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The economic and geopolitical situation in Europe puts the Polish maritime economy in an unprecedented situation. The sea has become the foundation in terms of supplies of raw materials, transport routes, energy base and security. Polish policy of recent years, based on the implementation of strategic investments in maritime infrastructure and suprastructure, has become a guarantee for the country's economic independence.

The expansion of the LNG terminal in Świnoujście and the construction of the Baltic Pipe gas pipeline make Poland independent from Russian gas. At the same time, the planned investments in FSRU terminals will further increase both the diversification and security of supplies.

Moreover, the capacity of oil and fuel terminals covers 100 percent of the domestic demand.

At the same time, large-scale hydrological investments, such as the deepening of the approach track, canals, basins and the rebuilding of quays in the ports of Gdańsk, Gdynia, Szczecin and Świnoujście, and the expansion of the largest container terminal in the Baltic Sea – DCT Gdańsk, as well as the construction of the Vistula Spit Crossing or the tunnel in Świnoujście will provide the potential for the further growth of Polish ports and the maritime industry.

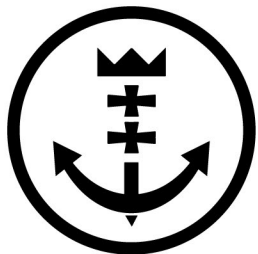
These investments are perfectly complementary to the investments being carried out on the land side. The expansion of railroad, road, storage and warehousing infrastructure will provide the capacity and potential for growth for decades to come.

One of the key elements of the Polish energy transformation is offshore wind. The first phase of offshore wind farms, currently under construction, will provide Poland with 5.9 GW of energy already in 2026. At the same time, the proceedings regarding concessions for another 11 locations in the second phase of offshore wind development have been met with great interest. As many as 125 companies from all over the world have submitted applications for location concessions. The emerging new offshore sector is a great opportunity for local suppliers and contractors, including Polish shipyards that have unique experience in building vessels to install and operate offshore wind turbines.

It is also worth noting the start of a program for the construction of three ferries with an option for a fourth one for Polish shipowners. It is significant that modern and ecological vessels are built in Polish shipyards.

Events in 2022 are a great challenge, but also a great opportunity for the Polish maritime economy. It is a chance for further development through the continuation of the record-breaking growth of transshipments in Polish ports, the expansion of the Polish shipping fleet, and energy transformation based on offshore wind energy and the broadly understood Polish maritime industry.

Marek Gróbarczyk
Deputy Minister of Infrastructure



PORT GDAŃSK



In 2021, we handled over 53.2 million tons of goods at the Port of Gdańsk. This is the best result in our history. We managed to break the record from 2019, when we handled 52 million tons. The Port of Gdańsk has been the fastest growing port in Europe in the last decade, with a growth rate of 110%.

Our main task, which we consistently pursue, involves the modernisation of the port infrastructure. The works involving the modernisation of the water lane and the extension of quays, as well as the improvement of shipping conditions in the External Port, are completed. Last year we finished road-rail investment, providing access to deep-water terminals located in External Port. However, it is not the last investment in port infrastructure. Further modernisation investments are planned, and they cover quays and port areas. As part of these projects, we are planning to extend the quays of Internal Port, with a total length of nearly 2 kilometres. We are also implementing the investment connected with the modernisation of road-rail system of the Industrial Pier in the Internal Port. The management board the letter of intent with Gaz-System S.A., within which offshore terminal LNG type FSRU will be created in the waters of the Bay of Gdańsk. At the request of the companies investing in the development of offshore wind farms, the Port of Gdańsk was indicated as the installation port for offshore wind farms. National champions: PGE and Orlen have spotted the potential of the Port of Gdańsk. We are meeting these expectations. We will make the right conditions for building the installation terminal in the Port of Gdańsk.

At the same time, we realise that it is a very difficult time. The war in Ukraine is fought very close, with our neighbours. This is why, now, in view of this tragedy, we see how significant the role the marine ports play, being the driving force of the economy. We are now the first choice port for our neighbours from Ukraine. Our operators are ready for increased handlings, be it oil, coal, or export of various goods, which have so far been handled by Ukrainian ports, and soon maybe exported with Polish infrastructure.

The Port in Gdańsk is today the leader in the Baltic Sea. This is evidenced by constantly increasing quantities of cargo handled. This year, we estimate a result at the level of 55 million tonnes. If we achieve the goals we have set ourselves for this year, we will have an opportunity to achieve an even higher result. However, we must bear in mind that planning has become much more difficult in today's geopolitical situation, and many scenarios need to be taken into account.

Łukasz Greinke
CEO of the Port of Gdańsk Authority



The Port of Gdynia and the city of Gdynia were created thanks to the vision, determination and work of great people. The 100-year history of the port shows that people and their passions stand behind every great project.

For almost 100 years, the Port of Gdynia has been Poland's maritime gate and a window to the world. Investments today are a continuation of the vision of the port's founders - Tadeusz Wenda and Eugeniusz Kwiatkowski, and subsequent huge projects are initiated with future generations in mind. The Port of Gdynia's 100 years of existence has been a time of constant changes and improvements to the infrastructure which is to serve the Polish maritime economy and generations to come. To this day, the Port of Gdynia has been a catalyst for the development of the city and the region, setting trends for solutions in the maritime industry. We ended the year 2021 with a growth of 8.2%, which is due to the employees of all the terminals and companies operating within the Port of Gdynia. It is thanks to people that the port is changing and achieving success over the years. We would like this fascinating story and these extraordinary people to be our inspiration and motivation for the further development of the port as a window to the world, positively influencing the economy of the country and the development of the city for years to come. Let the builders of the port be an inspiration and the proof that nothing is impossible.

Jacek Sadaj
President of the Managing Board
Port of Gdynia Authority



The Ports of Szczecin and Świnoujście are universal and companies operating in the ports are capable of handling any type of cargo and vessel.

They are the most westward located Polish seaports on the border between Poland and German, close to the transport route from Scandinavia to Central and Southern Europe, along the Baltic-Adriatic international transport corridor, a part of the TEN-T (Trans-European Transport Network). The location and technological advances particularly make the two ports predisposed to tackle new global challenges.

We are now witnessing historic transformation of infrastructure in the two ports. Together with our partners, we have been implementing a giant investment programme with budget exceeding EUR 3 billion designed to improve the service offering and attract new customers and cargo.

Our top renowned brand is the Świnoujście-based Ferry Terminal providing services to Scandinavia. It has been extended and adjusted to handle intermodal transport. The terminal handles transport of goods from Poland, Austria, Hungary, Czech Republic and Slovakia on the route to seaports of Ystad and Trelleborg, Sweden.

Major projects in progress include the improvement of the rail access to the ports, dredging of the Świnoujście-Szczecin Fairway to 12,5 m, and dredging and building new berthing facilities capable of handling larger vessels calling at

the port of Szczecin. However, the development does not end there.

Soon, we expect the building of a modern Deepwater Container Terminal to start in Świnoujście. The terminal will be able to handle the largest ships entering the Baltic Sea. The annual cargo handling capacity of the terminal is expected to reach approx. 1.5 million TEU.

Another project that has been successfully operating is the LNG terminal in Świnoujście, which contributes to Poland's energy security with supplies from the US, Qatar and Norway. The current annual handling capacity of the terminal is 5 billion Nm³, and the extension of the terminal is expected to increase it significantly. Works have already started to build the third LNG Tank, a quay and infrastructure for loading and unloading of liquefied natural gas.

I have always emphasised that cargo is the king ruling in the port. It determines decisions regarding the type and range of investment.

Our main objective is to promote continuous growth in cargo volumes. While planning our investment, we always apply a long-term perspective. Although the current annual volume of cargo handled in Szczecin and Świnoujście seaports is about 32 million tons, our ambition focuses on achieving much more than that.

Krzysztof Urbaś
CEO
Szczecin and Świnoujście Seaports Authority



Polish Ocean Lines is a shipping company in existence for over 70 years. At the turn of the 1980s POL was one of the biggest European shipowners of liners and containers. With a fleet of 170 ships calling regularly at 450 ports on all continents, it was one of the most recognizable Polish brands on the world economic map.

From its very beginning, POL was a state-owned company; nevertheless, it was unable to survive the effects of Poland's political transformation in the late 1980s and early 1990s, and martial law. Despite many reforms, deep restructuring and the division of the company into dozens of other companies, and even the transformation into a joint stock company in 1999, the process of degradation of the company and its fleet could not be stopped. Over the following years, the fleet systematically decreased.

Only recently, when I took over as company president, did we manage to stop and reverse this unfavorable trend.

We have replaced the two old, worn-out ro-ro vessels Żerań and Tychy with new ones, by purchasing much larger and more modern vessels in 2020 and 2021, which were named POL MARIS and POL STELLA.

We now operate ro-ro vessels, manage a container ship and are open to operating LNG carriers, bulk carriers or offshore vessels, as well as shipchandler services. Together with a team of employees and our main shareholder, the Industrial Development Agency, we are making every effort to increase and diversify the company's activity and shipping potential.

Dorota Arciszewska-Mielewczyk
President of the Management Board
Polish Ocean Lines



PRS S.A. is an independent appraiser for international markets. By formulating requirements, supervising and issuing the appropriate documents, we help ensure the safety of people and property as well as the protection of the natural environment.

We have been operating since 1936 and have offices, divisions, inspectors and agents both in Poland and in many parts of the world. We are a Polish classification committee, and a long-time member of the International Association of Classification Societies (IASC). We conduct appraiser, technical and classification surveys for the construction, reconstruction and operation of any units connected with exploration and operation on water. We are also a classifier of inland navigation vessels – we are able to operate as an organization recognized in terms of the European Union flags, sailing on all community inland waterways. We conduct technical supervision in terms of cubature and hydrotechnical construction, we certify and supervise the design, construction and operation of offshore platforms (based on Ministry of Infrastructure recognition), as well as certifying components of offshore wind farms. We supervise the design, construction and operation of offshore wind farms, as well as energy systems based on renewable energy sources (RES). We provide technical supervision over the construction and operation of roads, highways, bridges, viaducts and related facilities. Our offer also includes certification services for management systems in compliance with national and international standards (we are an organization accredited by the Polish Center for Accreditation). As a notified body in the European Commission, we certify products in compliance with EU directives and regulations as well as certifying welding staff. Our range of services is complemented by providing training in techniques and technology, formal requirements and management systems.

Henryk Śniegocki
President of the Management Board



95 years ago, on 7th October 1926 the Town Council of Gdynia passed the resolution for the necessity of establishing a shipbuilding enterprise, defined its shape and the site for its location. That day is the date of establishment of Nauta Shiprepair Yard.

Presently Nauta has become significantly popular busy for performing all type of ship repairs. Not only the docks have been full but the same has applied in finding space along the berths of Nauta. Throughout the whole year of 2021 the Yard performed works on nearly 130 projects ranging from the conversions and special surveys of the vessels through emergency repairs and ending up on simple and fast inter voyage repairs. In addition to our activity on the merchant market Nauta performed work on the military market. It is worth emphasizing that the number of BWTS installations in Nauta is rapidly growing with only 40 installations performed last year.

Looking into the future, with our knowledge, 95 – year experience and the potential, Nauta is ready to assist the shipowners in implementing innovative engineering ideas and green technologies which would help to reduce the carbon emissions of their fleet.

Monika Kozakiewicz
*President of the Board, acting
Shiprepair Yard Nauta*



LOTOS Petrobaltic S.A. is the only Polish company to have been engaged, for 32 years, in the exploration and production of offshore oil and gas fields in the Polish Exclusive Economic Zone of the Baltic Sea. The company employs experienced and highly competent personnel, able to ensure full, safe operation of offshore platforms, meeting international standards. It also has adequate facilities and the technical means to carry out hydrographic surveys for the location of platforms and hydrotechnical structures, logistic support for drilling, and the construction and subsequent protection of underwater infrastructure.

The company will continue to develop its core business, which is hydrocarbon exploration and production. However, recent years have shown that companies operating in raw material industries must diversify their sources of income, look for new directions of development, and invest in modern industries and technologies. In our case, the experience and competence that we have acquired so far, as well as our production potential, provide a strong foundation on which we can build the future of our company.

Among the new goals and projects of LOTOS Petrobaltic, beside offshore mining, one should mention the offshore wind energy program and active participation in energy transformation. Involvement in the supply chain for offshore wind farms will allow the company to expand its areas of activity in a sustainable manner. The company already provides comprehensive services to the offshore sector in terms of geological and engineering studies of the seabed related to offshore wind farms. Further offshore wind projects will include the construction of installation and service units, through which the company will act as a national operator for the erection, commissioning and servicing of offshore wind farms.

The company also intends to participate in the decarbonization of domestic industry by implementing underground storage projects of Carbon Capture and Storage (CCS). One of the considered CCS pilot projects assumes storing CO₂ in the B3 hydrocarbon field located in the Polish Exclusive Economic Zone of the Baltic Sea.

LOTOS Petrobaltic will use all its potential and experience to implement new, innovative ventures in the offshore sector and actively participate in energy transformation.

Grzegorz Strzelczyk
President of the Management Board of LOTOS Petrobaltic S.A.



It is my great pleasure to invite you to Gdańsk for the 22nd BALTEXPO International Maritime Fair and Conference. Let us meet at AMBEREXPO, Gdańsk, for Poland's largest and oldest maritime industry event. Scheduled for 10-12 October 2023, BALTEXPO will be the first ever to be organised by the MTG SA Gdańsk International Fair Co.

The BALTEXPO brand has 40 years of tradition. Since 2013, the fair has been held at the AMBEREXPO Exhibition & Convention Centre and, in 2021, the MTG SA Gdańsk International Fair Co. purchased the rights to organise BALTEXPO, including its name. I believe this to be a turning point in the history of BALTEXPO and its next edition will show us the results. The exhibition industry has a future, large events are important and people need to meet but what is vital is an attractive offering for cooperating sectors. BALTEXPO will no longer cover just the shipbuilding and maritime industries. Our dream is for it to match the TRAKO International Railway Fair when six exhibition halls fill up to capacity.

The BALTEXPO International Maritime Fair and Conference will grow, set new trends and expand its scope to cover the entire spectrum of the maritime economy: the shipbuilding industry, offshore wind energy, offshore industry,

port and maritime industry infrastructure, logistics in maritime transport, sea and inland shipping, port and shipping security, environmental protection, technology, labour market and education. Bearing in mind the Miecznik and Batory programmes, we plan to continue our complementary events, i.e. the BaltMilitaryExpo Baltic Military Fair and the InterMarE project which is a trade exhibition for small and medium-sized maritime companies in the Southern Baltic Sea Region. We also want to address the most current and challenging matters, such as the issue of cleaning the Baltic Sea of chemical weapons and the emissions from propulsion systems.

BALTEXPO's brand recognition, the presence at a single venue and time of all contracting parties and potential subcontractors, representatives of administration and institutions with influence on maritime market regulations, alongside the world of science, all provide a genuine potential to result in establishing business relationships and finalising contracts, a better legal environment and stimulated innovation. BALTEXPO is remarkably important to the entire maritime industry, not only in its local and regional dimension but also on a national and international scale. The ambitious goal we have set for ourselves is to make BALTEXPO grow and build its standing as one of the key events in Europe's maritime industry calendar.

Andrzej Bojanowski
CEO of the MTG SA Gdańsk International Fair Co.



**CITY OF
GDYNIA**



Gdynia – it is here that the heart of maritime economy has been beating for 100 years, thanks to the vision, determination and work of many great people. Build from the sea and dreams, the still young Gdynia continues to actively develop, currently with the significant use of state-of-the-art technologies. It stands out for its high quality of life and is considered the best place to live in Poland. The Waterfront area with a modern marina located in the centre of Gdynia, unique on a European scale, is becoming an exceptional residential and business district, a real seaside centre, popular with inhabitants and tourists, increasing the city's attractiveness.

