

REMONTOWA

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550 tonnes up!

Odfjell's tankers

Maintenance
and class renewals

Page 6

Car carriers

*Patriot, Don Quijote
and Malacca Highway*

Page 10

BWTS retrofits:

Various ships
and treatment technologies

Pages 14-23



BWTS retrofits ride the wave!



One of the largest projects carried out by Remontowa in Q2 2021 was the conversion of a construction support vessel. As a result, as tweeted by its shipowner TechnipFMC: „Our One Fleet vessel Deep Star has been equipped with a 550-tonne crane that more than doubles her lifting capacity to deliver more flexibility for our clients!”.

This was the second project for this Client, following an earlier conversion of another ship, Deep Arctic, fitted at Remontowa with a hybrid propulsion battery support system.

It's worth emphasising, that once both projects had been successfully completed, TechnipFMC made a donation to the Foundation for children 'Help on Time', established in 1998 by Professor Zbigniew Religa, a pioneer of heart transplantation in Poland. The Foundation provides care for over 39 thousand ill and disabled children throughout Poland raising funds for complicated operations, expensive treatment and long-term rehabilitation.

„We are honoured that the crews on the world's most modern ships and their owners hold the work of our Foundation close to their hearts. We warmly thank them!” - wrote the Foundation's official announcement. May we extend our heartfelt thanks to TechnipFMC for this wonderful gesture, too.

As many commentators have recently noted, green ship upgrades are playing an increasing role in ship repair yard services worldwide. However, whilst scrubber programmes are „winding down”, retrofitting the vessels with ballast water treatment

systems is riding the crest of a wave. Remontowa is the best example. Since 2007, we have already fitted almost 100 ships with BWT systems, thus ensuring their compliance with the requirements of the BWM Convention.

Thanks to the implementation of these projects, we now have a wealth of expertise and experience in equipping the world's fleet with various ballast water treatment technologies (filtration and electrolytic disinfection, UV lamps, chemical infusion, chlorine dioxide treatment and many others) supplied by a very large amount of leading manufacturers.

With the support of our in-house design office, through 3D scanning of the vessel, we are able to select the relevant technology, to design its layout, to prefabricate the necessary components and to install the entire BWTS, including re-arranging the vessel's space to accommodate all system equipment.

Many shipowners entrust us with the installation of a BWT system on a ship, combining it with the execution of the ship's class renewal in the shipyard. Last year we fitted nearly 30 vessels with BWT systems, and there will be even more by the end of 2021. We are delighted that so many shipowners have trusted our expertise.

The most interesting projects in this field are also presented in this issue of Remontowa News.

Grzegorz Landowski
Communications Director
REMONTOWA HOLDING

3 *Deep Star* doubled her lifting capacity

6 Odfjell's chemical tankers with renewed class

9 Dredgers and hopper barges serviced

10 Car carriers from various global markets

BWTS retrofits:

14 *Harbour Feature* chemical tanker

15 *Seafrontier* tanker

16 *Northern Spirit* chemical tanker

18 *Juno* bulk carrier

19 *Key Breeze* chemical tanker

20 *Sten Moster* chemical tanker

22 *Libramont* gas carrier

23 *Xanthia* chemical tanker

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REMONTOWA
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Upgrading the *Deep Star* with a new powerful deck crane was the key element of the conversion.
Photo: Marcin Koszałka

Once converted the *Deep Star*
doubled her lifting capacity

550 tonnes up!

The *Deep Star* was a second specialist vessel converted for TechnipFMC in early 2021 at the Remontowa Shiprepair Yard.

It is worth remembering that the first ship converted here for the same shipowner in 2021 was the *Deep Arctic*. It is a specially designed and built diving support/heavy construction vessel suited for the demanding conditions, such as the North Sea.

That vessel departed from the Remontowa fitted with a hybrid propulsion support system which enables it to work throughout the year in virtually all seas and weather conditions. It has been upgraded to run as a battery hybrid in a move that reduces its fuel use and emissions by 20 percent.

