, were examined, which revealed

cracks. The components were, therefore, sent for reconditioning to a specialist company in Denmark. While the vessel was still in dock, we overhauled the bow thruster and renewed the cavitation belt.

Our teams overhauled the main engines, gearboxes and shaft alternator. The machinery scope also included cleaning the box coolers and adding the Marine Growth Prevention System anodes to the sea chests. These anodes are crucial in preventing the growth of marine organisms on the ship's hull, which can significantly affect the vessel's performance and fuel efficiency.

On the *Ems Highway*, we also took care of the ro-ro system. Work on the stern ramp included repairing flaps, welding stoppers, replacing seals and repairing lock rollers, while on the side ramp, we replaced one of the rollers. The wires of both ramps underwent lubrication.

Sockets were replaced on the car decks, as well as the steel on one of the access ramps. Steelwork was also carried out in the drain tank and bio-block. Exhaust gas pipes were replaced in the funnel.

The next car carrier at Remontowa was *Isar Highway*.

In that case, the main machinery scope included overhauling the main engines, gensets and reduction gears. We also replaced the clutch between the gear and the main engine. The main engine pump was also subjected to overhaul while the box coolers were dismantled, checked and washed.

While the vessel was drydocked, a comprehensive overhaul of the rudder blade was performed, which consisted of the removal and inspection of the stocks, one

While the *Isar Highway* was drydocked, a comprehensive overhaul of the rudder blade was performed.
Photo: Sławomir Lewandowski

The scope of the *Ems Highway*'s repair project significantly expanded during the vessel's stay in the dock. **Photo: Sławomir Lewandowski**

of which had cracks. The damaged rudder stock, together with the blade, was sent to a specialist company in Denmark for repair.

At the time these items were being repaired in Hirtshals, work was underway in Remontowa to replace the rudder stock bearings and seals under the port and starboard propeller blades, as well as machining the Becker fin bushing.

Our teams also examined the condition of the flanges that connect the shaft seal housing to the ship. We visually inspected the flanges, founding them in good shape, which confirmed their expert overhaul performed in our shipyard two years ago.

Of the work done on the docked ship, it is worth mentioning the maintenance of the underwater part of the hull, as well as replacing the Marine Growth Prevention System anodes and overhauling the bow thruster.

On the stern ramp, we inspected and overhauled the cylinders, while on the flaps, the pins had to be exchanged.

On the car decks, our specialists repaired cracks on the access ramps, as they did with a large number of sockets. Around 210 square metres of corrugated roof sheeting on one of the car decks had to be renewed, while part of a damaged fender on the port side was fixed.

Our welders made a technological opening in the ship's plating to transport two fans.

Both vessels mentioned above were preceded by the *Malacca Highway* car carrier, which had also undergone a thorough repair project at Remontowa in May 2024.

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In July 2024, the *Finnmill* came to Remontowa again, this time for a scheduled drydocking.
Photo: Sławomir Lewandowski

Two visits by the ro-ro vessel *Finnmill*

Customised disassembly of the shaft line

This vessel, owned by Finnlines, regularly calls at Remontowa Shiprepair Yard. In 2024, we hosted her twice.

In March, the *Finnmill* arrived for a few days of emergency repairs related to an oil leak from the starboard propeller hub. The shipyard reconditioned the propeller by machining it in the workshop and performed tank cleaning. Once the damage was efficiently repaired, the ro-ro ferry returned to its route Gdynia - Hanko (Finland).

In July of this year, the *Finnmill* came in for a scheduled drydocking. The most important job was a comprehensive overhaul of the shaft line. This meticulous pro-

cess required dismantling and removing the rudder blades, the shaft line and the propeller hub as well as the machining of the propeller blades.

The vessel's unique stern frame design, which lacks guides, presented a significant challenge during the repair process. This design required the shipyard to ensure the safe removal of the 30-metre-long, 30-tonne shaft lines.

Remontowa's in-house technology office, in cooperation with engineers of the Remontowa Marine Design & Consulting company, developed several innovative transport options, including the use of specially prepared process trolleys on which the shafts would be moved out of the stern tube without risk of damage. Finally, one of the proposed solutions for pulling out the shaft after the coupling had been removed was selected.

The repair scope also included renewing the steel in the fuel tanks and some fitting operations on deck.

Our pipefitters undertook the complex task of replacing the seal in the scrubber tubes and repairing the piping of the Central Cooling System's Low-Temperature circuit in the engine room, ensuring the system's optimal performance.

Electricians from Remontowa overhauled the electric motors, replaced a bearing in the bow thruster engine and laid about 600 metres of signal wiring.

In turn, our outfitters provided access to the work areas and refurbished the galley.

The *Finnmill* also underwent maintenance and painting. Before a coating was applied, the steel surface of the ro-ro decks had been cleaned and prepared with blastrac shot-blasting.

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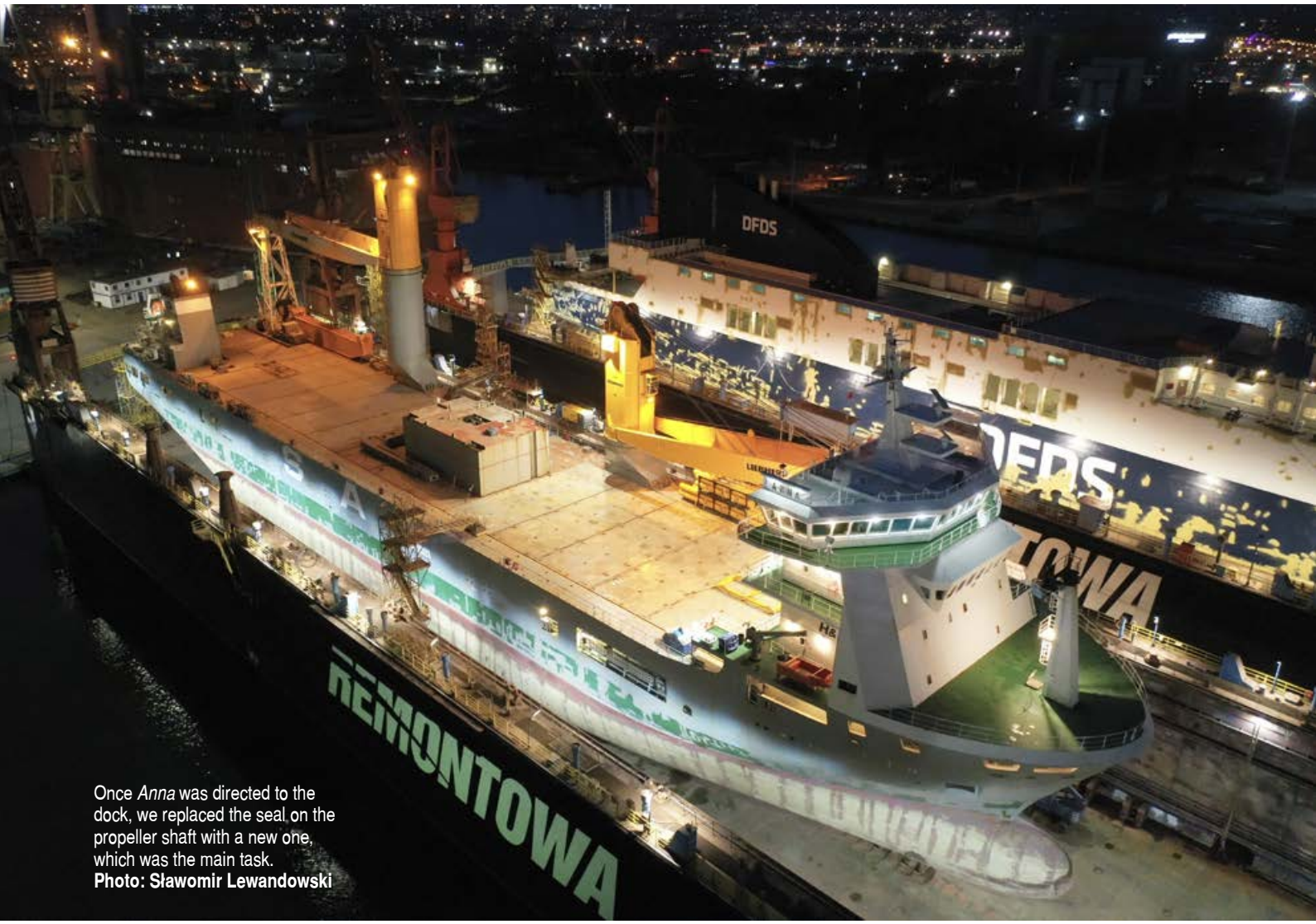
In March 2024 the *Finnmill* entered Remontowa for an emergency repair.
Photo: Sławomir Lewandowski