As a Polish city of the future, Gdynia stays on course towards new trends set by industry and economy. The strong position of the Port of Gdynia and the promising dynamics of transshipment growth are both reasons for satisfaction, but also Gdynia's significant contribution to the development of offshore, a new branch of industry, including the preparation of well-qualified personnel for contemporary maritime industry, who are educated in Gdynia's trade schools and universities.

Although maritime economy is one of the fastest growing global systems, after two challenging years of battling the effects of a global pandemic, the industry is facing another threat – the crisis related to Russia's military aggression against Ukraine. Nevertheless, Gdynia's optimism allows us to trust that we will be able to find optimal solutions for the safe and sustainable development of Gdynia and the maritime industry, to which our inhabitants have been connected for generations.

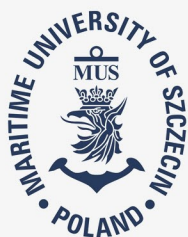
Wojciech Szczurek
Mayor of Gdynia



Gdynia Maritime University is a university with over a hundred years of tradition in educating staff for the maritime economy. We are one of the world's leading maritime universities. We cooperate with other universities within the International Association of Maritime Universities (IAMU) and the Erasmus Plus Programme, and have particularly close ties, spanning several decades, with Hochschule Bremerhaven and Shanghai Maritime University. Our cooperation includes student and faculty exchanges and joint research projects. We also work closely with the socio-economic environment.

Research teams from our University carry out projects with ports, shipyards and other companies in the region and actively participate in the work of the International Maritime Organisation (IMO). The University is also intensively active in the area of offshore wind energy and is currently building an Offshore Centre in Gdańsk as well as establishing the Offshore Wind Energy Centre to support the development of this sector through education, training, and consultancy. We have concluded several agreements and entered into cooperation with the largest companies in the energy sector in Poland, including PGE, PKN Orlen, Polenergia, RWE, and Lotos Petrobaltic. Thanks to research teams with unique competencies and an intelligent combination of science and practice, we are confident that Gdynia Maritime University will continue to play an important role in the economic development of the Pomeranian region and the country as a whole.

Professor Adam Weintrit
PhD, DSc(Eng), FRIN, FNI, Master Mariner
Rector of the Gdynia Maritime University



New times require the ability to adapt flexibly to ever-changing realities. The past two years have shown us how adaptable we can be in different circumstances. We enter 2022 with plans that we will implement despite the odds, because we listen carefully to our socio-economic environment and subsequently respond to its current needs.

The broadly defined maritime industry continues to develop its technological capabilities in a sustainable manner to meet the requirements of environmental protection policy, the safety of people and transported goods. The new challenge arose – how to bring all these together under a single framework and to develop technology that works both for people and the environment. Recognising this emerging trend, the Maritime University of Szczecin is actively involved in its implementation.

For a number of years, we have been developing degree programmes based on IT technologies, which led in 2019/20 to the establishment of 2 new faculties of Computer Science and Telecommunications and Mechatronics and Electrical Engineering. This is where we foster new technological ideas, train students in IT skills and ensure that their acquired knowledge is up-to-date and in line with the latest scientific developments.

In the coming year, we will launch another new course, which again reflects our response to job market needs - automation and robotics.

Automation processes, renewable energy sources, the latest technologies in the offshore sector - all of these require us to constantly develop our research and training facilities.

Therefore, in addition to new courses and research in the fields of advanced hydrography, autonomous navigation and offshore wind energy, we heavily invest in the development of facilities that will enhance our competence and capabilities, and expand our educational offer as well. Modern training facilities are already under construction at the MUS campus on Willow Street, in close proximity to the shipyard and port areas. This year, we will also mark the opening of one of the largest investment projects in recent years. The Floating Objects Operation Centre, which will become an interdisciplinary scientific and training facility not only for MUS, but also for the regional, national and foreign partners.

The success of our efforts is reflected by the growing interest in our new courses and the position of the Maritime University of Szczecin at the national and international level. We actively cooperate with the business environment, constantly acquiring new partners in Poland and abroad, our experts also contribute to committees of the International Maritime Organization, working on safe navigation issues. We presented a solution, which has been promoted by the Polish representation to the IMO - aimed at introducing an IT officer onboard vessels, one who has the knowledge and skills to manage the IT systems omnipresent on modern marine vessels today.

Wojciech Ślaczka, PhD Eng., Master Mariner, MUS Professor
Rector of Maritime University of Szczecin



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WHO BUILDS POLISH **WIND FARMS** IN THE **BALTIC SEA**?



Wind farms in Polish waters of the Baltic Sea are becoming a fact. Ten projects are currently being developed by eight entities in total. We take a closer look at the companies that will build the first wind farms in the Polish Baltic Sea.

As of today, ten projects have been declared, which are at different stages of development. Polenergia together with Equinor is developing MWF Bałtyk I, Bałtyk II and Bałtyk III, PGE is working on PGE Baltica 1, Baltica 2 and Baltica 3 (projects 2 and 3 together with Ørsted), RWE is working on FEW Baltic-II, PKN Orlen and Northland Power are developing Baltic Power, while Ocean Winds is developing the B-Wind and C-Wind projects.

These investments are being carried out both by Polish companies and global wind energy leaders. Some of the projects have been qualified for the so-called 1st phase of support as a result of the decision of the President of the Energy Regulatory Office on granting the right to cover the negative balance of energy produced in offshore farms. Support will be granted to the following projects: OWF Bałtyk III and OWF Bałtyk II, Baltica 2 and Baltica 3, Baltic Power, FEW Baltic-II and BC-Wind.

Polenergia and Equinor

Polish private energy company Polenergia and Norwegian energy giant Equinor will build two farms together in the first stage: the Baltic III and Baltic II offshore wind farms, with a capacity of 1200 MW and 240 MW, respectively. Both companies hold 50 percent of the shares each in the planned projects.

Equinor previously operated as Statoil and was known primarily for its oil and gas production and processing business. However, the corporation has decided to undergo a green transition to produce electricity not only from oil and gas, but also from wind power plants and photovoltaics. The Norwegian company is present in more than 30 countries around the world. In recent years, the company has also joined the world's largest operators of offshore wind farms.

What is important, Equinor, as the first investor to do so, has also indicated the location of the service port for its farms – for this purpose a plot of land in the port of Łeba has been purchased.



The base planned in this location will be used to service the projects in the first and second phase.

In turn, Polenergia SA is already involved in the development of onshore wind energy and photovoltaic farms, and also uses gas sources. It also distributes, trades and sells electricity and CO₂ emission allowances. The gas-fired Nowa Sarzyna CHP Plant is one of the company's assets. Polenergia is also developing a project to produce green hydrogen in an electrolyser factory powered by renewable energy.

The Bałtyk II and Bałtyk III farms will be built first. The start of operation is planned for 2026/27. These two farms will be able to power about 2 million households. The windmills will be located in the sea 23-41 meters deep, and 22-37 kilometers from the coast. It is worth noting that the Bałtyk I farm will be developed as the third in a successive phase, further north of projects II and III, 81 kilometers from the port of Łeba, in water depths of 25-35 metres.

PGE and Ørsted

PGE Polska Grupa Energetyczna is Poland's largest producer of electricity. It supplies electricity to 5 million customers in the

country. Nevertheless, the vast majority of this energy is still generated on the basis of coal sources. PGE resources include, among others, 4 pumped storage power plants, 29 run-of-river hydroelectric power plants, 5 photovoltaic power plants and 17 wind farms. However, the group's strategy assumes that the concern will achieve climate neutrality by 2050. Offshore wind farms are part of this strategy.

Ørsted is one of the world's leaders in offshore wind energy. The company started in the 1970s with projects related to the extraction of raw materials in the North Sea. In the following years, the company expanded its operations not only to new markets, but also to new segments of the energy industry, ultimately focusing on alternative energy sources, especially wind energy.

At present, PGE Polska Grupa Energetyczna and Ørsted each hold a 50 percent stake in the Baltica 2 and Baltica 3 projects, with a total capacity of up to 2.5 GW, which will generate energy in 2026 and 2030, respectively. The Baltica wind farm, resulting from the merger of the two projects, will be Poland's largest wind farm, which, over the estimated 30-year lifespan, is expected to power nearly 4 million households and avoid 8 million tons of carbon dioxide emissions annually. Baltica 2 and 3, covering an area of 190 and 130 square kilometers, respectively, will be built in areas to the east of the Słupsk shoal, 40 and 25 kilometers in a straight line from the coast.

The next stage of Polish offshore development, after 2030, will also see the construction of the Baltica 1 farm, with a capacity of approximately 1 GW. However, the long-term strategy of the PGE Group assumes that the concern will have at least 6.5 GW of wind power in the Baltic Sea by 2040.



Orlen and Northland Power

The 1.2 GW Baltic Power farm is being developed by the Polish fuel and energy giant PKN Orlen with the participation of an experienced renewable energy developer, the Canadian company Northland Power, with Orlen holding a majority stake in the farm.

The Orlen Group is the largest fuel and energy company in Central Europe, present in five markets in the region – Poland, the Czech Republic, Germany, Lithuania and Slovakia, and in Canada. The Group owns energy assets with a total capacity of 3.3 GW, of which 649 MW comes from renewable energy sources. Orlen aims to achieve carbon neutrality by 2050.

Northland Power is an experienced renewable energy company. Over the years, the Canadians have established themselves as one of the market leaders, investing in and developing wind and photovoltaic projects, but also generating energy from natural gas. The company has in its portfolio assets with a total generating capacity of 2.7 GW, including three wind farms in the North Sea.

The Baltic Power wind farm developed by Orlen and Northland Power will be located some 23 kilometers offshore, in the vicinity of Choczewo and Łeba. The concession assumes that the farm will be able to produce 1.2 GW of energy. Construction work is scheduled to start in 2024 and the farm is to be commissioned in

2026. About 70 turbines will be placed on 130 square kilometers, each of which will be about 270 meters high.

Ocean Winds

Ocean Winds is a Spanish-French joint venture between EDP Renewables and Engie. The company focuses, among other things, on the development of floating wind platforms, which are seen as the future of the offshore wind sector.

Spain-based EDP Renewables is one of the most experienced renewable energy companies. The company is present in 14 markets in the Americas and Europe. Although the company specializes in wind farms, it also has solar farms in its portfolio.

The French energy group Engie, whose main shareholder is the French state, is one of the industry's leading companies. The installed capacity at all of the company's assets worldwide is more than 100 GW. At the moment, Engie is focusing on developing investments in renewable energy sources and decarbonization.

Ocean Winds is developing the BC-Wind project in Poland, divided into two adjacent sites, named B and C. BC-Wind will generate a total of 399 MW. The farms will be located about 23 kilometers north of Choczewo and will cover an area of about 90 square kilometers. Up to 31 turbines will be installed on the farms. Power is expected to flow from them in 2027.



RWE

The German company RWE, which is one of the global leaders on the renewable energy market and the world's No 2 offshore wind energy company, is also investing in wind energy in the Polish part of the Baltic Sea. The company knows the Polish market, because it has onshore wind assets in the country, and it also engages in photovoltaic projects.

RWE will build the 350 MW F.E.W. Baltic II wind farm in the Polish Baltic Sea. The project will be located about 55 kilometers offshore north of Ustka, on an area of about 41 square kilometers, in waters up to 50 meters deep. The total amount of energy that F.E.W. Baltic II will be able to generate is enough to power nearly 300,000 Polish households per year. The project schedule envisages that the first offshore installation works will commence in 2025 and a year later, the farm will be ready to produce clean energy.

Preparations for the project were started by Baltic Trade and Invest, which was later entirely acquired by RWE Renewables GmbH.

RWE has also already taken steps to establish an operations and maintenance base for its farms, which will be located in the port of Ustka – the company has already signed the relevant contract with the facility management. The base will be operational in 2025.

The future

This is not all. Even more entities are applying for more location permits to build wind farms in Poland. The Ministry of Infrastructure has initiated 11 proceedings for location permits for offshore wind farms in new areas of the Baltic Sea in 2022. As of May 13, according to Minister Marek Gróbarczyk, 125 applications have been filed. The results of the proceedings should be known by the end of 2022.

New areas in Polish waters designated for offshore wind development are of particular interest to foreign industry. Polish industry champions also compete for such permits. Among them there are companies which are already implementing their first projects, such as Equinor, PGE or Orlen, but there are also new companies, such as ZE PAK, which is applying for the construction of subsequent wind farms, together with Ørsted or French Qair and Total Energies. Applications have also been submitted by such companies as Acciona Energia together with SSE Renewables, and the energy giant Shell. Polenergia will not be applying for new concessions.

The Polish Energy Policy until 2040, adopted in 2020, assumes that 5.9 GW of power will be installed in the Baltic Sea by 2030 and 11 GW in the following 19 years. However, it is becoming more and more apparent in the industry that, given the interest of potential contractors to participate in the construction of this energy segment, the aforementioned targets will need to be revised, as the potential is much greater.



RECORD RESULTS OF POLISH SEAPORTS IN 2021



The three largest Polish seaports in the Baltic Sea handled a record amount of cargo in 2021. The Port of Gdańsk, Port of Gdynia and Port of Szczecin-Świnoujście had a great year in 2021. Despite all the odds, Polish ports achieved a 9% better result than in 2020 – 113 million tons of transshipped goods in total!

113 million tons means a significant increase compared to the results from previous years - 103.8 million tons in 2020, and in the record-breaking 2019 - 108.4. It is also 46% more than in 2015. The overall result of 113.1 million tons comprised 53.2 million tons transshipped at the Port of Gdańsk, 33.2 million tons at the Port of Szczecin-Świnoujście and 26.7 million tons at the Port of Gdynia. It is worth noting that the record-breaking result was achieved during the pandemic. In 2021, the Deepwater Container Terminal in Gdańsk became the largest container terminal in the Baltic Sea. In total, Polish container terminals handled over 3 million TEU.

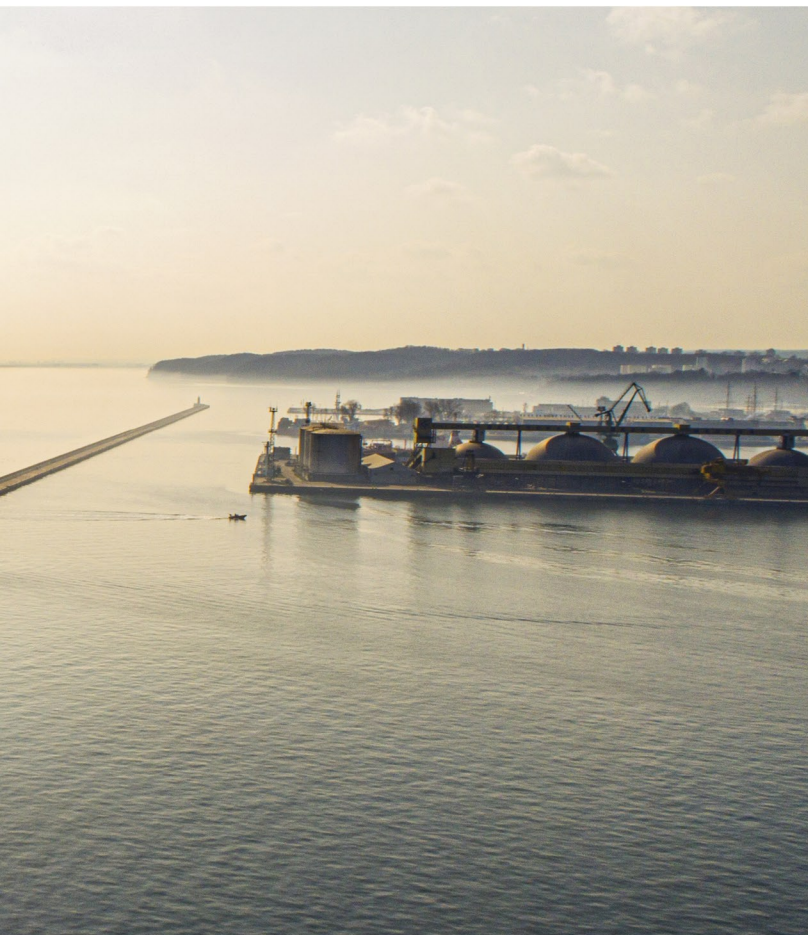
Port of Gdańsk

In Gdańsk, in 2021, transshipments increased in virtually all groups. There were 10.1% more containers (in total 2,117,829 TEU), wood increased by 795.6% (a total of 106.9 thousand tons), there was 5.5% more general cargo (a total of 23,318.5 thousand tons) and 7.6% more grain (a total of 1 612.8 thousand tons).