According to TechnipFMC, the rechargeable batteries provide redundancy power for *Deep Arctic's* dynamic positioning thrusters. The dynamic positioning is used to keep a vessel in a fixed position for long periods during diving operations by adjusting it to the seabed.

As TechnipFMC has emphasized - *the change helps the company work towards the target of reducing greenhouse gas emissions by 50 percent by 2030.*

Thanks to the conversion the emission has been reduced by 30 per cent of the

final 50. What is more, using instant access electric battery power as the back-up means that fewer diesel generators are kept running. As a result the running hours of the engine and its maintenance is reduced by up to 50 percent!

The *Deep Star*, a DP2 construction support vessel - designed and built for subsea construction and flexible pipelay projects - was the next ship from the TechnipFMC fleet entrusted to us for conversion.

Upgrading the ship with a new deck crane weighing nearly 640 tonnes and

capable of lifting 550 tonnes was the key element of this conversion. The transportation of the crane from a floating barge to the ship and its installation on board proved to be a major challenge: the operation had to be carried out with highest safety precautions so as not to damage the elements and mechanisms protruding beyond the column of the crane, such as, electric motors, switchboards and other devices. The margin of error was just 20 cm!

The relocation and mounting of the new crane culminated many weeks of work completed in different departments of the Remontowa Shiprepair Yard: the preparation of the relevant technology, documentation and subsequent coordination of many different elements.

For example, the prior prefabrication of the foundation, which weighed more than 130 tonnes, required making a 60 millimetre-thick steel plate with such extreme precision, so that the foundation flange did not have to be machined before assembly. The permitted evenness deviation was a maximum of 0.3 mm!

The fitting of a heavy deck crane required the reinforcement of the structure of the ship from its bottom to the main deck. Alongside the scope of the crane-related conversion, the ship underwent a major overhaul, enabling the docking interval to be extended to 7.5 years!

The crucial part of work included the removal, comprehensive overhaul and then simultaneous reinstallation of seven propellers, which was both technologically and logistically challenging. The work was carried out efficiently and within a short timeframe. The scope of work involved the three largest stern thrusters and four smaller ones, including two retractable thrusters and two bow thrusters. As part of the overhaul work, the electric motors were thoroughly inspected and repaired, which involved the installation of new bearings.

The engine room was fitted with a new air conditioner, water heaters, two new centrifuges and a new oil separator. Shipyard workers also restored the engine room ventilation system to the full working order, which required its disassembly, inspection and repair of many components.

In the Vertical Lay System Tower (VLS), most of the hoses serving the hydraulic control systems were replaced with new ones. By replacing piping and nozzles, the entire anti-fire system was renewed.

Remontowa also carried out a lot of work on deck, such as fixing containers and specialised equipment of various kinds, inspecting all the covers and painting the tanks. The 50-tonne auxiliary crane also needed an overhaul of its cylinders and a bearing replacement, which involved prior dismantling of its components.

The fire protection system of the entire ship was upgraded. The anti-heeling system, which ensures the ship's stability during the operation of the newly installed crane required a comprehensive overhaul as well.

Similarly to the previous vessel, complying with high quality and safety standards Remontowa completed the *Deep Star* conversion project on time and within budget.

Ready to perform her new duties, the *Deep Star* left Remontowa in mid-July.

The *Deep Star* underwent a major overhaul, enabling the docking interval to be extended to 7.5 years!

Photo: Marcin Koszałka





Moving the pedestal of the new crane onto the *Deep Star* deck.

Photo: Marcin Koszałka

The operation of mounting the crane on board the ship was carried out with extreme precision.