Once *Anna* was directed to the dock, we replaced the seal on the propeller shaft with a new one, which was the main task.
Photo: Sławomir Lewandowski

Emergency repairs to vessels owned by SAL Heavy Lift

Heavyweight competitors

Heavy-lift and oversized cargo vessels are a common sight at Remontowa Shiprepair Yard. In 2024, two of them came to us for emergency repairs.

Heavy-lift carriers, with their unique and highly specialized skills, play a crucial role in the demanding freight market. Their ability to handle the transportation of oversized industrial machinery, wind monopiles and turbines, port cranes, and other heavy cargo amidst the constantly increasing dimensions is truly impressive.

These heavyweight competitors are equipped with cranes of high lifting power, which ensures efficient and safe cargo handling. These athletes have to cope with enormous loads, not only during port operations but also when sailing with cargo onboard or in their holds.

Vessels from leading European owners specialising in such services often enter Remontowa Shiprepair Yard. These include SAL Heavy Lift from Germany and the Dutch Jumbo Shipping.

SAL Heavy Lift is a member of the Harren & Partner Group, one of the world's leading carriers specialised in sea trans-

port of heavy lift and project cargo, with headquarters in Hamburg. The company is also a member of the JSL Alliance.

Already in 2021, SAL Heavy Lift and Jumbo Shipping have joined forces in handling large-scale shipments. In turn, since March 2024, an American operator, Intermarine, has joined the Jumbo-SAL pool, which has been rebranded as the JSI Alliance, replacing the existing Jumbo-SAL Alliance as the unified marketing platform and brand.

Despite their collaboration in the JSI Alliance, Jumbo, SAL, and Intermarine remain independent as operators and owners. This independence ensures that the three brands continue to actively contribute to the market, fostering diversity and healthy competition.

As of 1 March 2024, JSI Alliance boasts a combined fleet of 50 units that ranges from multipurpose vessels to the most advanced heavy-lift ones in the world, with a lifting capacity of up to 3,000 tonnes, offering solutions for liner and multipurpose breakbulk and semi liners, heavy-lift and project cargo shipping. The joint venture alliance provides logistics for wind, oil & gas as well as for marine and industrial machinery sectors.

All SAL vessels have an extensive range of cargo handling equipment, including forklifts, spreader bars, lifting beams, and materials for lashing and securing items.

In 2024, we welcomed two vessels owned by SAL Heavy Lift to Remontowa. Both came to us for emergency repairs. For these projects, the execution time is a crucial factor. A smoothly completed repair is expected to restore the vessel to full efficiency so that she can take on her next assignment as soon as possible. These repairs are not just about fixing the issue but also about ensuring the vessels can continue their operations without significant downtime.

Anna and *Svenja* are general cargo vessels strengthened for heavy loads, owned by SAL Heavy Lift GmbH and technically managed by SAL Ship Management UG (haftungsbeschränkt) & Co. KG.

The *Anna* (LOA 133m, beam 23m and about 10,000 dwt) is one of the six 116-type vessels (the others are *Calypso*, *Amoenitas*, *Imke*, *Hilke* and *Caroline*) featuring two deck cranes amidships, with SWL of 450 tonnes each (combinable up to 900 t SWL, plus auxiliary hoist 2 x 35 t SWL) and equipped with the highest ice class equivalent to Finnish / Swedish 1A. These specifications highlight the vessel's strength and versatility, making it suitable for a wide range of heavy-lift operations.

Anna arrived for a couple of days of emergency repairs. Once the vessel was directed to the dock, our teams replaced the seal on the propeller shaft with a new one, which was the main scope of work. Taking advantage of the vessel's drydocking, the client additionally commissioned us to perform hull maintenance.

The *Svenja*, on the other hand, is one of two larger Type 183 vessels (the other being *Lone*) with a length of 160.6m, a beam of 27.91m and a deadweight of 12,975 tonnes. Her two mighty deck cranes, with a single lifting capacity of 1,000 tonnes, can together raise a maximum cargo of 2,000t SWL.

Also, for this vessel, our main task as part of an emergency repair was to replace the seal on the propeller shaft. While the ship was drydocked, we additionally carried out maintenance on the hull, as well as some other work, including pipes and hydraulics on one of the deck cranes.

It is worth mentioning that in 2023, we had the privilege of hosting another vessel belonging to SAL Heavy Lift at the Remontowa Shiprepair Yard.

We retrofitted the high-speed heavy cargo vessel *Maria* (of 161B type) with a Ballast Water Treatment System, making her compliant with a BWM Convention. Steel repairs, involving eight hatch covers and four inter-decks, were also an important job.

We also renewed the steel in one of the cargo tanks and replaced the seals - under the propeller blades and on the stern tube. The vessel also underwent maintenance of the hull, superstructure and cranes at Remontowa.

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Svenja moored at the quay in Remontowa.
Photo: Sławomir Lewandowski

We came up with some innovative approaches to facilitate the vessel's repair

All-round overhaul of *Rui Fu Sheng*

The tanker visited us in the summer. Remontowa performed many tasks, including hydraulics, piping, electrical and repair work in various areas of the vessel.

The most challenging aspect of the repair work was the overhaul of the hydraulics systems. The critical path involved replacing nearly 60 running metres of hydraulic wire runs under the catwalk. Due to its complexity, the work had to be executed in several stages. The first step was to replace the hydraulic holders, followed by the dismantling of the valves to allow our hull specialists and pipefitters to complete the subsequent scopes.

Our teams also encountered unexpected repairs, such as the replacement of almost 50 holders on board, even though there were originally only supposed to be a dozen. The scope of the overhaul also

saw repairs to the various systems pipelines, including a fire system, a hydraulic one with a larger diameter, the steam systems and those serving the Framo pumps.

In addition, the pipes in the engine room and some steam pipeline sections were renewed, both in the cargo area of one of the tanks and on the deck itself, where a lack of insulation generally leads to rapid corrosion.

Our hull workers fitted inserts on the starboard side plating and also did extensive repair work on deck. They prefabricated new rails over 50 metres long at the manifold. At the mooring fittings area, the rails at the bollards were repaired, as were the cover handles from the anchor windlasses.

It was also necessary to fabricate new ventilation mushrooms. In addition, the deck above the CO2 and acetylene compartments was replaced, while the aft mast on the superstructure above the wheelhouse was renewed.

The fitting operations on the main deck were crucial for ensuring the safety and efficiency of the vessel. Shielding pipes were installed to carry the cables and handles, enhancing the overall safety measures on the deck.

Sealing the cable transits on the superstructure was a significant task. Our patented procedure, which allowed us to seal the transits without removing the cable runs, was a result of successful collaboration with the shipowner and DNV. Their acceptance of our concept enabled us to complete the challenging work faster, cheaper, and more efficiently.