But the cargo group that saw the biggest increase by volume was liquid fuels - 18.8 million tons with growth dynamics of 37.9%, meaning over 5 million tons more than in 2020. This is an absolute record for Naftoport - nearly 17 million tons.

Container transshipments also scored a large increase. The numbers at the DCT (Deepwater Container Terminal) reached 2.1 million TEU. However, given the planned and implemented investments, these numbers should improve further in the coming



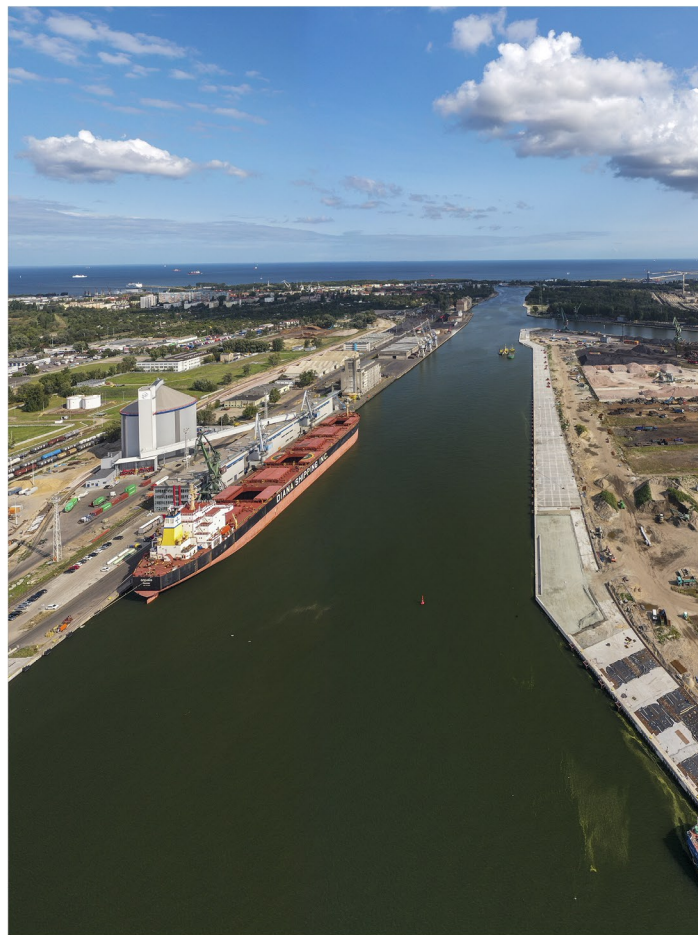


years. It will be no surprise when the DCT joins the top ten largest container terminals in Europe.

Łukasz Greinke, CEO of the Port of Gdańsk Authority also announced that the Port of Gdańsk is still the third largest port in the Baltic after the Russian ports of Ust Ługa and St. Petersburg, the latter being already within the reach of Gdańsk.

- We are interested in a place in the top ten in Europe. At the moment, we are in 18th place - said Greinke. He referred to the investments carried out at the Port of Gdańsk, which should additionally improve the handling results.

These results have made the Port of Gdańsk the fastest growing port in Europe over the last decade with growth dynamics of 110%. - But if we compare the current result to that from



2016, i.e., the year in which we took a decision to make large investments - in the access infrastructure to deepwater terminals, in the reconstruction of the fairway and the modernization of nearly 5 km of quays in the Inner Port – we can see that it is precisely during this period the dynamics was the highest – an increase of nearly 16 million tons of goods – said Greinke.

Port of Szczecin-Świnoujście

2021 was also very successful for the Szczecin-Świnoujście ports. The President of the Port of Szczecin-Świnoujście Authority, Krzysztof Urbaś, announced that transshipping companies handled 33.2 million tons of cargo, thus equaling the record result from 2018.





Comparing the data year-on-year, the result achieved in 2021 is 6.6% better than in 2020.

General cargo handling constituted the largest share in the turnover: 55%. The results of the ferry cargo are also excellent - an increase of 10.6% year-on-year was recorded. Ore and coal transshipments also recorded a double-digit increase, up by 12.2 and 11.8%, respectively.

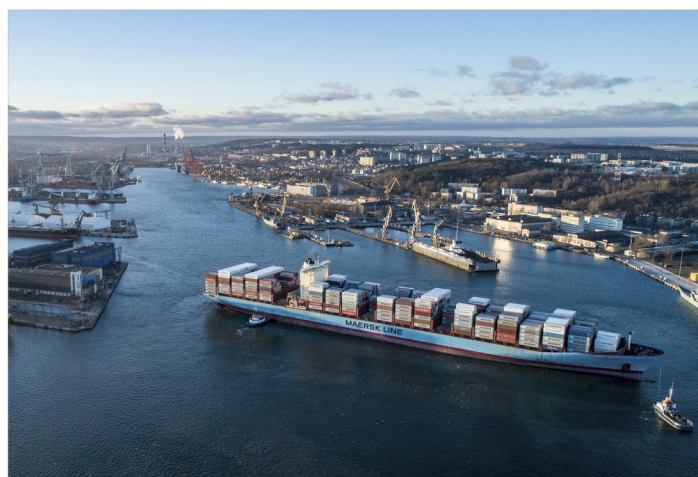
Most other major groups of cargo in Szczecin-Świnoujście also recorded increases: wood (+14.3%), general cargo (+8.7%), fuels (+6.2%). In 2021, 6,756 ships with a total GT of 108,245,600 called at the ports of Szczecin-Świnoujście, i.e., 2.4% more than in 2020. Urbaś reported that transshipments at the Ferry Terminal in Świnoujście increased by 139% within a decade. It is the most dynamically developing ferry terminal in Poland and is currently

being expanded. He also said that a deepwater container terminal in Świnoujście should be ready in 3-4 years.

Another very important investment is the expansion of the LNG terminal. The Szczecin port is also being adapted to the new conditions following the deepening of the Świnoujście-Szczecin fairway to a technical depth of 12.5 m. Thus, work is underway in the area of the Dębicki Canal and the Kashubian Basin, where the two largest operators operate: DB-Port Szczecin and Bulk Cargo Port Szczecin. After completion of the works, the terminals will be able to service ships with a draft of 11 meters and with a load of up to 50,000 tons on board.

Port of Gdynia

The Port of Gdynia noted the sixth consecutive year of increases.



The total number of transshipments at the Port of Gdynia in 2021 increased by 8.2% to 26,693,000 tons. Container transshipments amounted to 985,919 TEU, which is an increase of 8.9% compared to the previous year. The largest increases were recorded in the group of general cargo - an increase of 14.9% to 16 207 thousand tons - as well as crude oil and petroleum products - by as much as 42% more, a total of 2 516 thousand tons.

Ro-ro transshipments recorded a particularly good result, increasing by 33.1%. - Ro-ro is indeed an extremely important group of cargo for us - admitted the President of the Managing Board of the Port of Gdynia Authority, Jacek Sadaj. - In our long-term strategy, we really want to develop this area. This is why we are preparing to expand Basin V to make the infrastructure in this area even more friendly.

President Sadaj announced that the increases were driven, among other things, by investments. Last year, apart from the new ferry terminal, an investment to electrify rail access to the western part of the port was completed. The maneuvering and storage yards, which will be used, among other things, for container handling, and also offshore structures will be extended shortly.

4,240 merchant ships called at the Gdynia port in 2021, which is an increase of 14.7%. 19 of these ships were container ships over 300 meters (in 2020 there was only one).

- The deepening of the internal basins in the Port of Gdynia will

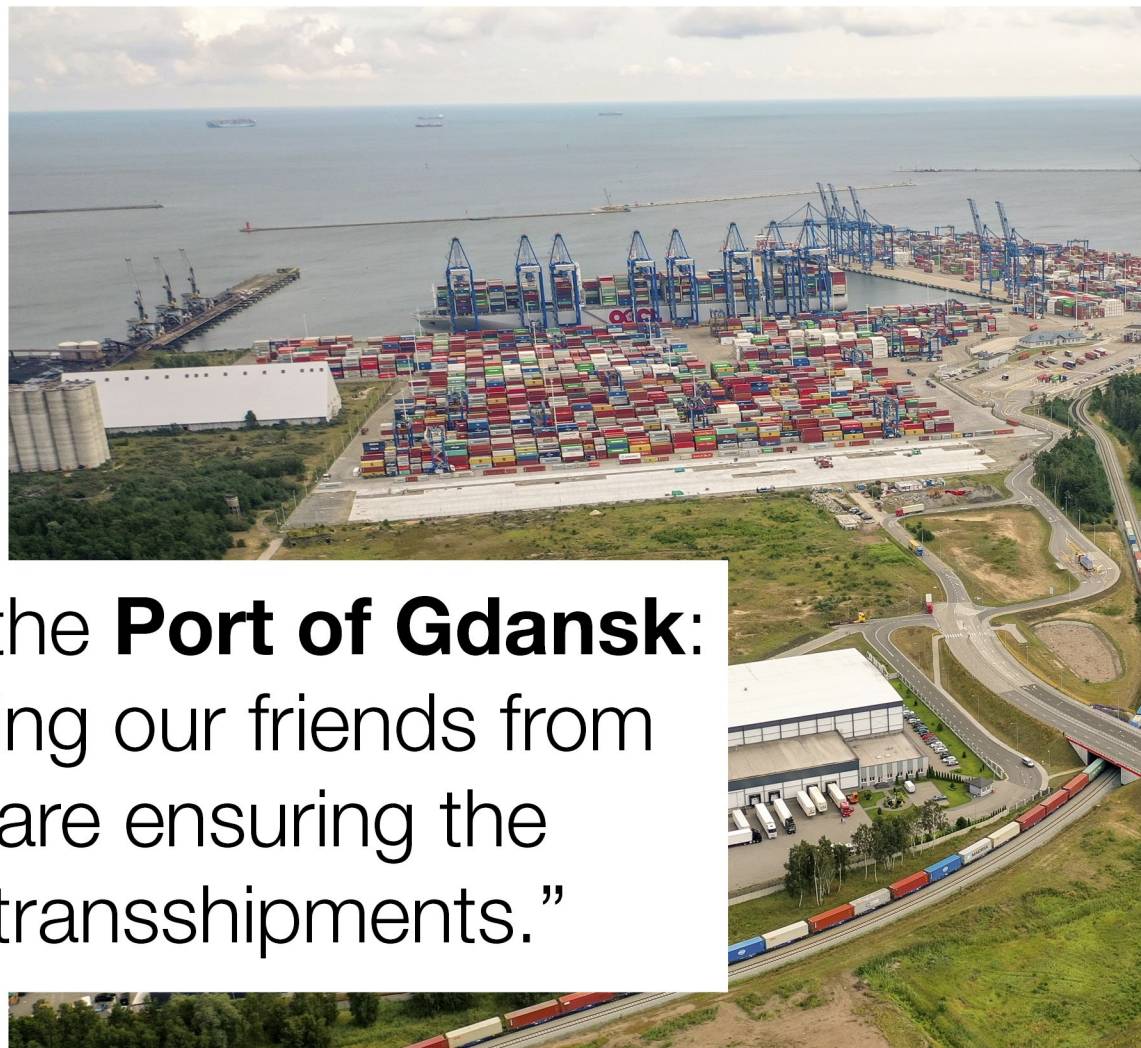


allow the largest container vessels to enter the port - said Sadaj. - We have solid foundations and great development prospects. We are convinced that we will have another 100 years of development for the Port of Gdynia - he added.

Among the many investments carried out in the port, one of the most important was the completion of the new ferry terminal, which will allow two ferry operators – Stena Line and Polferries – to operate at the same time.

Let us add that 2022 will be particularly special for the Port of Gdynia - September 23 marks its 100th anniversary. - We are already preparing a number of surprises for the entire port community, because we have something to celebrate - Sadaj summed up.





President of the **Port of Gdansk**:
 “We are helping our friends from
 Odessa. We are ensuring the
 continuity of transshipments.”

A conversation with **Łukasz Greinke**, CEO of the Port of Gdansk about offshore development, the construction of an installation terminal, the latest investments and the port management.

Anna Konopka, GospodarkaMorska.pl: Today, we talk about investment and development, but at the same time, we watch with horror what is happening to our eastern neighbors, with the war and their heroic struggle for freedom.

Łukasz Greinke, Port of Gdansk: The Port of Gdansk Authority S.A. has been involved in aid activities for our eastern neighbors who found themselves in this dramatic situation. We purchased and delivered to Odessa medical equipment, generators, powerbanks and laptops. The shipment set off from Gdansk on March 4th and arrived in Odessa two days later. Relations between Gdansk and Odessa have a very long history dating back to the late 90s. In recent years, our activity has increased due to plans to create a Gdansk-Odessa transport corridor and the signing of a letter of intent in October 2020 between the Port of Gdansk Authority and the Ukrainian Sea Ports Administration regarding mutual cooperation. Since then, representatives of the ports have exchanged knowledge and experience to optimize the logistics chains in the

future and thus increase the volume of handled goods. We could not remain indifferent to their current needs. Our employees also joined the aid action and collected donations to help Ukraine. Another shipment of aid is planned soon, this time to Kiev.

Let us talk about your plans, because there can be no downtime at the port; it has to be operational 24 hours a day, seven days a week. In recent days a decision was made on the final location of the installation terminal for offshore wind farms in the Port of Gdansk. The decision came as a big surprise to some people. It had been rumored for a long time that the best location would be Gdynia. It turns out that Gdansk accommodates the interests of most investors.

We aim to meet these expectations, and this can only be done through a public selection procedure. Therefore, the Board of the Port of Gdansk S.A. passed a resolution to hold a new tender to select a lessee interested in leasing an area of the sea within the administrative borders of the port and converting



it into land. We have already received a positive opinion from the Supervisory Board and on 8 March 2022, we published the tender proceedings. We will thus create conditions for the installation terminal to be built in the Port of Gdańsk.

The port's good streak has continued for a long time. Last year ended with a historic result. What was this determined by?

This result was influenced by the transshipments of crude oil to our largest customers, i.e., the Lotos and Orlen refineries. The result was indeed impressive. A growth of more than 6 percent compared to the record year 2019 was recorded in transshipments by Naftoport from the PERN Group of nearly 18 million tons of crude oil and fuels in 2021. Very large increases were also recorded at the DCT terminal, where a record 2.1 TEUs was also handled.

Not everyone is aware of the fact that it is Naftoport Gdansk that guarantees the energy security of Poland. In the context of the current political scene and Russia's aggression against Ukraine, this importance is rapidly increasing.

In fact, it is the port in Gdansk where the heart of the country's energy security beats. It is the only place where crude oil is imported to our refineries and it is de facto an alternative to the oil pipeline from the east, which is fed to our refineries. We see a very clear trend showing that supply from the sea based on other types of oil than that which comes from Russia is increasing. This is also the reason why our refineries are becoming some of the most modern in Europe and are attempting to process oil with less sulphur.

How does the growth in transshipments translate directly into the economic development of the country?