Photo: Marcin Koszałka





The *Bow Flora* chemical tanker underwent a special survey in Gdansk.
Photo: Marcin Koszałka

Other Odfjell's chemical tankers arrived
for maintenance and class renewal

Bow Cedar, Bow Sun and Bow Flora

Chemical tankers, owned by the Norwegian shipowner Odfjell, regularly call at Remontowa. In the recent years, the *Bow Fagus*, *Bow Atlantic*, *Bow Aratu*, *Bow Star*, *Bow Clipper*, *Bow Faith*, *Bow Guardian*, *Bow Gallant*, *Bow Pioneer*, *Bow Summer*, *Bow Oceanic* and *Bow Condor* have all visited the quays and docks here.

The *Bow Cedar*, another chemical tanker owned by Odfjell, arrived at Remontowa this year. The main tasks comprised the repair of the ship and the replacement of 8 tonnes of steel in the ballast tanks. Thus the hull and deck maintenance was carried out: the Ultra-High Pressure Washing (UHP) method

was used to clean the main deck, then it was partially painted and small steel parts were replaced.

An extensive inspection and overhaul of all six main engine cylinders was conducted, including precise dimension check of the rudder and shaft. The state of repair of fuel pumps, valves on the boilers, blowers,

coolers and the shaft generator was thoroughly checked as well.

The scope of repair also included the inspection of PV valves, the overhaul of hydraulic cylinders of cargo-hose handling cranes and mooring winches. The gangways also needed to be surveyed and repaired.

After the *Bow Cedar*, the *Bow Sun* - another Odfjell-owned vessel - arrived to be serviced at Remontowa in the second quarter of 2021. When the ship was dry-docked, a number of maintenance and repair jobs were completed: the steel in the ballast tanks was replaced, the bow thruster was dismantled, repaired and reassembled. Other jobs involved hub machining, reinforcement of bow and stern seals, full servicing of the steering gear, replacement of anodes and filter verification.

A thorough inspection involved deck cranes, whose booms were dismantled for

maintenance. In addition, the hydraulic cylinder sockets were checked, bearings were measured and rope sheaves were overhauled.

The main engine and electrical motors underwent comprehensive overhaul. The following items: the compressor, the steering gear, the valves on the auxiliary boilers, the exhaust gas boiler, the main engine air cooler and the plate coolers of the heaters were thoroughly repaired as well. Finally, a new pump in the BWT system was installed.

On the *Bow Sun*, as previously on the *Bow Cedar*, CAP (Condition Assessment Program) surveys were carried out. The CAP survey is based on the strength assessment and endurance analysis consisting of a regular comprehensive inspection of the hull, along with the current technical condition of the tanks. Thus, a large scope of work had involved the hull and

The *Bow Sun* drydocked at Remontowa in 2021.
Photo: Marcin Koszałka





Bow Cedar was the first Odfjell-owned ship serviced at Remontowa in 2021.

Photo: Marcin Koszałka

deck. Receiving the CAP certificate confirms the good condition of the vessel.

The *Bow Flora* was the third chemical tanker which called at Remontowa in the second quarter of 2021. The vessel underwent a special class survey. Shipyard workers replaced more than 15 tonnes of steel in all ballast tanks and in the grey water tank. Then the tanks underwent maintenance, along with a considerable amount of work in the forepeak, including numerous areas with damaged coatings.

Maintenance and paintwork was also carried out in various areas of the ship including the chain lockers, the sewage treatment plant and the sea chest main.

The most important task though was the general overhaul of the anchor windlass and the mooring winch, which had been dismantled for that purpose. The machines in question were fitted with new shafts, repaired, reassembled and finally installed on the deck again.

As part of the class renewal, the ship underwent numerous overhauls, which included the electrical motors, shaft generator, fuel pumps, a large number of valves from various systems (steam, boiler, outboard) and boilers. A partial overhaul was also administered to the main engine.

An overhaul of the hydraulic cylinders of hose-handling cranes was carried out, including machining and chroming of the rods. The operation of all deck cranes was also tested.

Repairs to piping systems were carried out in various areas of the ship. The ship's hull received full maintenance. In order to cut down on the time of the repair, shipyard workers and alpine climbers were involved in the tank cleaning machines overhaul. Another big job was the repair of the bow section.