Our work on the vessel's automation systems was not just routine. We applied novel methods that accelerated our job, demonstrating our commitment to progress in the field of vessel repair.

Our outfitters repaired the starboard aluminium gangway, making the necessary inserts and straightening the bends on the handrails. Fitting work included the free-fall lifeboats and their davits, as well as a provision crane.

The *Rui Fu Sheng* chemical oil/product tanker (ex *Mr Sirius* and *Atlantica Breeze*) was built in 2007. She is 183m long and 32.2m wide and flies the flag of Liberia.

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The tanker *Rui Fu Sheng*, owned by DORIS SHIPPING CO. and managed by a company from Singapore, underwent a comprehensive overhaul at Remontowa.
Photo: Sławomir Lewandowski

First special surveys of environmentally friendly MPP vessels

Steering systems are now fully operational!

Mick and _Keith_, some of the latest additions to the modern fleet of dship Carriers GmbH & Co. KG, have undergone their first five-year class renewals at Remontowa Shiprepair Yard.

The dship Carrier's fleet currently consists of various multipurpose, heavy lift, tween deck vessels with around 12,500 DWAT and a combined crane capacity of up to 500 metric tonnes. This allows for a broad set of fully customisable services tailored to clients' ocean chartering needs.

The *Mick* and *Keith* are two of the four newest eco-friendly multipurpose heavy-lift vessels of the type F500 (the others are *Charlie* and *Ronnie*), owned by dship Carriers GmbH & Co. KG headquartered in Hamburg.

Contributing to global decarbonisation, the German family-run company ordered them as part of their fleet expansion program initiated back in 2018. All newly built vessels have been developed to reduce fuel consumption while increasing stowage flexibility. Each one is equipped with two Liebherr cranes, featuring a single lifting capacity of 250 metric tonnes, and has a deadweight of 12,385 t.

Fitted with a Becker Mewis Duct and a Becker Flap Rudder integrated into one effective steering system, the F500 vessels are the company's next step toward environmentally friendlier shipping solutions supporting lower fuel demand. These energy-saving devices consist of two elements mounted on the vessel in front of the propeller and an integrated fin system.

The *Mick* and *Keith* are MPP dry cargo vessels, strengthened for heavy cargo and equipped for containers (872 TEU). Both are certified for the carriage of dry bulk cargo, including grain, coils, metal concentrates, salt, sugar, cement, scrap metal and ore. General cargo includes cotton and agricultural products, steel, forest products, project cargo, heavy cargo, containers, dangerous goods, etc.

The first to arrive for her class renewal at Remontowa was *Mick*.

The vessel was docked twice at our shipyard. The first time, *Mick* underwent an overhaul of the overboard fittings and the bow thruster. Other work included seal re-

Night view of the *Mick* moored at the quay in Remontowa.
Photo: Sławomir Lewandowski

Mick and *Keith* (the second vessel in the foreground of the picture above) were docked twice at Remontowa to undergo reconditioning of the Becker rudder system.
Photo: Sławomir Lewandowski

placement and bonding of the stern propeller shaft seal.

Repairs were also required to the rudder blade and stock, where we detected damages. Both of these Becker rudder system components were dismantled and then transported to a specialist company in Denmark for reconditioning. Upon their return to Remontowa, the *Mick* re-entered the floating dock, and our teams efficiently mounted the repaired components back into place.

The second MPP vessel that arrived for a special survey was *Keith.*

During the first drydocking of the vessel, one of the main tasks was installing a new Becker Mewis Duct. Also in scope were overhauling the overboard valves and the bow thruster as well as the replacement of the propeller shaft seal at the stern.

In addition, the Becker rudder flap and bulb, which increases propulsion efficiency and reduces hub vortex, needed intervention and were dismantled for this purpose. As the Becker linkage system was found to be damaged, the hinges underwent machining while new bushings and pins were fabricated. Once the repairs to the rudder system were completed, the vessel returned to the dock for reassembly of these devices.

Work in the vessel's engine room included overhauls - of the main engine, exhaust valves, fuel pumps, boiler safety valves and air cylinders. Our pipe fitters repaired seawater lines.

In turn, our hull specialists fabricated a new breakwater, installed on the bow below the manoeuvring deck, to prevent seawater overflow in rough seas.

Minor fitting operations were also performed on board the vessel. The scope of the project also included hull maintenance, replacing the Marine Growth Prevention System anodes and overhauling electrical motors and fans.

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Energy-saving requirements for vessels are increasing, and fleet modernisation is gaining momentum

We facilitate the green transition

New regulations coming into force to decarbonise shipping are driving the shipyard market. In a recent survey of Clarkson Research, Remontowa Shiprepair Yard ranks highly in Europe.

Clarksons has recently published its half-yearly Shipping Review and Outlook. Global Head of Clarkson Research Steve Gordon summarised its findings along with data on the global ship repair market from the World Fleet Register. Drydock Magazine posted his insights in the September issue, titled "Robust markets and a steady stream of ESTs (Energy Saving Technologies)."

Maritime trade and emissions are on the rise…

As Gordon points out, there has been strong growth in various shipping segments over the past six months. The Clarksea index increased by 6 per cent year-on-year to reach US$25.4k per day, an increase of 43 per cent over the 10-year

Photo: Maciej Bielesz

trend. Underlying freight trade volume growth and a major disruption in shipping patterns again proved beneficial, stimulating shipping alongside supply constraints in some key markets.

Maritime trade is on the rise. After last year's 2.4 per cent increase, volumes are now continuing to rise and are forecast to reach 12.6 billion tonnes this year, up 2.3 per cent, mainly driven by Chinese exports. Clarksons' analysts expect the strongest growth in tonne-kilometres (up 5.1 per cent) in more than 10 years, and although part of it is due to long-haul exports through the Atlantic, the upturn in shipments is mainly 'driven' by geopolitical disruptions.

Greenhouse gas emissions are set to rise in 2024, putting more pressure on regulators. This year, the number of newbuilding orders for alternative-fuel vessels has fallen to 41 per cent of totally contracted tonnage. Thus, despite the challenges and uncertainties associated with trade disruptions, the near-term energy transformation of the global fleet, driven by current and future regulations, will generate new financial flows in shipping markets.

Global ship repair market

The intensifying market trend towards the decarbonisation of shipping will continue to stimulate the industry, including the market for ship repair and conversion.

China remains the largest global player, with a 37 per cent share in the first half of this year (for the full year 2023, the country had a 35 per cent market share). Turkish yards are second (9 per cent), followed by Japanese and Indonesian ones with 7 per cent and 6 per cent market shares, respectively.

Turkey has the leading share in the European region (28 per cent). However, the criterion by which Clarksons' analysts geographically "count" Turkish yards, mostly located in the Asian part of the country, into Europe is not entirely clear.

This chart, which also includes Greek and Italian yards on the Mediterranean, suggests that Clarksons extended the South of Europe to cover the entire Turkey (including its yards operating on the other side of the Bosporus, i.e. in Asia Minor). Turkey was followed in this ranking by ship repair yards in the Netherlands and Greece (8 per cent each), followed by Poland with 5 per cent of the European market.

In contrast, in a chart that highlights the geographical market for ship repair services in Northern Europe, the largest share is held by shipyards in the Netherlands (18 per cent), Poland is in second place (13 per cent), followed by Norway (10 per cent), Denmark (9 per cent), the UK (8 per cent) and other countries on our continent.