Thanks to the transshipments, which are higher every year, our port is strengthening its position on the map of the largest ports not only in the Baltic, but also in the European Union. Currently, we are among the top twenty largest ports in Europe, and we aim to be in the top ten. However, when it comes to total transshipments on the Baltic Sea, we are in first place. These figures, and the weight and value of goods translate into revenues for the state budget, as well as new opportunities for manufacturers and importers.

A lot has changed in terms of port infrastructure. Investments were made within the co-financing from the CEF programme, i.e., the reconstruction and modernization of 5 km of quays in the Inner Port and deepening of the waterway to the depth of 12 meters. The next installment, the so-called CEF 2, will again bring money to improve and modernize the wharves; is this probably one of the priorities for this year?

I want to emphasize that these investments help our operators to enter even higher volumes, because they become more competitive so as to handle more cargo groups. Modern quays result in much greater efficiency of work. Operators no longer have virtually any logistical barriers - they are limited only by their ingenuity in organizing reloading. This year, as part of the CEF 2, we aim to redevelop further areas, including the Vistula Quay, 800 meters of the Coal Quay, the Mining Basin area and the Bytom Quay. We are also looking for synergies between areas which are still undeveloped, not belonging directly to the port, but managed by other entities, i.e., municipal companies or other state-owned companies or the economic zone, which gives a natural incentive to invest in a given part of the country.

Climate change is forcing global action in virtually all sectors of the economy. What “green” activities does the Port of Gdansk carry out and what does it do to contribute to reducing CO2 emissions?

We are working on adapting berths to enable the so-called Onshore Power Supply (OPS). This is not only an investment in the wharf itself and the laying of infrastructure, but also the reconstruction of the Main Port Electricity Supply Point. What we are talking about here is gigantic power consumption. We are going to invest tens of millions in the implementation of very large investments, especially in terms of the power supply to the container terminal. These ships, which carry freezers on their decks, have very high electricity consumption. This means the reconstruction of the entire cable infrastructure so that it is possible to connect vessels from the land.

It seems that this process of transition to green operations will not pass anyone by.

The Port of Gdansk is already ahead of the regulations that will force shipowners to buy electricity from the shore. It will be increasingly green; after all, it will be generated offshore.

In all these investments we are talking about, not only the practical aspect seems to be important. As the saying goes, fine feathers make fine birds. The port areas have certainly gained visually and aesthetically.

We try to be a model for ourselves. We want to set the standards for European ports. For us, as the manager of these areas, the most important thing is to be a visible host.





And what does this kind of management mean exactly?

Everyone here has one simple task: to take care of their own. We want the owner's hand to be visible in the port. To this end, we have, among other things, eliminated illegal dumping grounds, and we have successfully completed an extensive program of building a new fence system, which we combined with the construction of new electronic security systems. There are numerous such investments. Lately, we have been building a smaller road and rail system directly at the back of the Industrial Quay.

The port is a huge organism which operates around the clock. Besides economic management, what are the characteristics of the management style you represent?

I always believe that the most important thing is to understand the processes that take place in the port. This is very much field work, close to the operators and their transshipments. Only in this way can we understand the needs and grow stronger. With the extensive knowledge that we have, and remember that the port combines many industries and specialties, we can make the right decisions. We are here to create synergies, associate entities and bigger businesses. Hence the good cooperation with the economic zone, and with the administrators of areas around ports. We aim to use our shared potential. Sometimes, to see the puzzle as a whole, you need to look at the port from a different perspective. To see what should be improved, what should be streamlined, so that the port is part of processes occurring around the world.

The port never sleeps, but can its CEO sleep without thinking about the port? What is your day like?

Having my phone on 24 hours a day is not only a necessity, but above all, comes from a sense of responsibility for employees and the entire infrastructure. As everywhere, we need a break from work, because it gives us some distance and allows us to think about the processes, but despite this, I am in constant contact with both members of the board and the port services, and that ensures full operation 24 hours a day, 7 days a week, 365 days a year.



President of the **Port of Gdynia**: “We still have a reserve of reloading capacity”



We talk with **Jacek Sadaj**, President of the Port of Gdynia Authority, about 2021 and the port's centenary, which falls in 2022, as well as completed and ongoing investments.

2021 was a very successful year for the Port of Gdynia – another transshipment record was set and an intensive investment process was underway. How do you evaluate this year?

Jacek Sadaj, Port of Gdynia: 2021 was a good year for Polish ports. Polish ports handled a total of 113,124.9 thousand tons of cargo, a result 8.9% higher than in 2020 and 4.5% higher than in 2019. Very large increases were recorded especially in the handling of liquid fuels (+6.2 million tons, which translated into a 30.6% increase) and general cargo (+4.7 million tons, +9.0%). In addition, growth also occurred in timber handling (+0.2 million tons, +120.8%).

What influenced your transshipment performance last year? Which groups of goods had the greatest impact?

The total number of transshipments in the Port of Gdynia in 2021 increased by 8.2%, to 26,693 thousand tons. Container transshipments amounted to a record 985,919 TEU, an increase of 8.9% over the previous year. The port recorded the largest

increases in the general cargo category – an increase of 14.9% to 16,207 thousand tons – and oil and petroleum products – up 42% more, totaling 2,516 thousand tons. In 2021, 4240 merchant ships called at Gdynia, which means an increase of 14.7%. 19 of these ships were container vessels over 300 meters long.

How have you adapted to working in pandemic conditions? Is Covid-19 still having a real impact on the performance of the port and terminals?

The pandemic showed how important seaports are to the economy. During the pandemic, the Port of Gdynia did not have a single day of downtime, it worked around the clock, 7 days a week and fully serviced ships and their cargoes.

Do you have any specific targets set for 2022 in terms of transshipments? What volume would you like to achieve?

We are very optimistic about the transshipment forecasts



border with Ukraine. Regardless of possible changes in the long run, we must be prepared as a port to handle any cargo and any vessel, which means the necessity of continuous investment in the development of port infrastructure.

Numerous investments were completed in the Port of Gdynia last year, some of which are still in progress. One of them is the dredging of port basins – at what stage are the works in progress?

The Port of Gdynia, as an important node of the trans-European transport network, is a natural extension of the Baltic Adriatic Corridor towards Scandinavia, connecting Poland with Sweden via the Gdynia – Karlskrona seaway. The port, together with its long-standing partners from Sweden, wishes to develop cooperation and more effectively combine the economic potential of Scandinavia and Central and Eastern Europe. Investment works in the Port of Gdynia are ongoing. In March, a project entitled "Construction of port infrastructure for the reception of sanitary waste from ships in the Port of Gdynia" was completed.

The big event was the completion of the public ferry terminal. Originally, ferry lines declared their readiness to sail to Gdynia from the beginning of the year, but now we know that they are preparing for the summer. Why did this change? What is happening at the terminal at the moment?

for 2022. All economic forecasts point to the continuation of economic growth in Poland, which should directly translate into a further increase in transshipments in the Port of Gdynia. Ongoing, planned and completed infrastructural investments are aimed at preparing the Port of Gdynia to handle an increased cargo turnover. In accordance with the principle that the provision of port services should stay ahead of the expected growing demand, we are preparing further investments in advance.

Sanctions on Russia have become an important part of European trade in 2022. Many companies, also from the maritime industry, have resigned from cooperation with Moscow. Is there a chance that Polish ports, including Gdynia, will take over some of the cargoes which were previously transshipped in Russian ports?

The reloading capacity of the port of Gdynia is 38 million tons. The transshipments in 2021 reached 26.7 million tons, so the current year's reserve of reloading capacity, understood as a broad offer for cargo from/to Ukraine, is at the level of more than 11 million tons. However, a prerequisite for an effective offer for handling Ukrainian cargo is having effective infrastructure for land access to Polish seaports, including, in particular, rail transport from points at the

In September last year, the construction process of the terminal, resulting from a project co-financed from the structural funds of the European Union, was completed and the closing conference – “Completion of the investment project under the name Construction of a Public Ferry Terminal in the Port of Gdynia” – was held as required. The ceremony did not refer to the opening of the terminal, but rather the completion of the project and the end of construction. Such closing conferences are an inseparable element of conducting investments co-financed from the European Union budget. Currently, Stena Line is conducting preparatory works on the terminal. As part of the ongoing work, further test approaches of vessels have just been completed along with the use of the infrastructure. All works including additional terminal equipment, in accordance with the shipowners' requirements, have been planned and are being carried out in such a way as to enable the timely reception of some of the largest ferries on the Baltic Sea in regular shipping. The planned date for the commissioning of the Public Ferry Terminal for passenger traffic for Stena Line is June 2022.

There has also been a lot of activity on the topic of land access to the port – both rail and road. How do these routes look at the moment and how will they change in the coming months?

The Port of Gdynia, as a node of the TEN-T core network and the entry point of the Baltic – Adriatic corridor, offers comprehensive intermodal services of unitized cargo in port terminals. Container transshipments in the Port of Gdynia are constantly increasing (in 2021 they reached the level of almost one million TEU), therefore intermodal transport, being highly specialized, must be based on the proper infrastructure. In Gdynia, investments are being implemented and prepared to improve the capacity of the railroad system, i.e., the last mile, which will contribute to an increase in demand for rail transport, especially container transport. Currently, PKP PLK is extending the Gdynia Port station, which will be fully electrified, and the Port of Gdynia Authority S.A. and the Maritime Office in Gdynia are preparing the Port of Gdynia to service container ships with Baltmax parameters (up to 400 m in length and over 20,000 TEU of load capacity). The entire railroad infrastructure and subgrade were verified in terms of strength, increasing the load from 20 tons/axle to 22.5 tons/axle. The tracks in the areas of basins III, IV and V, as well as in the container area, were also rebuilt in order to achieve the allowable pressures of 22.5 tons/axle. The electrification of the access infrastructure to the container area (Helskie Quay) has also been completed, along with the automation of traffic through train traffic control systems.

The most important development project of the Port of Gdynia Authority S.A. is the External Port. The Authority anticipates that the construction of a new deepwater container terminal in Gdynia will significantly increase the handling of containers compared to the current situation. An intermodal terminal, equipped with 8 full-loading tracks, will be located in the External Port.

The Port of Gdynia has connections with the Czech Republic, Hungary and Slovakia. It should be noted that the cargo potential of the Polish transit facilities is concentrated in the countries of Central and Eastern Europe (CEE), i.e., the Czech Republic, Slovakia, Hungary, Austria, Belarus, Ukraine and Romania. Intermodal operators and rail carriers launch connections between ports and inland terminals, which form the Baltic – Adriatic transport corridors. The Port of Gdynia Authority S.A. is implementing a project entitled “Integration of the port with the hinterland, with particular emphasis on intermodal terminals”. The project is included in the Baltic – Adriatic Corridor Work Plan; the subject of the contract is to commission an “Analysis of possible locations for open-access rail service infrastructure”, i.e., rail intermodal terminals, also with the possibility of performing the function of external port gates for the Port of Gdynia. The analytical and conceptual phase is being carried out, among other things, under a contract signed by the Port of Gdynia Authority S.A. with PKP S.A., PKP PLK S.A. and PKP Cargo.

New intermodal connections integrating the region's economies are possible thanks to the modernization of railroad lines. Line no. 201 is part of the international railroad line C-65 – the main freight route directly connecting the Port of Gdynia with Silesia. Since 2012, it has been part of the Polish part of EU Rail Freight Corridor No. 5, and for access to the port, it is recognized by the European Commission as important for the Baltic Sea – Adriatic Sea Corridor. It is as important for the national economy as it is for the safety and organization of rail transport in the Tri-City. With the current volume of passenger and freight traffic in the Tri-City node, the modernization of railroad line No. 201 will ensure basic access to the Port of Gdynia.

There was also an idea to create a hydrogen hub in the Port of Gdynia. Investments of this kind will be more and more desired because more and more vessels will need alternative fuels. What exactly is the idea of the hydrogen hub and when can we expect the first hydrogen installations?

The main goals of the Polish Energy Policy until 2040 (PEP2040) include guaranteeing the energy security of the country while ensuring the competitiveness of the economy, energy efficiency and reducing the impact of the energy sector on the environment,

and one of its pillars is a zero-emission fuel and energy system. It is important to note that key elements of PEP2040 include the development of energy technologies, including hydrogen technologies. Therefore, we monitor the development of the fuel and energy industry and take appropriate action to seek solutions to reduce emissions from means of transport, handling equipment and cargo handling equipment both within the Port of Gdynia and in the port region. We are successively implementing projects related to fuel and energy transformation, which concern, among other factors: alternative fuels, renewable energy sources, electromobility and the broadly understood digitalization of investment processes and real estate management.

In 2020, a working group was established consisting of representatives of various entities interested in participating in the development of the hydrogen economy on the Polish coast (including local government and representatives of various companies), whose members meet regularly, exchange views and initiatives, and inform each other about issues important to the development of the hydrogen economy. In 2021, the Port of Gdynia Authority S.A. became a member of the Hydrogen Technologies Cluster association. The aim of the cluster is to create a platform for cooperation between entities interested in the implementation of hydrogen technologies, the development of research and the promotion of solutions for hydrogen technologies. Within the association, project proposals are currently being developed and consortia specializing in the development of hydrogen technologies are being created. In 2021, in Warsaw, we signed a sectoral agreement for the development of the hydrogen economy in Poland. The agreement aims to integrate entities from different sectors, which will create a network of links to develop the value chain of the hydrogen economy, as well as to build a competitive advantage of Polish companies and create many modern jobs. In 2022, a representative of the Port of Gdynia Authority S.A. became a member of the Coordinating Council for the Maritime Economy at the Ministry of the Climate and Environment. ZMPG SA participates in the implementation of various international projects, including the Green Corridor, which aims to explore the possibility of using alternative fuels in shipping, including zero-emission solutions. In this project, apart from the Port of Gdynia Authority S.A. representing the entities forming the supply center of port services in Gdynia, participants include the seaports of Rotterdam, Hamburg, Roenne and Tallinn. Currently, the initial phase in stage one is being carried out, consisting of the preparation of assumptions for the concept and feasibility study of the project regarding the development of alternative fuels.

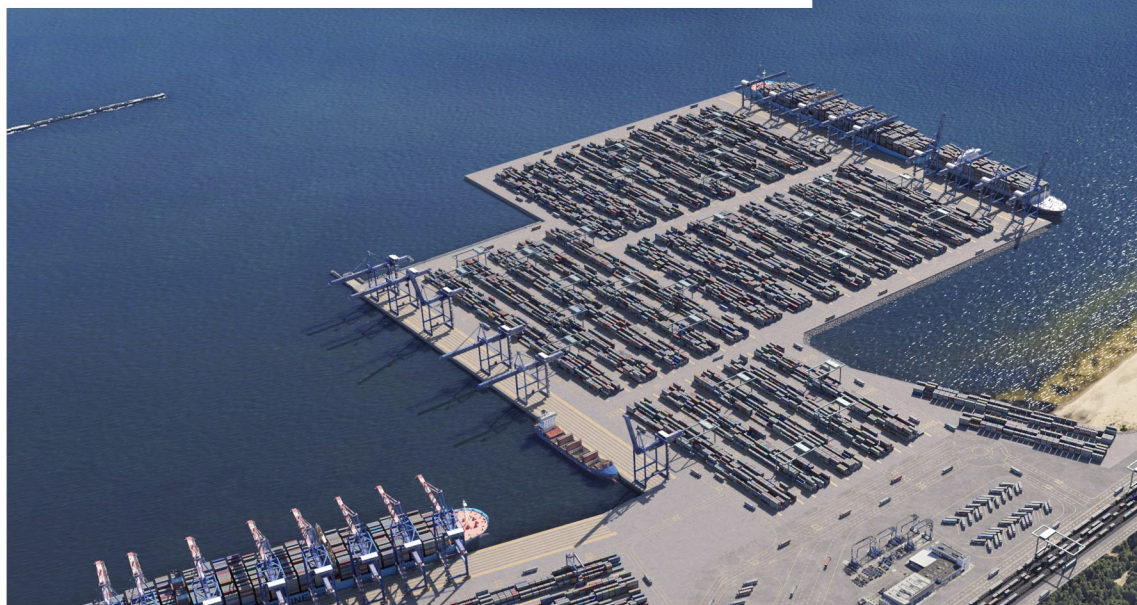
We are acting as a link between the demand and supply side

of the hydrogen fuel market with the aim of creating a so-called local hydrogen hub. This initiative will enable the production, distribution and use of green hydrogen, a zero-emission fuel. Already today, both the seaport authorities in various countries and transshipment terminal operators are developing fuel and energy strategies related to the pursuit of zero emissions, including the use of green hydrogen, so it seems that the role of hydrogen as a fuel will increase (already today it is called the fuel of the future by specialists).