Specialised vessels from the Royal Boskalis B.V fleet at Remontowa

Dredgers and hopper barges

Following repairs of the dredgers *Pallietter* and *Utrecht*, completed in 2021, Dutch shipowners entrusted the Remontowa with two more vessels: the suction hopper dredger *Willem van Oranje* and the hopper barge *Wadden 2*.

The *Willem van Oranje* is a sister vessel of the TSHD *Gateway*, which was serviced at Remontowa a few years ago.

Actually, the *Willem van Oranje* herself was repaired in our yard before. In 2014, the scope of work included the repair of such elements as, dredging pipelines, draghead, rudder, gangways and mooring winches.

In 2021, the vessel called at Remontowa for an intermediate survey. The most important tasks required overhauling the sliding piece and replacing all sea water cooling pipelines in the engine room, which involved working on over 100 sections in total. What is more, a large number of the dredging system pipelines were replaced as well.

Previously the vessel had been treated with standard paint system whereas this time a special thick paint, resistant to wear and tear, covered most the hull's surface.

It is worth mentioning that last year TSHD *Willem van Oranje* was involved in preparations for laying the underwater gas pipeline for the Baltic Pipe project. It is the first dredger in the world entirely powered by biofuel instead of fossil fuels. Thus it emits up to 90% less carbon dioxide which in turn contributes to the reduction of its carbon footprint.

Remontowa also hosts smaller ships that assist in hydrotechnical jobs. Such vessels usually operate as a support for complex projects, such as laying submarine cables or pipes in many different places, e.g. at the Baltic Sea.

In the past, Remontowa had already repaired ships of this kind, for example the *Corksand*, *Longsand*, *Frigg* and *Rind*, which belong to Royal Boskalis. The *Wad-*

den 2 hopper barge is used to transport the dredged material.

In the case of *Wadden 2*, the main repairs were connected with the damaged hull, which resulted from the very nature of operations it was involved in, i.e. direct berthing to the sides of dredgers. The stern section of the barge, which came into contact with ice floe during one of the operations, required renewal.

A lot of maintenance work on the hull and the superstructure was carried out. Additionally, the lower part of the superstructure was thoroughly cleaned using UHP (UltraHigh Pressure Washing) method and then painted.

Finally, while the vessel was drydocked, one of the two cylinders was replaced with a new one and the anchor windlass was overhauled.



The dredger *Willem van Oranje* departed from Remontowa having its intermediate survey successfully completed.

Photo: Marcin Koszałka

Renewed class, rebranding,
restored mooring power and more...

Car carriers

The Remontowa Shiprepair Yard has been continuing to carry out repair and retrofit projects on more large car carriers calling here from various global markets.





In 2021 the *Patriot* PCTC was retrofitted with a BWT system at Remontowa.
Photo: Marcin Koszałka

The PCTC *Patriot*, owned by American Roll-On Roll-Off Carrier (ARC), left Remontowa in June 2021. She was the second ship of this type acquired for repair by Remontowa Shiprepair Yard. Previously in 2017, we hosted the *Integrity*.

The Patriot transports cars or military vehicles

Apart from carrying cars, the *Patriot* also transports US Army equipment to Europe. The ramps of the car carrier in particular needed a lot of attention. The individual sections of the stern ramp had been dismantled so that they could be mechanically processed, the hydraulic motors and ropes were replaced and the cylinders overhauled. A similar scope of work also applied to the side ramp.



Rebranding work was one of the reasons for the PCTC *Don Quijote* to call at Remontowa in 2021.

Photo: Marcin Koszałka

Shipyard workers took care of the ship's propulsion. The main engine cooling systems were overhauled, along with the repair and commissioning of the air distributor. The turbocharger was overhauled, the propeller was inspected, tested, and finally, burnished.

In the cargo area, the fans were removed and the EX type electrical motors were overhauled. Almost a tonne of steel was replaced in part of the ballast tanks. The shell heat exchangers were cleaned and tested.