The best in Europe

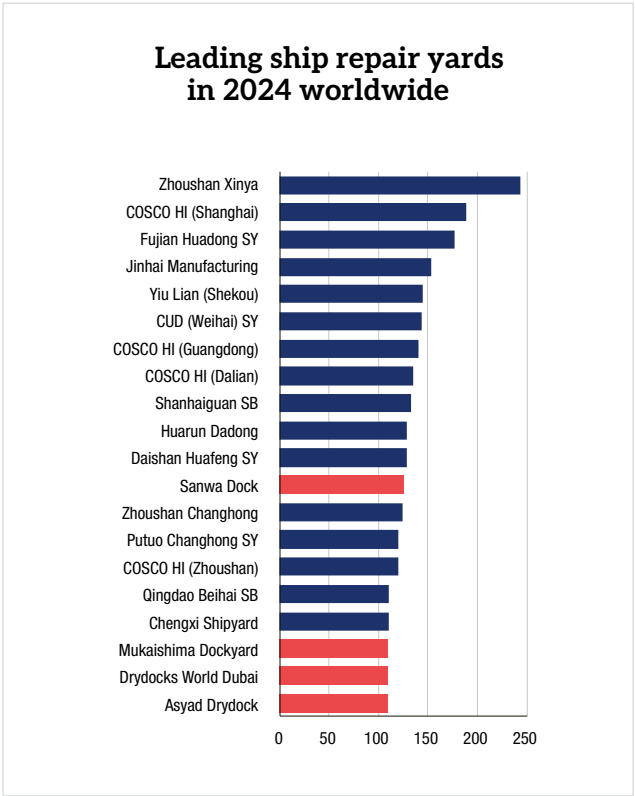
A summary of the most active ship repair yards in the world provides interesting information, although there is no surprise here. Of the 20 such shipyards, as many as 16 operate in China, and of the remaining four, two are in the Arabian Peninsula and two in Japan.

Even more interesting is the ranking of the top 20 ship repair yards in the world outside China. Here, Remontowa Shiprepair Yard is ranked 7th, overtaken by two Japanese shipyards, two Arab facilities and one from Indonesia and Greece, respectively. Behind Remontowa in this ranking are shipyards from the Arabian Peninsula, Indonesia, most Turkish facilities and three from Europe.

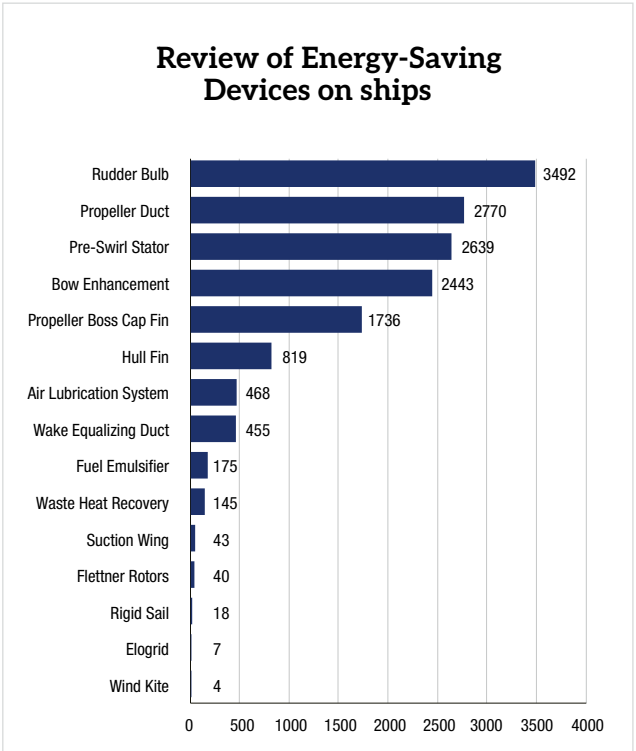
According to Clarksons, fewer and fewer ships are being retrofitted with scrubbers worldwide. In the first half of 2024, shipyards worldwide performed an average of 25 such installations per month, down from 2023 (roughly 40 installations) and well below the peak at the end of 2019 (around 200 such projects monthly).

Scrubbers and BWTS have filled the fleet

Currently, 25 per cent of the global orderbook, by gross tonnage, consists of newbuildings already fitted with scrubbers,

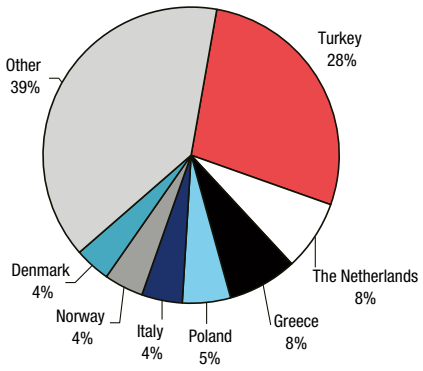


The number of unique repair events - as of July 2024. Yards in red are located outside of China.



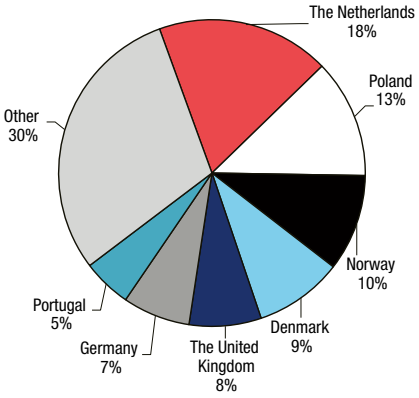
Vessels equipped (fleet and orderbook) as of July 2024, own graph based on Clarkson's data.

Refurbishment & Repair Events in 2024 by country, Northern Europe, Mediterranean & Black Sea Zones



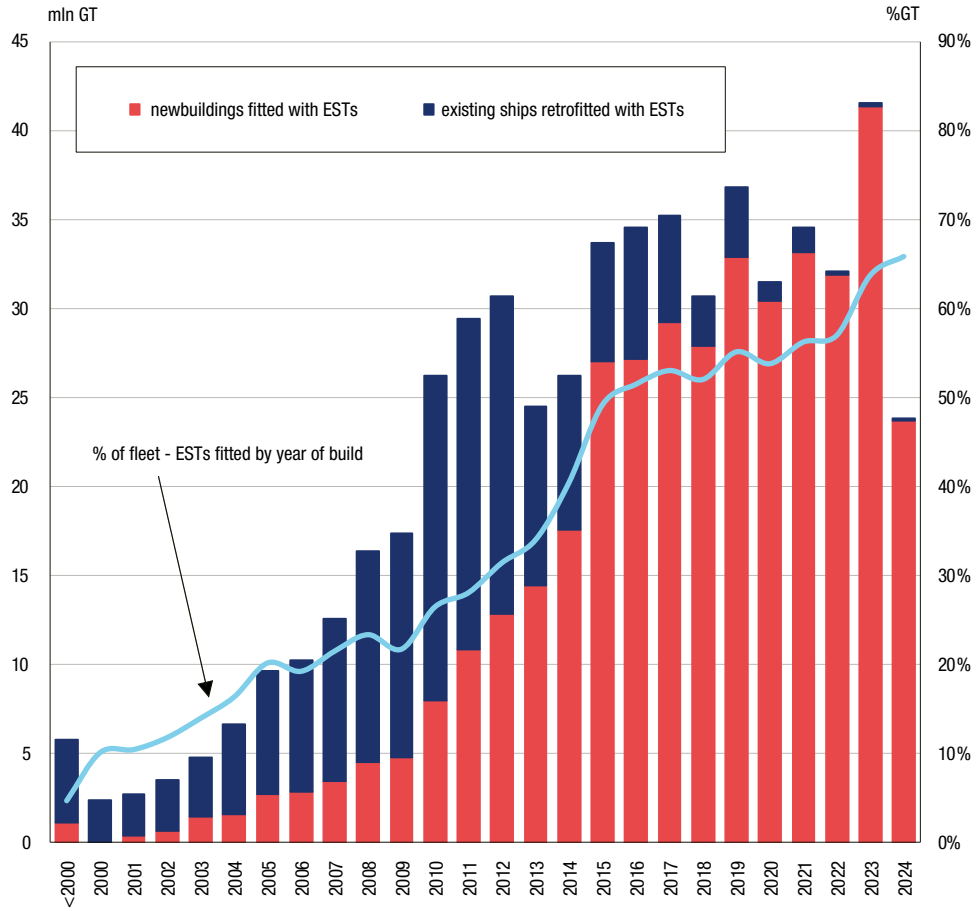
The number of unique repair events - as of July 2024, including special surveys, scrubber/BWMS retrofits, repairs, cruise refurbishments and other activities.