The year 2022 is extremely important for the Port of Gdynia – this year the port celebrates its 100th anniversary. What can we expect on this occasion?

The year 2022 is very important for the Port of Gdynia, but also for the entire maritime economy. On September 23, 1922, the Sejm of the Republic of Poland passed the act on the construction of the port in Gdynia – and this date is considered as its formal beginning, while in the Port of Gdynia we celebrate this anniversary throughout the whole year. We started our jubilee year by cooperating with a young artist from Gdynia, Jan Rutka, who prepared a unique poster depicting the fascinating story of 100 years of the Port of Gdynia. We want the works prepared for the Gdynia Port Centennial to reach a wider audience, and we intend to auction one of them for the benefit of the children's hospice Bursztynowa Przysia. In the Museum of the City of Gdynia, you can admire the unique birthday exhibition "Morze/Miasto/Port" ("Sea/City/Port"), showing the image of Gdynia's port in art, with 100 works for the 100th anniversary of the port. The artists, fascinated with the elements and grandeur of the great construction site, captured in particular the first decades of the investment in Gdynia, but the exhibition will also include contemporary representations. On May 2nd, we also officially started the sailing season, which marks the beginning of all water sports competitions, but not only. In June, the Port of Gdynia, as the port of sailing ships, is the main partner of the 6th Sailing Day Parade during the Gdynia Maritime Days, as well as the ONE Terminal RUN Gdynia Hutchison Ports. It has become a tradition that the Port of Gdynia Authority S.A., on its birthday, prepares a gift with the local community in mind, hence the residents of Gdynia are in for many attractions in September. This year, the largest ferries on the Baltic Sea will depart from the New Public Ferry Terminal –Stena Line's E-flexer class with a length of 240 m. 100 years of the existence of the Port of Gdynia has been a time of constant changes and improvements in the infrastructure that is to serve the Polish maritime economy and future generations.

BALTIC HUB 3 WILL BE CONSTRUCTED IN DCT GDAŃSK



Baltic Hub 3 will be constructed in DCT Gdańsk. The PLN 2-billion container terminal will be ready in 2024. Construction of the new terminal, Baltic Hub 3, is scheduled to commence in the second half of 2022, with commissioning scheduled for mid-2024. The investment, worth PLN 2 billion (approximately €450 million), will make DCT Gdańsk one of the largest container terminals in Europe, and the Port of Gdańsk will create a third deep-water berth with a length of 717 m and a depth of 18 m, on a 36-hectare site.

The terminal will become the lessee of the land that will be created as a result of converting an area of the sea within the administrative borders of the Port of Gdańsk into land. This spectacular investment is the Baltic Hub 3 terminal.

- The expansion of the container terminal, port and transshipment capacity is a step towards making Gdańsk and the whole Tri-City by far the largest transshipment port in the Baltic Sea - said Prime Minister Mateusz Morawiecki in July 2021 during a press conference on the Port of Gdańsk, where details of the Baltic Hub 3 project were presented.

1.5 million more TEU; a third deep-water quay

Thanks to the construction of the new Baltic Hub 3 terminal, the port will have a third deep-water quay, 717 m long and 18 m deep, on a 36-ha site.

Located to the east of the existing T1 berth, the new Baltic Hub 3

container terminal is to cost approximately PLN 2 billion (approx. 450 million euros). According to the assumptions, the investment will be financed solely from DCT's own funds and money raised from external lenders.

Marek Gróbarczyk, deputy minister of infrastructure responsible for the maritime economy, emphasized that a few years ago, Polish ports reloaded 60 million tons, and today it is over 100 million tons. - We are not going to stop. Our goal is to create a large hub, to redirect shipment streams to Polish ports and to increase transshipments to 150 million tons - reminded the deputy minister.

What will be changed as part of the Baltic Hub 3 investment? The project envisages purchasing 7 quay cranes capable of loading and unloading the largest ships in the world, and 20 RMG automated cranes, which will be remotely controlled by operators



at ergonomically designed stations. This will create a much safer, modern and comfortable working environment all year round.

Just to recall, DCT built two marine terminals (T1 and T2 - launched in 2007 and 2016, respectively) with a total capacity of 3 million TEU. - The construction of the third berth on our Baltic Hub 3 terminal marks the opening of a new era in container handling - commented Charles Baker, CEO of DCT Gdańsk.

He stressed that DCT Gdańsk is already a real 21st century terminal, and the construction of the Baltic Hub 3 terminal will introduce the most modern low-carbon technologies, which any European port would be proud of.

DCT Gdańsk: “We bet on the green side of the investment”

- Even the concrete used for construction will have less impact on carbon dioxide emissions. Baltic Hub 3 will significantly enrich the services we offer to customers and will be a significant boost in attracting new services or shipping alliances, as well as supporting the development of the Polish and surrounding economies – says Baker. - Thanks to the construction of the new terminal, Poland can continue to compete with western European ports, such as Hamburg or Rotterdam. After adding the third quay, the terminal will be able to serve not only the Polish market, but also the entire Baltic region and Poland's inland neighbors.

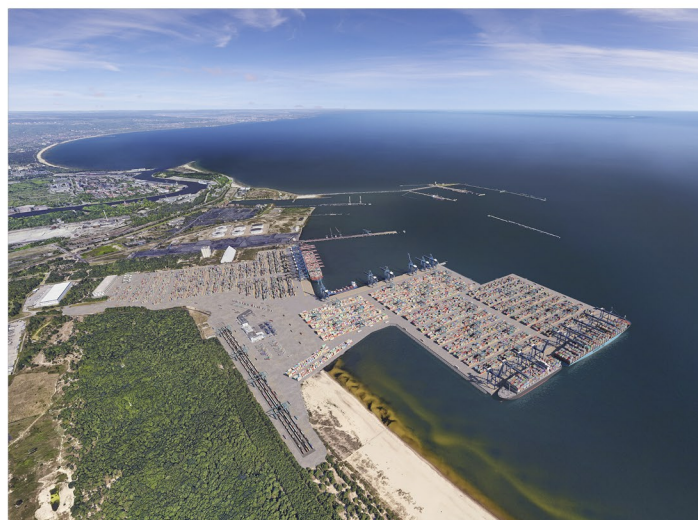
Interestingly, the new terminal will be built entirely on water and will be adjacent to T1, thus continuing the investment at sea and away from the beach. As DCT Gdańsk and the Port of Gdańsk Authority emphasize, the same concept guided the construction of T1, with an awareness of environmental issues and respect for the needs of local communities.

The developers ensure that every precaution will be taken to protect the environment, marine life and habitats in the Baltic Hub 3 area, while Stogi beach, important for environmental reasons and for the local community, will remain untouched and will continue to be open to visitors.

The Port of Gdańsk rises to the top of the European ports league

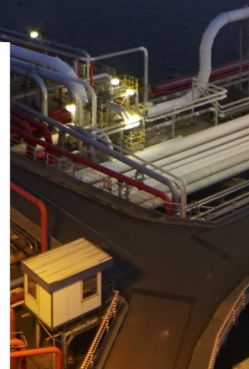
- The offer and subsequent selection of such a well-informed investor as DCT from the PSA group, one of the world's largest container terminal operators, demonstrates the great potential of the Port of Gdańsk and the Polish economy. This is the result of two years of very complicated work by a team that first worked on amendments to the Ports and Harbors Act to make it possible to lease land that will be created by the port, amendments to the Articles of Association, and finally, a very complicated and transparent procedure - summed up Łukasz Greinke, CEO of the Port of Gdańsk.

The Port of Gdańsk is the fastest growing European port of the last decade. In the ranking of European ports, it is currently ranked 18th, and at the beginning of 2021, it joined the group of the three largest ports on the Baltic Sea. After the first quarter of 2021, it cemented its high position by ranking first on the Baltic Sea in container handling. Annually, over 50 million tons of goods are transhipped on the quays of the port. The Port of Gdańsk covers an area of over 790 hectares.





NAFTOPORT ACHIEVES A RECORD OF NEARLY **18 MILLION TONS**. ALREADY TWO THIRDS OF THE POLISH DEMAND FOR OIL COMES TO THE **PORT OF GDANSK**



More than 6 percent growth compared to the record-breaking year 2019 was recorded by Naftoport, part of the PERN Group, handling nearly 18 million tons of crude oil and fuels in 2021. How will Russia's invasion of Ukraine affect its work?

As PERN emphasizes, Naftoport is currently a key company ensuring the diversification of oil supplies to Poland. This Gdansk-based company is Poland's only marine terminal for the transshipment of crude oil, one of the largest and most universal terminals for the transshipment of refined oil products and one of the largest transshipment terminals in the Baltic Sea in general.

Despite the ongoing pandemic, 2021 was characterized by growth for the global economy. - In our case, the tendency was similar - says Andrzej Brzózka, Chairman of the Board of Naftoport. - I would like to recall that Naftoport's result in 2020, in terms of volume, was the sixth best in the company's history, which means that year was also good; however, 2021 was a visible improvement in relation to the previous three years of constant growth.

Naftoport CEO: "Back with a bang"

President Brzózka called the year 2021 a return with a "bang" – 17.9 million tons. - We achieved this with a surplus by beating the transshipment records from 2019 (16.8 million tons) by more than a million tons - he recalls.

It is worth mentioning that in 2019 Naftoport operated "at maximum capacity due to the chloride crisis", which stopped the pumping of crude oil via the "Przyjaźń" oil pipeline for 46 days - the issue concerned chlorides detected in crude oil pumped to Poland via the trunk pipeline from Russia via Belarus. - This result is attributable to the revival of the economy, which recovered after 2020 from economic shock. This is due to customer demand, as well as a combination of the diversification policy maintained for several years, and the market situation - explains the president of Naftoport, which over the last few years has become mainly a raw material port for crude oil.



This growth appears to be a result of the increase in crude oil transshipments by its import for domestic needs and by its supplementary transit to two refineries in Germany. - On the other hand, we carry out fuel transshipments for entities connected to the fuel infrastructure of the Lotos Group refinery. These transshipments are currently lower, resulting from the market situation - a high demand for fuels on the domestic market - he points out.

Andrzej Brzózka also referred to the merger with Lotos. - As far as Naftoport is concerned, the influence of the merger may be quite neutral but it should translate into positive effects due to the expected increase in the volumes of the raw material delivered by sea - he states. - It must be noted that transshipments of crude oil and liquid fuels in all Polish ports last year already reached a record 27 million tons (including LPG and LNG), 67% of which was handled by Naftoport. The company also performed 13% of total cargo handling in Polish ports in 2021.

Oil flows to Poland by sea - via Gdansk Naftoport

- As reported by President Brzózka, based on data through November 2021, Poland's demand for oil delivered by sea - mainly from directions other than the east - was almost two-thirds. - Less than seven years ago, that figure was 25 percent

- he recalls. - The barrier of a 50-percent share in the volume of crude supplies by sea was exceeded in 2019. And this level is clearly increasing, which means that the amount of oil sent by sea is growing.

As PERN reported, the company has "dramatically increased the storage potential dedicated to oil on the coast over the last two years".

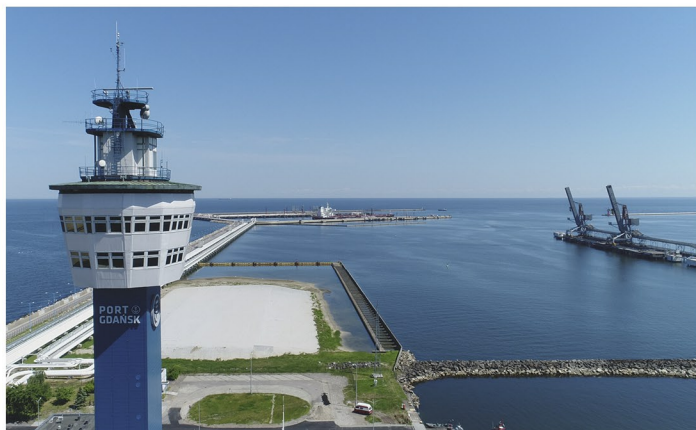
Having analyzed the growth of transshipments and the company's potential, it can be said that the company could even cover 100 percent of Poland's demand for oil. - And even then, it would be able to execute additional foreign contracts - states the president. - A lot depends on the onshore system, and a combination of the onshore capacity with the differentiation of oil types, which concerns the separation of oil types.

Recent investments have significantly improved capacity. This refers to the enlargement of the nearby TNG terminal and PERN's base in Górk, which increased capacity by over 0.5 million tons. - The system is getting more and more efficient, as was shown in 2019. The situation is good, to say the least - believes the CEO.

The CEO adds that Naftoport is planning modernization activities, and there will be no spectacular investments in the near future.

- The current infrastructure provides sufficient potential. Presently, the maintenance of traffic and the continuity of operations have become the most important factors. This is what the repair and modernization works are aimed at. At any rate, we have been successful in it for years, we have no downtime. We intend to maintain this at all traffic levels, even though it is not an easy task with such large volumes - Brzózka says. - Our reliability and dependability are the reason why our customers trust us more and more. The stability of deliveries by sea is very important.

In terms of traffic volume, as the president pointed out, in 2015 Naftoport handled 367 tankers (which translated into 14.3 million



tons of transshipments). Whereas in 2021, 266 vessels delivered 17.9 million tons of cargo. - Larger and larger ships are calling at our port - Brzózka states. - In 2015, 33 percent of the ships were oil tankers, which are vessels several times larger than product tankers, and now this figure has increased to 67 percent.

As Brzózka pointed out, Naftoport can receive vessels with a length of more than 300 meters and a draught of 15 meters, and there are five transshipment berths available to customers.

PERN states that Naftoport has the capacity to transship over 36 million tons of crude oil and 4 million tons of petroleum products per year, thus ensuring the ability to fully cover the needs of refineries connected to the PERN pipeline system. Naftoport's marine terminal handles crude oil, gasoline and diesel fuel, as well as aviation fuel, heating oil, condensates and components.

Conflict in Ukraine and the significance of Naftoport

President Brzózka is also convinced that the conflict in Ukraine will translate into an increased role of ports. - I do not think that sanctions or a voluntary embargo on trade with Russia or Russian companies will have any significant impact - states the president.

He points out that part of the trade which is conducted by land, i.a. through the territory of Russia, will be redirected to other routes. - This also concerns the trade in raw materials from Russia. This trade, with raw materials of different origins, will now be shifted to sea routes, i.a. through Naftoport. I think that the role of all sea ports, including the Port of Gdansk, will significantly increase in this context - predicts Andrzej Brzózka.

Let us remember that an embargo on Russian oil has already been implemented by the USA and Great Britain. Whereas the

European Union wants to ban the entry of Russian ships to ports. - Possible decisions concerning the supply of such energy resources as crude oil will result in an increase in the role of Naftoport as the only supplier of crude oil to the domestic market, but also of a significant part of all types of fuel - he believes.

Brzózka also stresses that Naftoport is only a part of the whole logistic system of supplying the country with oil and other fuels. - Naftoport is a continuation of a complete system of pipelines and warehouses of PERN and storage bases of refineries. The whole system acting coherently is able to cope with various energy scenarios in the country - he emphasizes.