The *Patriot* was retrofitted with a BWT system. The crucial task for Remontowa was the prefabrication of the pipelines and foundations, then installation and commissioning of the BWT system supplied by Alfa Laval.

The entire ship was painted including all markings on the hull - almost 19,000 square metres in total, including the wheelhouse wings. In addition to paintwork, anchor and chain measurements were carried out, anodes replaced and outboard valves inspected.

The Don Quijote in new livery

Rebranding work was one of the reasons for the PCTC *Don Quijote*, owned by Wallenius Wilhelmsen Logistics, to call at the Remontowa Shiprepair Yard.

At the yard the ship was entirely repainted. The sides were given a more powerful sea green, the lower part of the hull was painted grey, while the superstructure and decks were kept white. On the sides the name of the ship owner was renewed.

The change of livery involved a large amount of paintwork. In addition to the hull, there were many smaller components to be painted, such as the ventilation heads, free fall system lifeboat davits, ramps and the funnel, among others.

In addition to rebranding, the shipyard completed additional assignments. The main engine, the steering gear, electric motors and fans in the engine room as well as on the cargo decks underwent thorough comprehensive overhauls. One of the bow thrusters

and the entire pneumatic system of the main engine, including spare parts replacement, were also meticulously overhauled.

The shaft generator and auxiliary generators were cleaned. In the BWT system a filter of a new type replaced the old one. About 300 anti-skid bars (so-called fish bone) were replaced on the cargo ramps, and the combined anchor-mooring winches were also renewed.

The Malacca Highway regains her mooring power

The *Malacca Highway* PCTC, owned by K-Line, called at Remontowa for the second time. Previously, she visited our shipyard in 2019.

An important objective of this year's visit was to repair the anchor windlass-mooring winches. The initial plan was to dismantle, verify, measure and reassemble them. However, this scope of necessary

repairs was extended by the shipowner and finally comprised steel replacements, production and insertion of two new cable lifters.

The work performed on the propulsion system, especially the overhaul of the main engine bearings, is worth mentioning. The ship's propeller, having previously been dismantled, was reconditioned by burnishing the blades and machining the liner. Several ballast tanks were cleaned. Access holes had to be burned into the tanks located on the bottom of the ship.

The renovation of the *Malacca Highway* also required replacement of the ropes on the stern and side ramps and thorough inspection of electric motors that drive fans supplying fresh air to the engine room and car decks. Steel was replaced in several places on the hull plating and decks. In addition, the hull underwent maintenance and painting.

●



The *Malacca Highway* car carrier has regained her mooring power at Remontowa.
Photo: Marcin Koszałka

BWT system installation on the Danish chemical tanker

The *Harbour Feature*

It was the second visit of the *Harbour Feature* chemical tanker to Remontowa Shiprepair Yard. The vessel left Gdansk equipped with a BWT system supplied by Alfa Laval.

Previously she was here in May 2013 for an emergency repair after a collision near the port of Portsmouth, New Hampshire (USA). By repairing, among other things, the damaged plating on the hull, as well as the controllable pitch propeller blades that were affected in the accident, we restored the vessel to the full operation.

This time the *Harbour Feature*, which is owned by a Danish company Nordic Tankers Marine, called at us for the installation of a BWT system.

As on the *Northern Spirit* and several other ships previously retrofitted with

such a system, on the chemical tanker *Harbour Feature* a part of the system, including filters, a UV lamp and pumps, was accommodated in a specially fabricated deckhouse, which was then mounted on the starboard deck.

Along with the installation of the BWT system, the ship also underwent numerous maintenance works.

The propulsion system required special attention. The main engine was overhauled along with the air cooler. The bow thruster was also repaired: its blades were dismantled and underwent mechanical treatment.

The seals on the propeller blades were replaced and the oil was changed to bio-oil. All the box coolers were also overhauled, which required them to be dismantled, cleaned, re-assembled and checked for leaks.