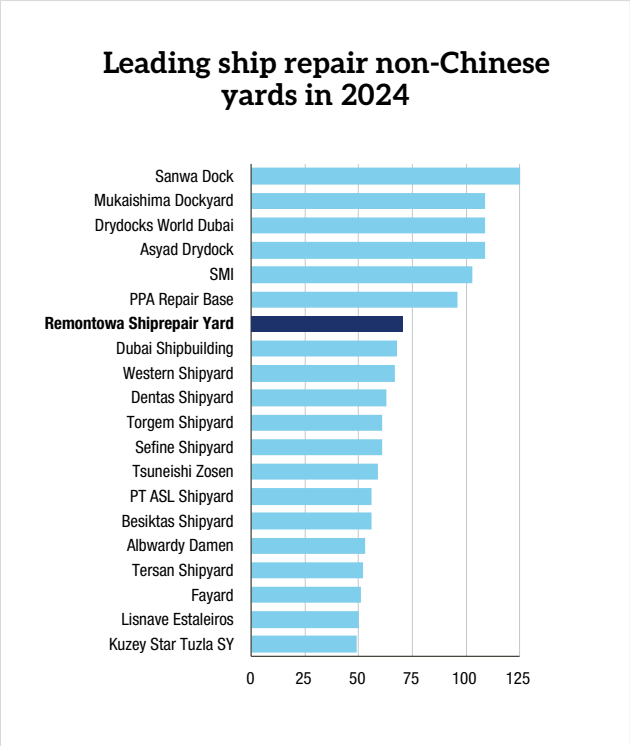
Refurbishment & Repair Events in 2024 by country, Northern Europe Zone



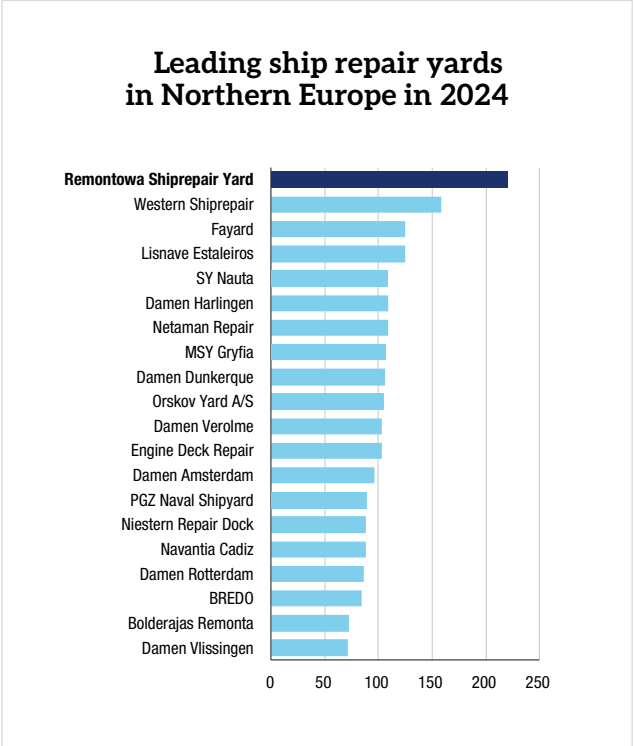
The number of unique repair events - as of July 2024, including special surveys, scrubber/BWMS retrofits, repairs, cruise refurbishments and other activities.

Equipping ships with Energy-Saving Technologies





The number of unique repair events - as of July 2024.



The number of unique repair events - as of July 2024.

down from 48 per cent of such tonnage in September 2019. On the other hand, around 50 per cent of vessels ordered for construction will already be adapted to run on low-carbon alternative fuels.

Until recently, ship repair yards installed Ballast Water Treatment Systems on vessels en masse. According to Clarksons, the number of these installations in shipyards is declining month by month as the global fleet modernisation programme is slowly drawing to a close (over 90 per cent of vessels worldwide, by dwt, have already been retrofitted with BWT Systems).

In contrast, there is a growing trend for retrofitting the fleet with Energy Saving Devices, which increase the vessel's performance while reducing emissions and fuel consumption.

Robust market for ESTs

The number of such projects carried out in the shipyards in 2024, as completed in 2023, averages 30 per month. Clarksons reports that more than 15,000 such retrofits have already been done globally.

As can be seen in the chart, plenty of equipment and technologies are deployed in various parts of the ship's architecture, both on newly commissioned, under construction, and currently operating ships.

Waste heat recovery systems from different suppliers are installed in the engine room.

Another solution in the engine room is Fuel-water emulsification (FEW) systems, which reduce smoke and carbon black by injecting a mixture of marine oil and freshwater into the engine. The main system component is the Fuel Emulsifier, which is available in many forms on the market.

From ducts and fins to wing sails

Shipowners can also choose from a wide range of devices which enhance the propeller's operation. Examples include Propeller Ducts (Becker Mewis Ducts), Pre-Swirl Stators, Rudder Bulbs, Propeller Boss Cap Fins as well as Wake Equalizing Ducts. As can be seen from the chart above, energy-efficient solutions such as these are installed on ships the most.

Modifications of a hull shape (Bow Enhancements) and systems to reduce the hydrodynamic drag of a moving vessel are also involved. Among these are Air Lubrication Systems, which produce micro air bubbles underneath the flat bottom of the hull.

Another method used in newly built vessels is patented, innovative bow section shapes such as Ulstein's X-Bow, Damen Sea Axe, or Kawasaki SEA-Arrow. These solutions help minimise the impact of waves hitting the bow and splashing, thanks to their better handling of large waves. Noise levels inside the hull are also reduced, improving safety and comfort for crews.

There are also many other bow enhancements, such as flow control fins, mainly offered by Japanese suppliers.

Yet another solution is the Elogrid (by Elomatic), a steel grid that covers the tunnel thruster openings in the hull. Its shape and structure, optimised by computational fluid dynamics calculations, maximises lateral thrust during operation in the tunnel, reducing noise and cavitation, which contributes to lower fuel consumption.

Finally, a separate group of vessel's energy-saving devices are Wind-Assist Propulsion Systems installed onboard to support the main engines. These include Flettner Rotors, Suction Wings, Rigid Sails, and Wind Kites.

Remontowa Shiprepair Yard has been retrofitting vessels with most of these technologies for many years.