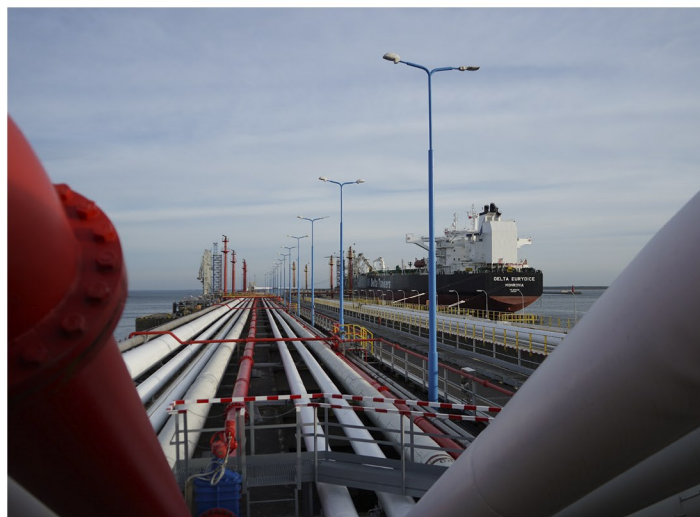
Naftoport: We are ready for bigger transshipments

- In such a situation, we are ready to take over the whole supply and the full service for our refinery customers - declares President Brzózka. He emphasizes that Naftoport is constantly working on full readiness for possible changes. - Our activities are focused on maintaining the potential that we have, the continuity of work and the possibility of increased transshipments in the future.

He also stresses that if sanctions are imposed, it will be a big challenge, which we need to prepare for carefully. - Despite significant growth in recent years, we have not handled such high volumes before. On the other hand, for us it will mean, as in any company, an increase in turnover - Brzózka says. - Our task will be to combine these two spheres for the benefit of the oil sector and the customer.

Andrzej Brzózka predicts that if political decisions are made at the national or EU level, or if there is a voluntary embargo on raw materials from Russia, oil prices will not be so important.

- The supply of raw materials and fuels to all markets is and will be permanent. Our domestic production and the work of Naftoport will not depend on prices - he says. - If Russia, as the source of the supply of raw materials - still so important in Europe - is not available, everyone will accept such prices as they are. If the situation stabilizes, economic life will return to normal.





SHIPBUILDING REVIEW 2021

THE MOST **INTERESTING**

PROJECTS OF **POLISH** SHIPYARDS

2021 provided Polish shipyards with a lot of work. There were plenty of innovative projects and spectacular launches, as well as smaller, but equally interesting operations. At the same time, the year brought new hope to the entire shipbuilding industry, related to the construction of ferries for Polish shipowners, frigates under the “Miecznik” program, and offshore development. Consequently, many projects are still in progress. The coming years promise to be equally interesting and some of the yards are already working on several or even more than a dozen projects simultaneously. Our subjective review looks at the most interesting and important projects carried out by Polish shipyards back in the year 2021.

CRIST

There is a lot going on at the Crist shipyard docks. One of the most important projects is the construction of a fully equipped multipurpose vessel (MPP), which will be used to build an underwater tunnel connecting the ports of Puttgarden in Germany and Rødbyhavn on the Danish island of Lolland, running through the Fehmarn Belt. It will be the world's longest submersible tunnel.

As you might guess, building a tunnel is a complicated operation. Therefore, a special, multifunctional pontoon equipped with a submersible charging tool (the so-called SDT, which is also built by Crist) is needed. The task of the vessel will be to lay the soil on the seabed.

The vessel will have a hull length of 130.2 m, and its total length, including conveyor belts, will be 149 m, while its width will be 48 m. It will accommodate up to 19 people and will be equipped with two gravel chambers with a total capacity of 14,000 tons. A remotely operated gravel-laying tool (SDT), will be lowered from under the vessel's hull to 46 m below the waterline, where the gravel foundations for the sunken tunnel will be laid. A combination of high levels of automation and state-of-the-art positioning technology will ensure accurate placement of the gravel foundations.

For this project, Crist is working with StoGda design office from Gdansk, Poland, which will develop the technical design and working design.

Crist is also continuing its cooperation with Finnish ferry operator Finferries. The first ship that the shipyard built for Finferries was the Elektra, a modern, hybrid, double-sided ferry - the first ferry of this type built in the European Union and the second in the world. The ship has received countless awards, so it is not surprising that cooperation between the shipowner and the shipyard flourishes.

Crist is building two more vessels for the Finns. The launching of the second ferry in the series, under construction number P315, took place in November. The vessel will be powered by shore batteries. Its diesel generators will serve as a back-up, e.g., in case of bad weather or ice accumulation on the route. The vessel measures 100.5 meters long and will be able to take 90 passenger cars and 372 passengers on board. A crew of 3 people will be needed to operate it. The ferry will be handed over to the ordering party this year.

A little earlier, in October, work was initiated on a third vessel for Finferries. This time, it will be a 70-meter-long hybrid ferry operating between Nauvo and Korppoo in Finland. It will hold 52 passenger cars and up to 200 passengers on board.

Cooperation between Crist shipyard and the French shipyard Chantiers de l'Atlantique is also thriving. The French order so-called megablocks - that is, whole huge sections of ships, fully equipped and ready for assembly. Thus, megablocks, under construction numbers V34 and M34, intended for a passenger ship, left Gdynia. The modules were of 9 500 and 11 000 tons, respectively, and measured 142x43 and 171x40 meters. These are the largest blocks of passenger ships built in Europe and possibly the whole world.

The blocks built by Crist are fully equipped to the standard of the finished ship. This means that they are fully painted, the equipment is already mounted on them and the blocks are fitted with all ship installations. The megablocks are also fully certified.

Megablock V34 is the midship together with part of the engine room of the passenger ship MSC Euribia, which will be one of the largest passenger vessels in the world.

Moreover, in June the first steel was cut for a modern luxury cruise ship being built by a shipyard in Helsinki. Crist is responsible for making the hull blocks for the vessel, which will then sail to Helsinki to be assembled and equipped. The shipyard cooperates with Seatech Engineering, a design office from Gdansk, which is responsible for the modeling and working documentation of the hull.



KARSTENSEN SHIPYARD POLAND

Karstensen Shipyard in Gdynia is not slowing down its operations either. Numerous modern fishing vessels left its docks last year and work continues on the next vessels - several projects are being developed at the same time.

Most of the fishing vessels launched last year by Karstensen will be used to fish in the north. Back in December 2020, Karstensen Shipyard launched the 62.5-meter vessel Antarctic for an Irish shipowner. The partially equipped hull sailed to Denmark, where it is being finished before the vessel is handed over to the client. In mid-January, the 90-meter pelagic trawler Ruth was lowered into the water, and was also towed to Denmark, where it will be fitted out and handed over to a local owner. Several other productions of the Gdynia factory will also be sent to Denmark, including a 92-meter cutter and the small 36-meter trawler Myggenes. Moreover, a similar size vessel, Monsun, has sailed to Norway. In 2021 a 90-meter fishing vessel for a Faroese shipowner left the shipyard docks. The modern hull of the vessel is ice-class, which will enable it to fish in the waters of the far north. The hero of the last Karstensen Shipyard Poland launch in 2021 was the 75-meter-long and 15.6-meter-wide pelagic trawler Artemis. Its home port will be Banff in Scotland. All the vessels were built in cooperation with Karstensen Skibsværft A/S design office.

As you can see, Karstensen Shipyard Poland has made a good name for itself in Europe as a manufacturer of modern fishing vessels.

Karstensen builds the vessels in the Port of Gdynia in its modern production facility at the Indyjskie Quay. The plant is adapted to produce hulls and is equipped with two production halls.

SAFE

Various ships were also built in Safe shipyard. However, the most interesting project turned out to be an innovative dock.

Safe shipyard in Gdansk has had a successful year. It has successfully launched several interesting hulls of fishing vessels. Among them were two 38-meter Beam Trawler type vessels, but also the smaller, 28-meter MS Slettenberg vessel for a Norwegian shipowner. The latter left Safe shipyard fully equipped. It is worth noting that despite its small size, the vessel is packed with modern technologies. In addition to fishing functions, it has the ability to directly process fish on board and even deep-freeze filleted fish. There is even space on the vessel for storing frozen fish, but also ...live fish.

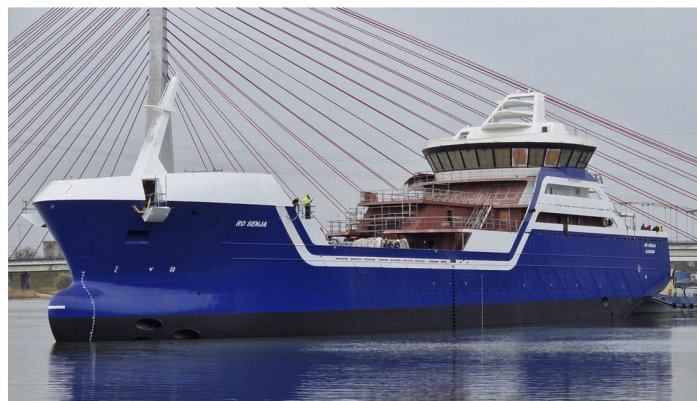
Another batch of vessels produced at Safe shipyard in 2021 were tugboats. One of them - the partially equipped hull of a tug from the Shoalbuster 2711 series ordered by Damen Shipyards Hardinxveld was launched on the last day of 2020. In turn, the first of two Multicat 2712 series tugs was put on the water in June (the second joined shortly afterwards). Safe design office was responsible for the modeling and working documentation. The Multicat 2712 tugs left Safe partially equipped with piping systems and complete propulsion systems, among other things. In August, work began on another tug - this time a Shoalbuster 2711 ICE, ordered by the Polish company Fairplay Towage. Although Safe has worked on vessels of this type before, this is the first time they are building one themselves in its entirety. The new Shoalbuster is to operate in the Baltic and North Seas, including wind farms. An ice class is being added for this purpose. The vessel is to be handed over to the customer in the summer of 2022.

Safe shipyard has also devoted much attention to its own invention, the Floating Docking Platform, or pontoon-dock. We describe this project in a separate article on page 41.



MARINE PROJECTS

Marine Projects shipyard also scored some interesting projects in 2021. In August 2021, the ninth live fish carrier for the Norwegian shipyard Larsnes Mek. Verksted left the yards. The ship, Orca Yka, will be handed over to a shipowner in Chile after being completed in Norway. At the end of 2021, another vessel, the partially equipped 79-meter live fish carrier RO Sailor, left the plant for Norway. It was the 10th jubilee vessel built at Marine Projects in cooperation with the Norwegian shipyard Larsnes Mek. Verksted. In May 2022, the Ro Senja vessel was launched at the shipyard. It is the tenth Live Fish Carrier (LFC) vessel built at Marine Projects. It was built on behalf of the Norwegian shipyard Larsnes Mek. Verksted AS. At the same time, it is the 54th unit built in Marine Projects Ltd. The works on the next three vessels for the same client – two trawlers and one LFC – are underway. The owner of the vessels, after their completion, will be the Norwegian company Rostein AS. The execution time was nine months from the start of steel cutting to the delivery of the ship ready for towing.



STAL COMPLEX

Stal Complex shipyard in Gdynia specializes in building barges, catamarans and floating objects for fish farms and the aquaculture industry.

Among other things, several barges left the shipyard docks this year. Among them was the eighty-sixth produced in the plant - a Nova 600 type feed barge for fish farming with a weight of 320 tons and feed capacity of 600 tons, which was delivered to a customer in Spain. Stal Complex Company made the vessel in its entirety, it was fully equipped and went to the shipowner ready for operation.

In 2021, the company completed other projects. The Fram 86 type barge was a challenge for the shipyard due to its size - it was the largest barge built in SCC. It was equipped with specialized feeding systems to enable the autonomous

management of fish farms. The almost completely equipped catamaran hull, which is the nineteenth unit of this type produced in Stal Complex, also left the shipyard.

WULKAN SZCZECIN SHIPYARD

Interesting things were also happening in the production halls of Wulkan shipyard in Szczecin. The shipyard has completed, among other projects, that of a 15-meter-long back anchor beam, which is an element of the line of an offshore gas pipeline, but also the steel bow section of a barge weighing 166.5 tons.

The biggest and most interesting project, however, is still in progress: Wulkan is building a floating dock with a lifting capacity of 27,000 tons, commissioned by another Szczecin shipyard, Gryfia. The dock is to be 235.6 meters long overall, 213.1 meters long in support, 47.3 meters wide outside and 38 meters wide inside. The structure will weigh about 10,000 tons. The ordering party claims that it will be one of the four largest docks in the Baltic Sea.

Wulkan began cutting sheets for the dock on September 22. The structure is to be handed over to the ordering party at the turn of the year.

EPG & BALTIC OPERATOR

It took as long as three months to prepare for the loading operation of a huge transformer station which Energomontaż-Północ Gdynia manufactured for the needs of the Kaskasi substation in the North Sea. The ordering party was a Danish company.

The transformer station weighs about 615 tons, including over 100 tons of auxiliary structure. Its task is to collect the electricity generated by wind turbines. Finally, the colossus was placed on a barge and shipped to Denmark.

However, this is not the only giant construction which was built in Energomontaż-Północ Gdynia in 2021. Another spectacular

project was the huge Goliath gantry crane carried out jointly with the Baltic Operator. The main girder itself, i.e., the largest part of the crane, was almost 140 meters long. Goliath belongs to the largest gantry cranes of this type manufactured in the world. All construction elements were produced and equipped in the Tri-City. The total weight of the load on the towed pontoon is 2200 tons. The crane was commissioned by the largest Finnish crane manufacturer and the target customer is a major European shipyard.

MARINE SHIP REPAIR YARD GRYFIA

Marine Ship Repair Yard Gryfia from Szczecin handled an interesting and greatly talked about order. The ordering party was Wody Polskie, a company that administers Polish water reservoirs. The subject of the order was four multifunctional icebreakers designed for work on the Lower Vistula River. The ships were named Puma, Narwal, Nerpa and Manat. Construction of the series began in Gryfia in 2018.

The largest of these vessels is Puma - a frontal icebreaker. Its task is to break a trough in the ice, break up blockages, and free pillars of bridges and other water structures from ice. The ship measures 33.5 meters and has 175 tons of displacement. The other vessels - Narwal, Nerpa and Manat are linear icebreakers, which are to widen the trough broken by Puma, break ice sheets and ensure the free flow of ice floes. The vessels measure 28 meters each and have 132 tons of displacement. Two of the vessels - Puma and Narwal - were already commissioned.

The shipowner claims that the series of icebreakers produced by Gryfia are among the most modern specialized vessels in Europe.

REMONTOWA SHIPBUILDING

The year 2021 was full of events at Remontowa Shipbuilding shipyard belonging to the Remontowa Group. Quite a number of different types of vessels left the docks, proving the wide range of capabilities of the facility.

In the first few months, Remontowa launched two icebreakers commissioned by the Regional Water Management Board in Szczecin - Tarpan and Ocelot. These are linear icebreakers, whose task is to support slightly larger and more powerful front icebreakers. Thanks to their low draught, they will be able to operate on rivers and lakes at low water levels. The vessels measure 29 meters each and have a carrying capacity of 122 tons.



Shortly after that, the H-13 Przemko tugboat started sea trials - the last of a series of six B860 tugboats that Remontowa built for the Polish Navy. These vessels are to perform logistic support tasks at sea and in ports, but also to support operations related to technical evacuations, rescue, the transport of people and supplies, the neutralization of pollution or removing hazardous materials from the water. They are equipped with an ice class, and towing elevators with towing capacity up to 35 tons.