The scope of work was supplemented by fans and outboard valves inspections. Welding work was carried out on board and some steel was replaced both in the cargo tanks and on the hull. A major assignment involved the overhaul of several dozens roller fairleads. While the ship was in dock, the hull was painted.

The *Harbour Feature* chemical tanker drydocked at Remontowa.
Photo: Sławomir Lewandowski





The *Seafreighter* has been retrofitted with the Purimar BWT system at Remontowa.
Photo: Marcin Koszałka

Valles Steamship trusted Remontowa again

Second visit of the *Seafreighter*

The *Seafreighter*, a tanker owned by Valles Steamship, had already called at Remontowa before. In 2021 she arrived here to undergo a retrofit project.

In 2017 after a collision in the English Channel, the tanker underwent extensive emergency repairs. This year the ship arrived for drydocking and the installation of the Purimar BWT system supplied by Samsung Heavy Industries.

In the case of this system, the ballast water treatment process consists of two operations: mechanical separation and disinfection. At ballasting the sewage is filtered and then at deballasting a neutralization unit decreases total residual oxidants (TRO) concentration before discharging water.

Some elements of the BWTS equipment were installed in one of the existing lockers in the engine room whereas the filters and pumps were mounted on the main deck.

Other jobs involved overhauling the heaters, fuel injection pumps and the main engine air cooler; seawater pipes were prefabricated, a new line to the redundant condenser in the engine room was laid and outboard valves were replaced.

A special care was given to the ballast tanks as all ballast tank covers were in-

spected. Finally, cargo and ballast piping tests were carried out.

At Remontowa the *Seafreighter* was also equipped with new lighting fixtures, cable trays routed all over the vessel. What is more, a dozen electric motors were attended to and repaired.

The rescue boat davits were tested and the brackets at the bow located anchor windlass-mooring winches were replaced.

The tanker's hull was thoroughly repaired.

The *Northern Spirit* compliant
with BWM convention

Class renewal on the Swiss tanker

The *Northern Spirit* is one of chemical tankers which belongs to a fleet under the commercial and technical management of Swiss company ABC Maritime. It is another vessel this year on which a BWT system has been installed at Remontowa Shiprepair Yard.



The *Northern Spirit* chemical tanker underwent both class renewal and BWT system installation at Remontowa.
Photo: Marcin Koszałka



In line with previous applications of this type, the ship has been retrofitted with an Alfa Laval-supplied system mounted in a custom-built deckhouse at Remontowa to accommodate some of the equipment, including filters, a UV lamp and pumps.

A great deal of class renewal work was also carried out on the ship. A special care was given to the propulsion system. The engine underwent a major overhaul combined with an overhaul of the turbochargers, speed governors and turning gear. The foundations of the box coolers were replaced.

Much attention was given to the controllable pitch propeller, the hub of which was removed while the ship was in dock, and transported to the workshop for repair. The seals on the propeller blades and the hub were also replaced.

The bow thruster, which required repair, was dismantled and transported ashore for this purpose.

The outboard valves and PV valves were also overhauled and the MGPS (Marine Growth Preventive System) anodes were replaced.

The deck equipment was also subjected to numerous inspections. All cranes and davits received new ropes, and the condition of the mooring winches was checked, one of which - after being measured - was repaired.

The operation of the electrical systems was also improved. Switchboards were cleaned, electric motors and fans were overhauled.

The Megger test (IR - Insulation Resistance), that helps to verify the condition of electrical insulation, was conducted. The insulation resistance quality of an electrical system degrades with time, environment condition i.e. temperature, humidity, moisture and dust particles.

The insulation resistance may also be negatively affected by electrical and mechanical stress, so it's necessary to check the IR of equipment at a constant regular interval to avoid any fatal incidents or electric shock.

Other work included protecting the two ballast tanks with a special coating, washing the boilers, maintenance of the chains and a lot of welding repairs.

The hull underwent maintenance and got a new coating. The logo of the ship-owner on both the superstructure and the funnel was renewed.