Clarkson Research reports that, to date, the various energy-efficient solutions implemented on ships have already reached more than a third of the global fleet by gross tonnage (GT). However, there remains a huge amount of the vessels ahead…

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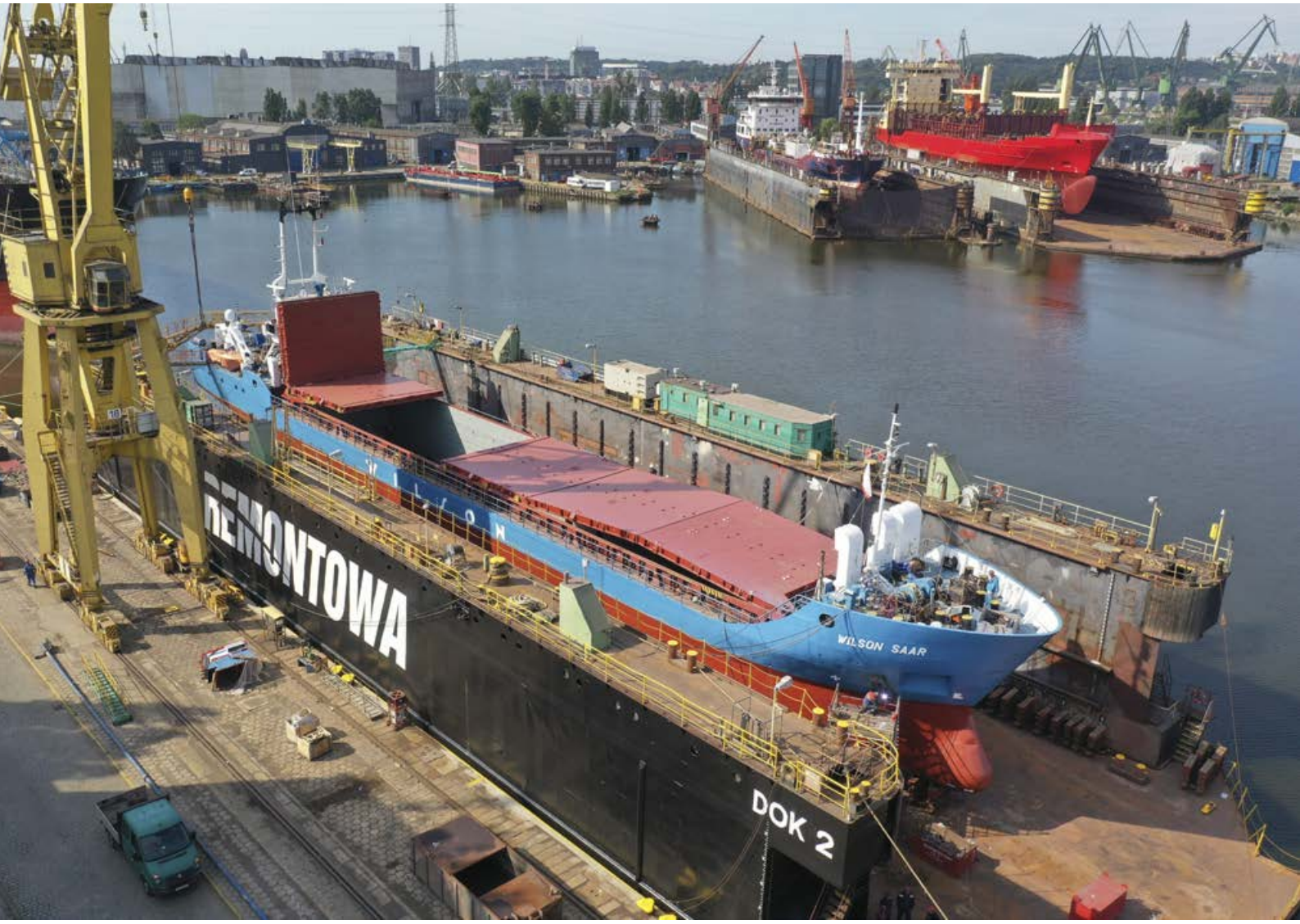
Compiled on the basis of: "Robust markets and a steady stream of ESTs" Drydock Magazine September 2024



In the case of *Wilson Saar,* we performed maintenance of the cargo hold and hatch covers (without dismantling), as well as steel replacements.
Photo: Sławomir Lewandowski

Wilson's big fleet of compact, versatile vessels

Cargo holds in focus

Remontowa Shiprepair Yard can accommodate the largest vessels that can enter the Baltic Sea. However, at the same time, we also frequently host compact vessels operating in short-sea shipping. This is the case with the fleet owned by Wilson ASA.

"We make Europe smaller! With a fleet of around 140 vessels ranging from 1500-8500 DWT, we are the largest short sea shipping company in Europe, and there is always a Wilson vessel close to you" - this is how the Norwegian shipowner summarises the essence of its business on the company website.

Distinguished by their characteristic blue hull, these ships are frequent visitors to European sea and river ports. Their trademark is the two-part names; in addition to

the shipowner's name, they also contain a geographical reference and, with a few exceptions, this applies to the entire fleet.

In 2024, a number of vessels from this shipowner arrived. The first was a multipurpose general cargo vessel with the Polish-sounding name *Wilson Wisla*, capable of both sea and inland navigation.

The vessel was originally called *Tove*, but when it was bought by Wilson ASA a few years ago and came under the technical supervision of Wilson Ship Management AS, it was renamed *Wilson Wisla*, joining the ranks of two other 'Polish' vessels - *Wilson Gdansk* and *Wilson Gdynia* (Wisla, which means Vistula, is a Polish river, and Gdansk and Gdynia are our cities).

Remontowa provided a comprehensive overhaul of the main engine and all pumps, along with other essential works such as overhauling the shaft line, cleaning and renewing the steel in the ballast tanks, cleaning the hold, and preserving the hull, ensuring the vessel's top-notch condition.

As another vessel from this shipowner, we welcomed the *Wilson Waal*, which was retrofitted here with a Ballast Water Treatment System.

We took care of the cargo hold by dismantling the bulkheads and hatch covers. In addition to replacing the steel, the running wheels on the hatch covers were repaired by hardfacing the tracks. We also

Wilson Wisla arrived at Remontowa as the first Wilson's vessel in 2024.
Photo: Sławomir Lewandowski

We retrofitted the *Wilson Waal* with a Ballast Water Treatment System. The vessel's hatch covers were dismantled – here we can see them under repair on the land.
Photo: Sławomir Lewandowski

overhauled the hydraulic motor that controls the hatch covers.

A large maintenance and painting scope was performed in the ballast tanks, including an abrasive blast cleaning to S.A.2.0 class. The cargo hold and hull also underwent cleaning and maintenance. We replaced several tonnes of steel on the plating and in the ballast tanks. An important task was also overhauling the main engine.

Not much smaller scope of repairs was done by Remontowa on the *Wilson Saar*. In this case, maintenance work dominated, affecting the cargo hold, the hatch covers (without dismantling) and steel replacements in the hold, ballast tanks, on the plating and inside the superstructure. The vessels' engines - main and auxiliary - underwent a comprehensive overhaul.

Both *Wilson Waal* and *Wilson Saar* were dry-docked for repairs. As they left Remontowa, another vessel from this shipowner arrived - the *Wilson Lahn.*

She was overhauled at the quay. Again, the work mainly concerned the hatch covers, including removal of the running wheels and inspection of the hydraulic cylinders of the covers, as well as blast cleaning of the cargo holds. Overhauls included the main engine and the fire pump.