Remontowa Shipbuilding also builds much larger vessels. The multipurpose platform supply vessel (PSV) Cooper Viking left Gdansk in spring. The 89-meter-long hybrid vessel is powered by LNG or light marine oil MGO, while the installed batteries allow for a significant reduction in fuel consumption. The vessel also has a dynamic positioning system so it can maintain position in winds in excess of 35 knots and wave heights of up to 4 meters. Installed on board the vessel is a system for fighting fires of foreign objects classified as Fi-Fi -2, and for fighting oil spills certified according to NOFO regulations.

An interesting project was the construction of the 107-meter Salish Heron ferry for a Canadian shipowner. The gas-powered vessel left Gdansk in December. It is the third unit of the Salish series. It will take on board up to 138 vehicles and 600 passengers.

The experience gained during the construction of the Salish series ferries will certainly be useful while working on new ro-ro ferries for Polish shipowners. We give more details of this, which is one of the most important orders for the Polish shipbuilding industry, in a separate article.

Cooperation with the armed forces has become an important element of Remontowa Shipbuilding operations. In 2021, the ORP Mewa mine destroyer left the shipyard docks. It is the third ship of this type built for the Polish Navy and the second in this series. The vessel was built by a consortium led by Remontowa Shipbuilding and including also the Research and Development Center of the Maritime Technology Center and PGZ Military Shipyard.

ORP Mewa is 58.5 meters long, 10.3 meters wide and has a displacement of 830 tons. The ship has the L-3 ice class and is adapted to operate in nuclear, biological and chemical weapons risk conditions.

Due to successful cooperation with the Polish Navy and experience in building military vessels, Remontowa Shipbuilding joined the PGZ-Miecznik consortium. Thus, Remontowa will be one of the companies that will cooperate on a very large and important order - the construction of three frigates for the Polish

Armed Forces. Construction of the first ship should start in the summer of 2023. Apart from Remontowa, PGZ Naval Shipyard will also participate in this.

MOSTOSTAL POMORZE

Mostostal Pomorze has also added a large project to its portfolio. The plant has made a transformer station for one of the 247 MW wind farms in the Baltic Sea. The giant weighs over 1000 tons in total.

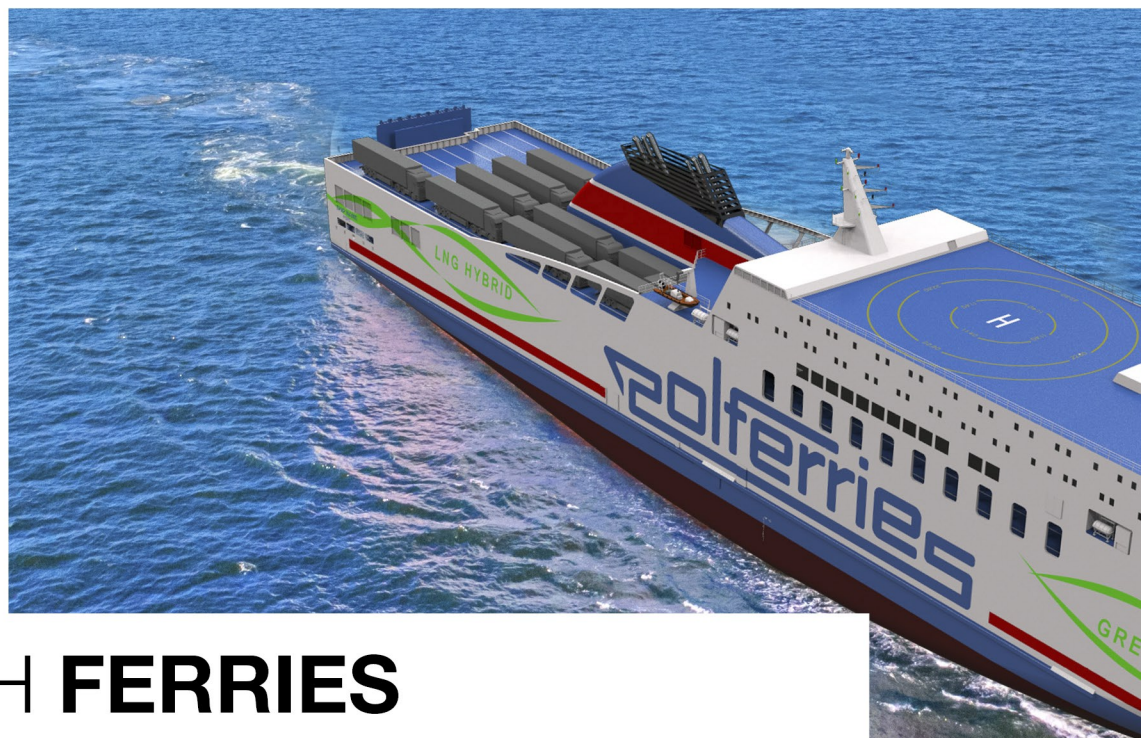
Trafostation is over 45 meters long, 20 meters wide and 20 meters high. The project took about a year to build at Mostostal and was handed over to the client on time. The first phase involved the prefabrication of two separate modules and the application of an anti-corrosion coating.

The culminating point was the placement of the upper block, weighing over 550 tons, on top of the other one and merging the two structures. This task required the deployment of the huge HLV Uglen floating crane from Norway, with a maximum lifting capacity of 800 tons.



SUNREEF YACHTS

Sunreef Yachts shipyard specializes in building luxury catamarans. Its new flagship project, 49M Sunreef Power, is under construction. The 49-meter multihull will be built entirely in Gdańsk. The concept combines the most modern technology with an avant-garde design. The vessel will be 49 meters long and 17 meters wide, and manned by a crew of 17. On board, 10 guests will be able to travel in comfort. With a fuel capacity of 118,000 liters, the vessel will have a range of over 5,000 nautical miles. 49M Sunreef Power will be powered by two 3,400 hp engines. The catamaran will accommodate three pontoons and many water toys.



NEW POLISH FERRIES - THE SHOWCASE OF THE POLISH SHIPBUILDING INDUSTRY

One of the main topics for Polish shipping and shipbuilding industries in 2021 was the construction of new ferries for Polish operators. After years of announcements and failed attempts, this has finally come to fruition - contracts have been signed and work has started in the shipyard.

Polish ferry lines will receive new modern vessels, which, most importantly, will be built in Polish shipyards. However, it is worth taking a moment to look at the details, because if everything goes according to plan - which the investor and the contractor are convinced of - Polish ferries will definitely be some of the most modern on the Baltic.

Unity Line and Polferries cannot wait

On August 30, the Prime Minister, Mateusz Morawiecki, officially signed the investment agreement and, shortly afterwards, the funds transferred by the State Treasury were taken up by Polskie Promy (Polish Ferries), a company established specifically to coordinate the purchase and operation of the vessels. Thus, a very important investment process for the Polish shipping and shipbuilding industries was initiated. Three modern ferries (with the option of four) are to be built under the program. They will be handed over for exploitation to Polish ferry operators - two of them will sail in the colors of Unity Line (Polska Żegluga Morska,

Polsteam), one (or two, depending on the use of the option in the contract) will carry passengers and goods for Polferries (Polska Żegluga Bałtycka).

As described by Maciej Furmanski, President of Polskie Promy, the whole program has been divided into three stages: investment, exploitation and the final stage. The first stage lasts from the signing of contracts to the acceptance of ferries by the shipowner. The second phase consists of 20 years of operation on the basis of charter contracts. After this time, the third phase will begin - the purchase of ferries by charterers, who will then become their owners.

November 2021 saw another milestone in the program: the official signing of the contract for the construction of the ferries between Polskie Promy and Remontowa Shipbuilding from Gdańsk, which will build the ships.



The first vessel should be handed over within 42 months of signing the contract, i.e., in the first or second quarter of 2025.

The works are already in full swing

The shipyard quickly set to work. The new ferries are to be modern, environmentally friendly and low-emission, in line with all the trends and standards. The ships will be 200 meters long, and each will have a load line of 4100 meters, which is unique - usually such a load line can only be achieved with longer ships. The width of the load line will be 3100 centimeters, which will give great comfort to drivers.

The ferries will be able to accommodate 400 passengers, but have been designed with truck drivers in mind. The vessels will each have two ramps from both the bow and stern. It is possible, however, that the vessels will not be entirely identical. Firstly, PŻB, the operator of Polferries, does not want to give up the passenger transport segment, due to the characteristics of the routes served by the carrier. Secondly, it is possible that by the time the third or fourth vessel is released from the shipyard, technological or design changes will have to be made to adapt them to the ever-changing decarbonization regulations.

The ships will be powered by hybrid LNG and diesel engines, with a battery backup. It is already known that the contract to supply the engines has been awarded to the Wärtsilä Group, which is also expected to supply the LNGPac fuel storage, power and control systems. The design of the ferries has been conceived in such a way that propulsion can gradually evolve towards zero-emission fuels - ammonia, hydrogen or ethanol. The engines ordered are expected to run easily on LNG with a pilot dose of light fuel, and also switch to Bio-LNG after 25 years.

Instead of conventional propellers, the ferries will be equipped with two azimuth thrusters at the stern and two thrusters at the bow, which is expected to greatly improve maneuvering in ports. ABB has been assigned the task of supplying the thrusters, as well as the PEMS energy management system and a system enabling the vessels to be charged from a ground source in the port.

According to those involved in the project, the ferries will have maneuverability in conditions up to 8 on the Beaufort scale with less power consumption. The ro-pax vessels will have 24 MW of power - a value that is fully sufficient for the routes and conditions in the Baltic Sea. The ships have been deliberately designed for minimal operating costs, so they will not unnecessarily generate energy that they will not consume.

Crews will be ready

Obviously, someone is needed to operate the ferries. Companies are already discussing special training programs for the future crews of the new vessels. Talks are under way on the creation of special simulators, which will help train personnel to effectively and safely maneuver the ferries. Engineering staff - both those employed directly on the ferries as well as members of the shipowner's onshore technical support team - will also be required to attend appropriate courses.

The new ferries will not only increase the competitiveness of Polish ferry lines and provide safe and comfortable sea connections between Poland and other ports on the Baltic - they will also be an excellent showcase for the Polish shipbuilding industry and an encouraging sign to investors that it is worth looking for contractors for their shipbuilding projects in the Country on the Vistula River.

Executive Offshore Wind MBA – **Gdynia Maritime University** educates managers and leaders for offshore wind



Gdynia Maritime University delivers the first in Poland, and second in the world, Executive MBA program dedicated to the offshore wind sector. Program graduates will acquire a unique skill set for the Polish and European Offshore market, as well as an internationally renowned qualification – the prestigious Executive Offshore Wind MBA.

The purpose of the Executive Offshore Wind MBA program is to support the development of OWE (Offshore Wind Energy) by educating professional managers and leaders for the dynamically growing offshore wind industry. The program is designed for candidates with experience in the maritime and offshore wind sectors who intend to accelerate their managerial development, and for managers from other industries who aspire to

advance their professional career in the OWE sector. EOW MBA participants acquire advanced management competencies and sophisticated offshore wind expertise. Graduates of the program will be among the most valuable professionals in the Polish and international offshore wind markets.

The first edition of the Executive Offshore Wind MBA was inaugurated on March 25, 2022, and has attracted significant interest among the OWE community. The EOW MBA is organized under the Honorary Patronage of the British Embassy and the Royal Danish Embassy. The Polish Offshore Wind Energy Society has become the Program Partner. Corporate Partners include DNV, GE Power, Inter Marine Group, Kongstein, MEWO, Ørsted, Polish Register of Shipping, RWE, Seaway 7, Semco Maritime, and Vestas. Academic Partners are the University of Applied Sciences Bremerhaven and the Business Academy SouthWest – the universities which offer the first Offshore Wind Energy MBA in the world. The partnership network is expanding with the intention





of creating an open platform around the EOW MBA for sharing experience and establishing productive business relations.

The role of the partner organizations is to contribute industry know-how to the EOW MBA program in order to create a unique learning experience for program participants. These organizations deliver a significant part of the EOW MBA, which provides a opportunity to learn directly from industry experts and sector leaders. As part of the sessions, these experts share their first-hand expertise on strategic planning, the development of a supply chain, the construction of offshore wind farms, risk management, and the economics of wind energy.

Representatives of the partner organizations constitute the EOW MBA Program Board. The advisory role of the Program Board is to provide a professional perspective and practical guidelines to ensure the unique relevance and excellence of the program. The Program Board is a think tank of experts and practitioners of the international maritime and offshore wind industry. Their experience is invaluable to the enrichment of the program's content and in ensuring its alignment with the current and long-term demands of the offshore wind energy sector – says Andrzej Popadiuk, Director of the

GMU Offshore Wind Energy Center. The Program Board has a pioneering mission of shaping the Executive Offshore Wind MBA in order to educate professional, effective managers, capable of taking a leading role in the development of the offshore wind sector in Poland and in the international OWE market. – By inviting industry experts and leaders to the program, we ensure that the Executive Offshore Wind MBA will significantly contribute to the expansion of the offshore wind energy sector in Poland and Europe. The Program Board members meet to discuss strategic scenarios for offshore wind energy and share recommendations regarding the current and future development needs of OWE companies, organizations and professionals, adds GMU Offshore Wind Energy Center director Andrzej Popadiuk.

The Executive Offshore Wind MBA is a highly practical program based on current industry and managerial practices. Thanks to the involvement of sector experts and management professionals, the program presents current developments and real business cases in offshore wind. It combines industry expertise with the development of management and leadership skills. Dynamic, interactive sessions encourage peer learning and prepare students to implement new competencies and ideas in the workplace. The program provides its students with a range of ready-to-use management techniques, and their companies with an abundance of inspirations and state-of-the-art solutions. The involvement of the OWE community in the program allows participants and their organizations to establish strong professional and business networks.

The EOW MBA is an internationally-minded program delivered in collaboration with business and academic partners with extensive experience in offshore wind energy. The program's faculty members consist of world-class experts on various aspects of management and offshore wind energy. They are not only experienced practitioners but also excellent business trainers working with executives in leading business schools – says Dr. Tomasz Harackiewicz, MBA Program Director. As part



of the program, participants will have the opportunity to meet and work with international exchange EMBA students and attend classes at partner universities abroad. Graduates of the EOW MBA program will be granted an internationally recognized Executive Master of Business Administration title, a postgraduate MBA diploma, as well as certificates of completion of specialized OWE modules delivered by the University of Applied Sciences Bremerhaven and the Business Academy SouthWest.