The *Juno* bulk carrier was the third Polsteam-owned ship serviced at Remontowa in 2021.
Photo: Marcin Koszałka

Special survey and BWTS installation on the third Polsteam bulk carrier

The Polish laker

Following *Jawor* and *Ornak*, the bulk carrier *Juno* was the third ship owned by the Polish Steamship Company (Polska Żegluga Morska) to call at Remontowa for a special survey and installation of a BWT system.

It is the fifth in a series of the so-called lakers, with a deadweight of 30,000 tonnes, built in China for the Polish shipowner, adapted for navigation on the Great American Lakes.

Although *Juno*, being 189 m long and 23 m wide, is a smaller ship than the other two Polish bulk carriers which had previously undergone repairs here, the scope of work was similar.

The main task was to retrofit the ship with a BWT system supplied by Alfa Laval. PureBallast 3 is the third generation of the PureBallast technology, which is a chemical-free system based on the Enhanced UV Reactor.

In the case of *Juno*, as on the shipowner's previous bulk carriers, the BWT system was installed in the engine room, which had to be rearranged for that pur-

pose. An additional equipment was installed, hundreds metres of piping were laid (some 450mm in diameter), multiple systems had to be integrated as well as hundreds of new cables connected.

As part of the ship's class renewal, the yard carried out many other jobs.

A large scope concerned the cargo holds, which underwent comprehensive maintenance, as did the hatch covers, guideways and chain lockers. To seal the holds, the sealing rubbers on the coamings and hatch covers were replaced.

A special care was given to the deck equipment. The brakes on mooring winches and anchor windlasses as well as roller fairleads were repaired. The gangways were also repaired and tested, all bottom and outboard fittings were overhauled.

A great deal of attention was paid to the components of the propulsion system. The shafting was sealed, the propeller was burnished and the propeller blade seals were replaced. The bow thruster was also replaced and the electric engines repaired.

In addition, maintenance was carried out on the entire hull and the steel in the ballast tanks were replaced, along with the plating.

Another ship from the Fjord Shipping's fleet with BWT system installed

The *Key Breeze* joined the others

Chemical tankers of the Norwegian shipowner Fjord Shipping AS regularly call at Remontowa Shiprepair Yard in Gdansk. Recently these have included: *Key Marin*, *Key North*, *Key Bora*, *Key Bay* and *Key Marmara*.

The *Key Breeze* has joined a number of ships fitted with BWT systems at Remontowa in 2021. The shipowner decided to choose the Desmi system based on filtration and UV technology. The filter removes larger organism above 20 microns while the UV light kills the smaller organism before they enter the ballast tanks.


The *Key Breeze* required additional work: replacing of steel in the ballast and

cargo tanks. Next combined anchor windlass-mooring winches and mooring winches, as well as alternators, cargo pumps and bottom-outboard fittings went through comprehensive overhauls.

While in dock, the ship's hull was subjected to maintenance and painting.

The *Key Breeze* chemical tanker drydocked at Remontowa.
Photo: Marcin Koszałka





Sophisticated
BWT system installation
on a Norwegian
chemical tanker

Experience pays off!

The Norwegian company Stenersen AS, which owns a fleet of eighteen chemical tankers, has a long-standing partnership with Remontowa.

Our shiprepair yard has already overhauled eight out of 18 vessels: the *Stenberg* and *Sten Frigg* were here in 2018, the *Sten Skagen* a year later and other four tankers, the *Sten Fjell*, *Sten Idun*, *Sten Baltic* and *Sten Nordic*, were taken care of in 2020.

In the second quarter of this year, the *Sten Moster* called at Remontowa primarily to be retrofitted with a BWT system.

As in the case of several other vessels which belong to Stenersen AS, the task was not easy, but undoubtedly the experience gained in the previous projects paid off.

Though the procedure of BWTS retrofitting on the *Sten Moster* was different: the main equipment of the system was located in a deck compartment that had previously served as a store for nitrogen bottles. Thus the compartment required

special adaptation: cleaning, removing of the equipment which was inside and space enlarging in order to accommodate the BWT system components, such as ventilation, heating, and piping.