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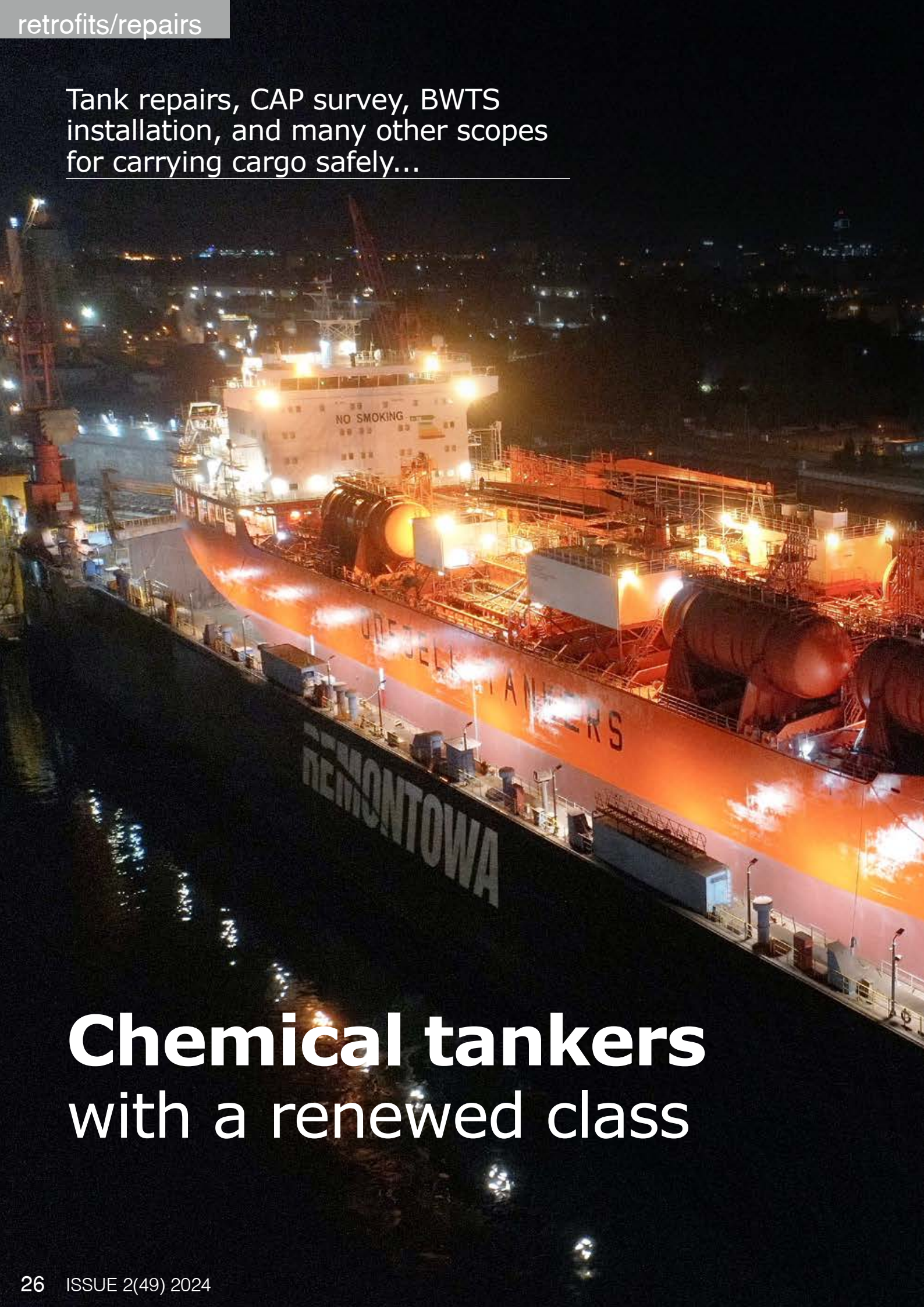
Tank repairs, CAP survey, BWTS installation, and many other scopes for carrying cargo safely...



Chemical tankers with a renewed class

In Q3, numerous chemical tankers arrived at Remontowa Shiprepair Yard. The main, but not exclusive, reason for those visits was a class renewal.

It is no exaggeration to say that chemical tankers belong to the group of ships that visit our shipyard most often. This was also the case in the summer months.

Nike

The chemical tanker *Nike*, owned by K-Ships of Genoa, made her first call in 2019 for a special survey. Subsequently, we have also refurbished the ships *Greta K* and *Korsaro* for this Italian shipowner, demonstrating our ability to handle a variety of repair and maintenance tasks.

In July this year, we again hosted *Nike* for a class renewal; this time, however, the visit was extended by retrofitting her with a Ballast Water Treatment System supplied by Desmi. This comprehensive project involved various aspects of the ship's systems, from the installation of the system's components to the necessary modifications for its integration.

We installed the filter and UV lamp in the deck tunnel, while the system's main control panel went into the Framo room, which was specially adapted for this purpose. In the pump room, we made the necessary modifications to connect the new BWT system to the ballast pumps.

We conducted a CAP inspection on the Norwegian chemical tanker *Bow Spring*.
Photo: Sławomir Lewandowski

In July this year, we hosted *Nike* for a class renewal.
Photo: Sławomir Lewandowski

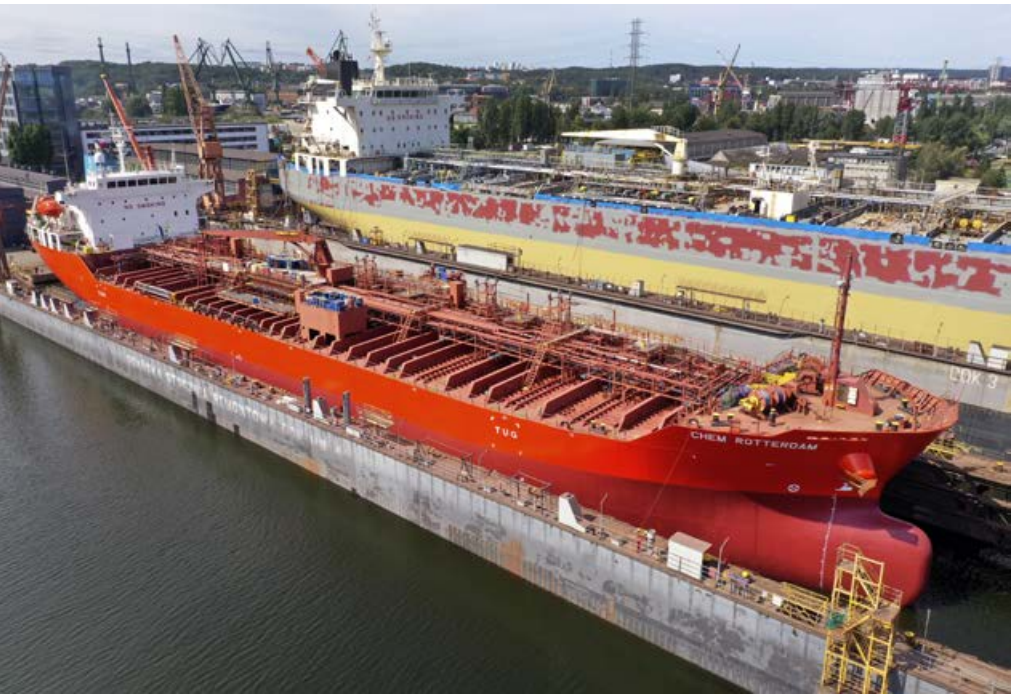
Remontowa also renewed other pipelines on the vessel, including those in the ballast tanks, the ODME (Oil Discharge Monitoring Equipment) system, the main deck, and the engine room.

The main engine underwent an overhaul, including the turbocharger, the pumps - oil and cargo - and the water heaters for cleaning the cargo tanks. In addition, we cleaned alternators and gensets while the Framo pump engines were fitted with new bearings, and a PV valve overhaul was performed.

The deck repairs included the hydraulics of the davits - the freefall boat davit and the one located amidships; we also repaired the actuator of the latter.

A challenging task was replacing the steel on the bulbous bow, primarily inside. Due to its small size, the work had to be executed in several steps.

Chem Rotterdam entered the dock immediately after calling at Remontowa.
Photo: Sławomir Lewandowski



Chem Rotterdam

Another chemical tanker handled in Q3 of this year was *Chem Rotterdam*, which entered the dock immediately after calling at the yard.

One of the main tasks on this vessel was hull maintenance. Steel repairs included the ballast tank structure, while the seawater system underwent modifications. Once the anchor chains were dismantled, we measured and shortened them to the required length.

Among other improvements made to the ship were tests of gangways, accommodation ladders, lifeboat davits, and cranes, overhauling of the actuator from the hose-handling crane, and lifeboat trials performed in the shipyard testing pool.

Ulus

The highlights of the chemical tanker *Ulus* drydocking were hull maintenance, seawater piping repairs, work on the propeller, and overhauling of the overboard valves.

Once this scope was completed efficiently, the vessel left the dock and was moored at the quay to continue the work. There, we overhauled three systems on the main engine. We also replaced the cable lengths of both anchor chains as well as the handles and supports under the pipelines on the main deck and in the ballast tanks.

We have also repaired the Bow Loading System crane located amidship. After inspection, it also became apparent that eight ballast tanks needed maintenance.

STI Acton and *STI Fulham*

In summer, vessels managed by Scorpio Commercial Management of Monaco - *STI Acton* and *STI Fulham* - also called at Remontowa for class renewals. The repair scope on both was similar.

While in dock, the vessels underwent inspections of the steering gear, seals on the propeller shaft, the bow thruster and overboard valves, as well as maintenance of the hull and propeller.

Our pipe fitters worked on seawater systems. They also installed a heater and a new steam line in the ballast water treatment system room.

The main engine was overhauled, and repairs were made to safety valves, cooling systems and the boiler. The operation of the electric motors was checked and adjusted.

The scope of deck work included standard inspections of the anchor chains. The vessel's crane, davits and gangway underwent tests, and steel was renewed in the ballast tanks.

It is worth recalling that in 2019, Remontowa hosted as many as seven chemical tankers from this shipowner, retrofitting them with Ballast Water Treatment Systems. Those vessels also underwent docking and maintenance repairs related to their class renewal.

Chemical Sailor

This vessel called at Remontowa for her first special survey. The most important work was carried out in the dock. Our teams overhauled the overboard valves and repaired the rudder blade and stock. The shaft and propeller had to be removed to check the condition of the bearing in the stem area. The shipowner also commissioned replacing the existing paint system with a silicone one.

Other noteworthy scopes include work on the hose-handling crane, the repair of silencers for the auxiliary engines, and the overhaul of fans in the machinery room.

Bow Spring

In 2024, like two years ago, Remontowa Shiprepair Yard conducted a CAP (Condition Assessment Program) inspection of the ballast tanks on the Norwegian chemical tanker, according to a classification society's requirement.

The CAP certificate confirms the vessel's healthy status based on a strength assessment and fatigue resistance analysis, as well as a detailed inspection of the hull and checks of the tanks' current condition.

In addition, the ship underwent a standard scope to renew her class, much of which was done in the dock.

Remontowa dismantled the blade and rudder stock to replace the bearing. Our teams assisted in overhauling the bow thruster. The vessel also underwent hull maintenance.

In addition to dock work, there was also a lot happening on the deck and in the engine room.

The actuators of the hose-handling and provision cranes, the liferafts, the

Once dockside works were completed, the *Ulus* left the dock and was moored at the quay to continue the repair project.
Photo: Sławomir Lewandowski

The major job on the *Trans Adriatic* was installing a new bulkhead and making modifications to the main deck.
Photo: Sławomir Lewandowski

free-fall system lifeboat and the fast rescue MOB (Man Over Board) boat were inspected and repaired. In addition, hydraulic hoses were replaced with new ones on all that equipment. A new sewage treatment plant was also installed in the engine room.

Trans Adriatic

The major job on the chemical tanker *Trans Adriatic* was installing a new corrugated bulkhead between the designated tanks on the port and starboard sides and making modifications to the main deck.

Our specialists inserted approximately eight tonnes of 316LN stainless steel, a stronger steel than the 316L steel often used. To reconstruct part of the main deck, the cargo, bunker, and hydraulic pipelines were dismantled near the superstructure, which affected the communication paths.

The next stage of the work was a full docking and maintenance scope. We overhauled the mooring winch-anchor windlasses on the bow, as we did with the main engine, electric motors and generators. Renewing the steel in the ballast tanks and under the rudder stock, as well as the entire rudder system realignment, is also worth mentioning.

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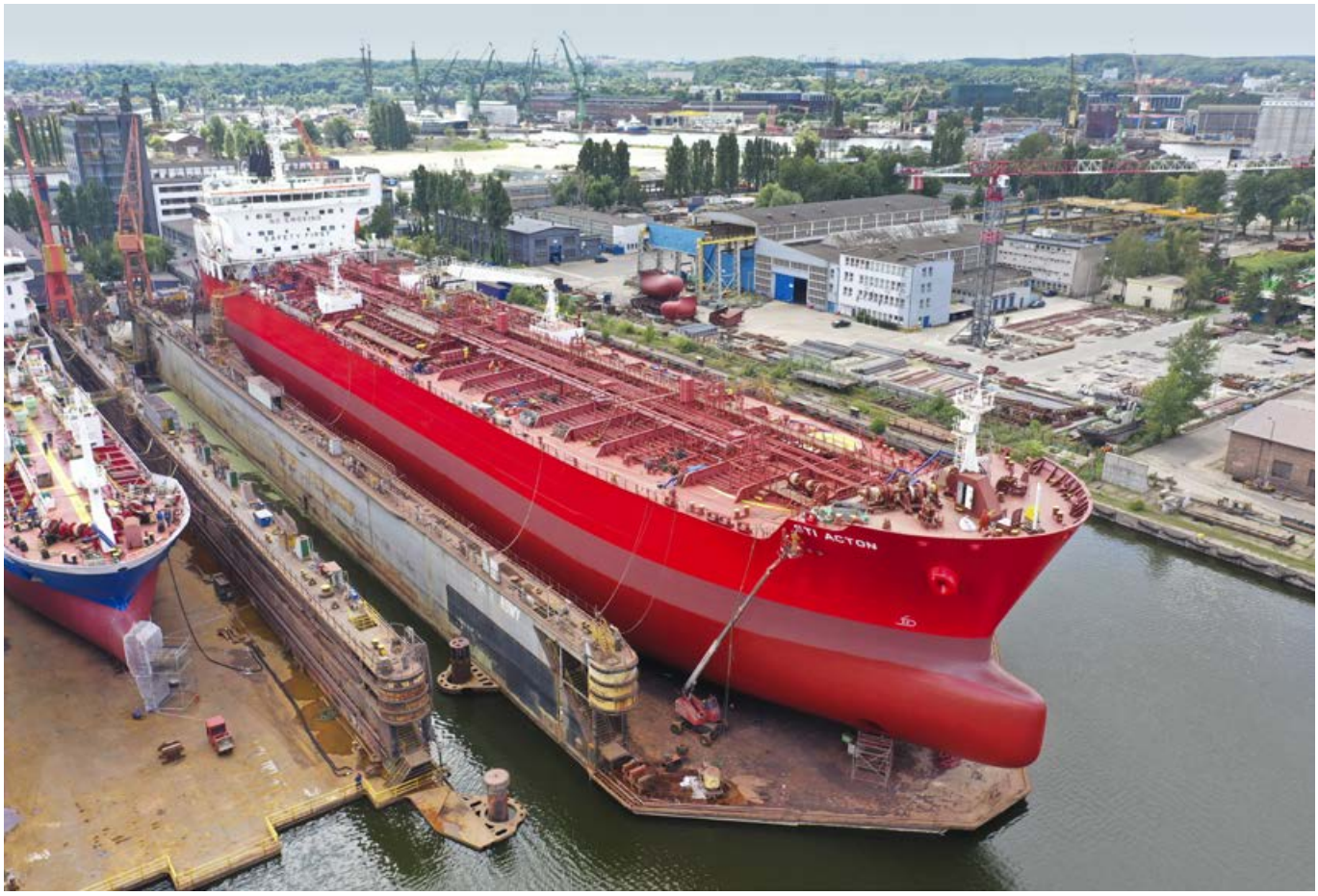
Chemical Sailor arrived here for her first special survey.
Photo: Sławomir Lewandowski



STI Acton in the dock at Remontowa.
Photo: Sławomir Lewandowski

STI Fulham moored at the quay.
Photo: Sławomir Lewandowski

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