The placing of pipelines in the double bottom of the vessel proved to be a major challenge. It was necessary to cut out large openings in order to transport pipes of 400 mm diameter.



Retrofitting the *Sten Moster* with a BWT system was a complex job.
Photo: Marcin Koszałka

The retrofitting of the BWT system required the renovation of all electrical connections and laying new cable trays. The insulation was replaced on board and in the room where the UV filter was installed.

A lot of attention in particular was given to the engine room and propulsion system: the main engine of the vessel underwent a comprehensive overhaul, the bow thruster was repaired, the seals on

the propeller shaft were replaced and the cracks at the rudder blade were repaired.

The shipyard workers also took care of the deck equipment: two anchor-mooring windlasses and a mooring winch were repaired, load-tests were carried out on

deck cranes and gangways were checked, the hull received several steel inserts, all ballast tanks were checked and painted.



The retrofitted *Libramont* moored at the quay of Remontowa.
Photo: Marcin Koszałka

Belgian gas carriers at Remontowa

The Libramont with BWT system

The *Temse* and the *Bastogne*, Belgian gas carriers owned by Exmar, called at Remontowa Shiprepair Yard in 2020. This year the *Knokke* was overhauled in February/March and finally the *Libramont*.

The main reason for the visit was a special class survey supplemented by the installation of a BWT system. For the latter task, it was necessary to regenerate the whole electrical system: pulling out old cables and installing new piping, cables and connections.

An important part of the project was an overhaul of the main engine. The ship's deck sprinkler system was also replaced by a new one.

Other jobs carried out on the *Libramont* involved: overhauling the boiler, replacing

the condenser, repairing the incinerator, checking and repairing - heaters, heat exchangers, fuel pumps and the bunkering line on board.

The sewage treatment plant tank was renovated with some new steel parts, then it underwent cleaning and maintenance. Safety valves and bottom-outboard fittings were overhauled; fuel and oil tanks were cleaned as well.

The davits and deck cranes were load-tested, mooring rollers were overhauled, while mooring winches had to be

repaired. Steel was replaced and new insulation was laid in various areas of the ship.

The extensive electrical work also involved replacing cables and cable trays in the superstructure and on deck as well as overhauling the electric motors and fans.

While in dock, maintenance work was performed on the ship's hull.

Chemical tanker *Xanthia* with BWT system and revitalised propulsion

Double drydocking

It wasn't the first visit of the chemical tanker *Xanthia*, owned by Utkilen, to Remontowa shipyard. In 2018, the vessel underwent a class renewal and three years earlier in 2015, an emergency repair.

The main reason for this year's visit was a comprehensive overhaul of the ship's propulsion system and the installation of a BWT system.

The *Xanthia* was first drydocked in order to dismantle the rudder blade and the entire shaft line for an overhaul. The thruster, which required a great deal of precision during machining, was also disassembled. The time needed to repair the removed equipment would have prolonged the docking.

Once the rudder was removed, the opening in the hull was plugged and the

vessel was moved out of the dock. Having the commissioned repairs completed, the ship was drydocked again and the overhauled propulsion system components were reassembled.

Besides the thruster components repair, the main engine underwent a comprehensive overhaul and the *Xanthia* was retrofitted with a BWT system.

As its main components, the mechanical filter and UV lamps, were located in the pump room, a lot of work was devoted to the pipelines. On the other hand, the elec-

trical equipment connected with the BWT system was located in the engine room. Thus electricians had to make all the necessary connections and carry out the overhauls of fans, electric motors and switchboard breakers there.

The scope of the repair was supplemented by minor outfitting work and repairs to cracks on fenders, as well as crane and gangway tests and insulation repairs in designated areas of the ship.

Along with installation of a BWT system, the propulsion system of the ship has been reconditioned.

Photo: Marcin Koszałka





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