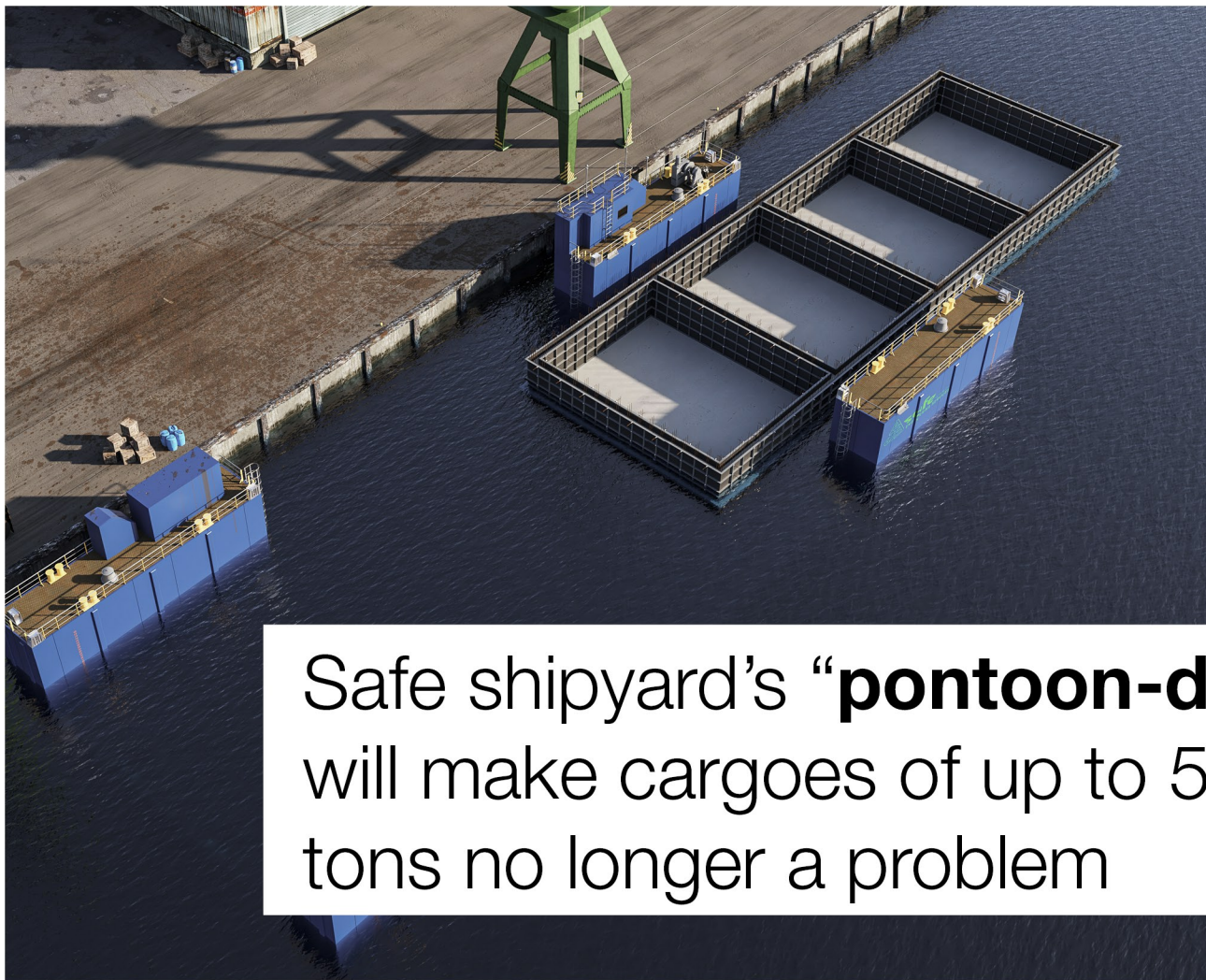
The establishment of the Offshore Wind Energy Center and launching the Executive Offshore Wind MBA is aligned with Gdynia Maritime University's mission and development strategy. GMU Combines 100 years of experience in maritime education with state-of-the-art technology, innovative methodologies and a modern educational programs. In order to address the needs of offshore wind it has recently extended its program portfolio to prepare high-class specialists, engineers and managers for this dynamic industry.

The mission of the GMU Offshore Wind Energy Center is to support the development of the OWE sector by providing high-quality education, training and consulting for the dynamic OWE industry. Through collaboration with a wide network of experts and organizations, it serves as a competence center supporting OWE organizations and individuals in their growth and development. The Offshore Wind Energy Center educates professional managers and leaders for the offshore wind industry, supports companies and institutions in implementing effective management solutions, disseminates current knowledge and



best practices, and promotes the role of offshore wind energy in mitigating political and climate challenges. The range of services is designed for companies and institutions involved in the offshore wind supply chain, current industry professionals, and individuals who aspire to undertake career in the OWE sector. – As the Gdynia Maritime University center of excellence, the Offshore Wind Energy Center aims to become a valuable component of the sector's expertise, personnel, and innovation ecosystem, says Andrzej Popadiuk. Through the cooperation with industry and academic partners, as well as Polish and international offshore wind experts, the Center provides access to the most recent OWE know-how and management best practices. The Center aspires to become the offshore wind competence center in Poland and the Baltic Sea region, and a significant partner in management education for the international renewable energy market.





Safe shipyard's “**pontoon-dock**” will make cargoes of up to 5000 tons no longer a problem

The Floating Docking Platform (PPD), which Safe shipyard is working on, is a multifunctional vessel dedicated to a wide range of customers - companies from the shipbuilding industry, the offshore sector, contractors of hydraulic engineering structures, and seaports.

What makes the PPD project both original and universal? - Our Floating Docking Platform has both water-land and land-water docking and transport functions. The floating docking technology developed by Safe makes it possible not only to pick an object out of the water, but also to transport it on modular transport carts (SPMT) to the quay, or even to a hall - explains Marek Siemaszko, CEO of Safe.

Another advantage of the PPD is the possibility of loading an object which exceeds the dimensions of a pontoon. - It is possible to disassemble two side towers of the pontoon dock. They are lifted up and out of the pontoon, which has a working deck length of 70 meters. In this way, a much longer structure can be loaded onto it - assures Siemaszko.

In the case of handling cargoes exceeding 5,000 tons in total weight and significantly larger than the current size of the PPD, it is possible to increase the PPD's displacement and working deck area through its modular expansion.

- The PPD's transport functions enable it to be seaworthy at water and wind up to five on the Beaufort scale, with a sailing range of 200 nautical miles from the port of shelter. Therefore, we can deliver the cargo to a client anywhere in Europe - notes Siemaszko.

- The vessel does not have its own propulsion, which makes it cheaper. We assume in advance that it would be pushed or towed using other propulsion units. However, it has its own power plant, thus it can be immersed at any place it is towed to - he explains.

An integral part of the project is the development of an IT solution, an algorithm that will guarantee continuous monitoring of the process of handling these loads, as well as the monitoring and data needed to control the ballast system of our pontoon-dock. The algorithm will also allow the planning of the finances related to the operation.

- We are referring to planning and pricing, which will be part of

the intelligent software - emphasizes Krzysztof Koniuszaniec, EU project manager at Safe. The algorithm guarantees the safety of the planning and the whole process. - With this solution, we want to improve the whole tool, which will translate into buyer confidence, and at the same time, dispel the doubts of insurers who need to reinsure the whole process - he adds.

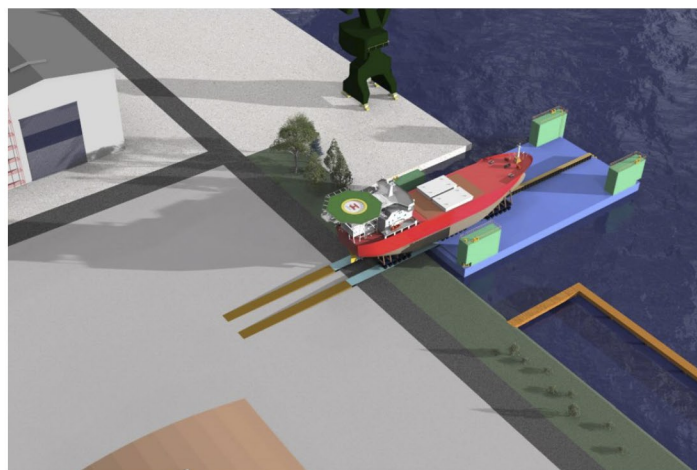
Getting ready for offshore

Marek Siemaszko announces that the modern PPD platform may be used to perform transport and transshipment services for the offshore sector.

- We are discussing many options in connection with the development of offshore wind farms. Invariably, we lack options to "consume" local content. An example is hydrotechnical construction, e.g., containment breakwaters or operating quays. Ideally, we would choose Polish companies for such tasks and not foreign ones, as often happens nowadays - he says.

As an example, Siemaszko gives the project of protective breakwaters for the eastern part of the North Port in Gdańsk, where it was necessary to build caisson boxes and their foundations in the Gulf of Gdańsk.

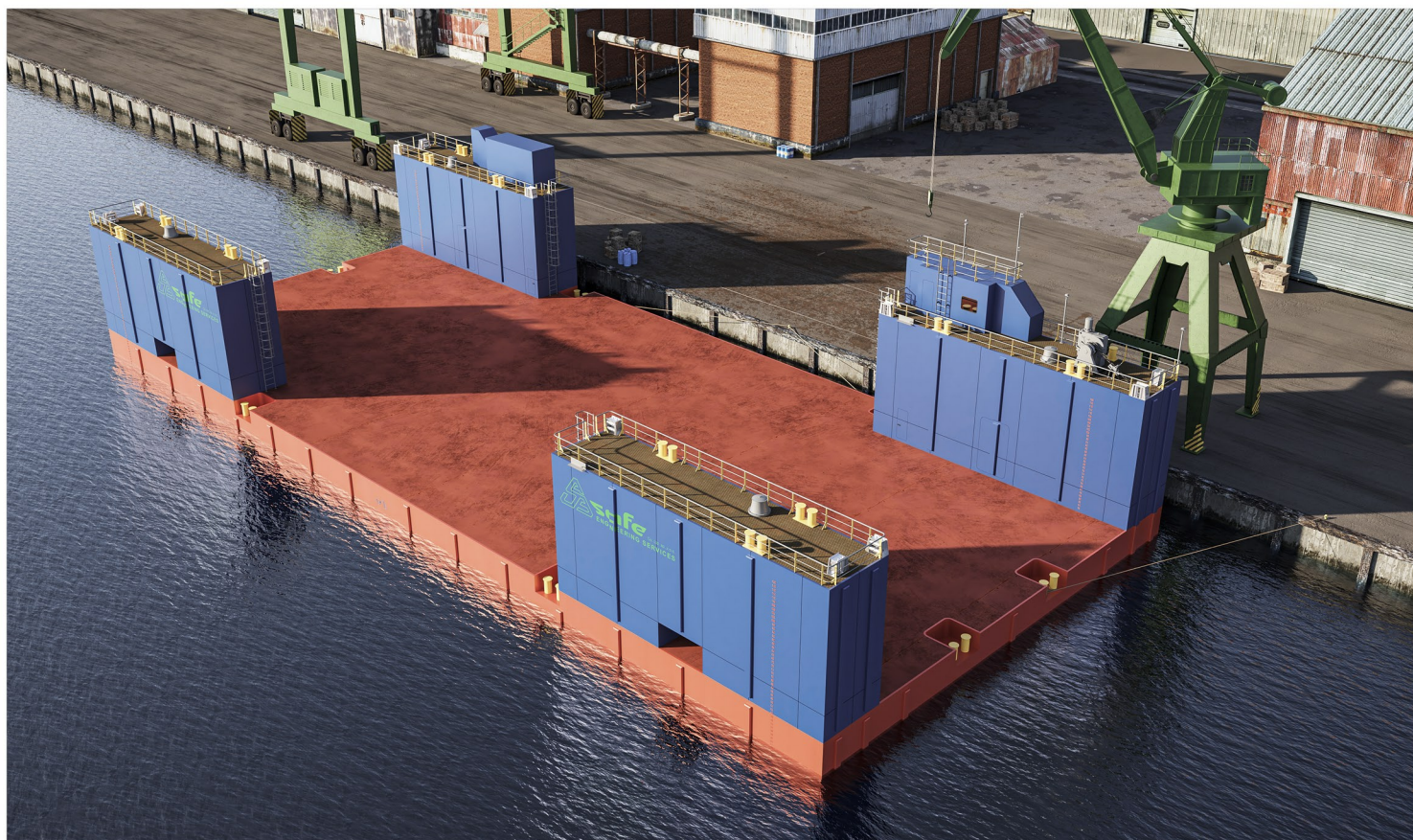
- In order to carry out this type of operation, a smaller but similar device to the one we are currently building was used. Moreover, it was brought from Spain. We hope that in the future, we will fill this gap and not need to look so far. Polish companies that are

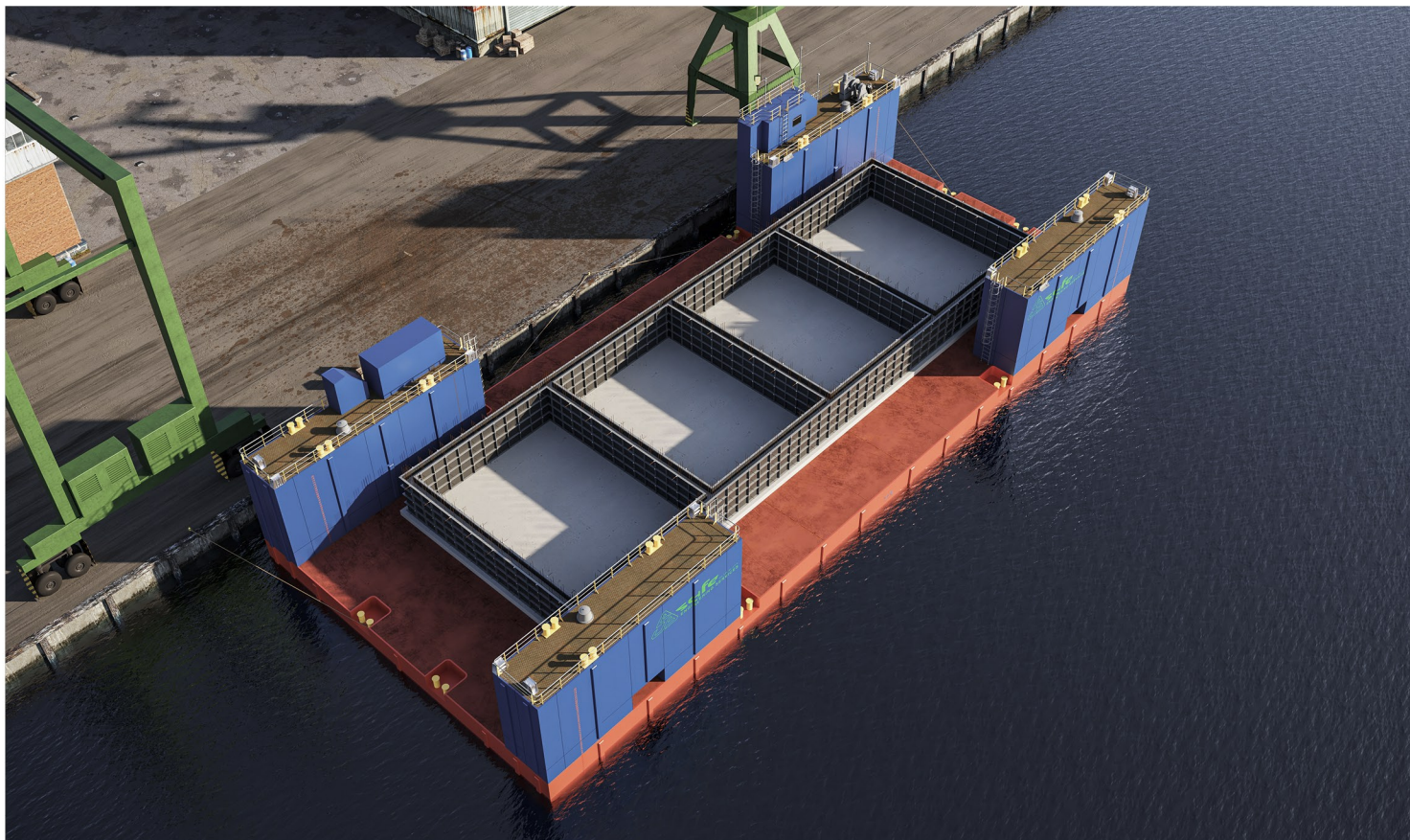


candidates for the role of general contractors in offshore projects will have the necessary tools - says Siemaszko.

The shipyard asked the Wuprohyd company for a professional expert opinion regarding the use of the device in the mentioned technological processes.

- It turned out that the results of this study exceeded our expectations - says president Siemaszko. - The study showed many advantages of using a pontoon-dock in such investments in hydraulic infrastructure, one of the key ones being time-saving. The construction period for facilities of this type is shortened by 10 to 25 percent. It also brings more than 10 percent of financial savings. So the numbers speak for themselves - he points out. - On the basis of the analyses carried out, it may be stated





that the use of the PPD in the execution chain of the planned hydraulic structures is a very important element in accelerating their implementation, and increasing the so-called local content.

The pontoon-dock is blazing a trail. “This has never been done before”

We also asked other experts about the advantages of Safe shipyard's new solution. Zenon Górecki, President of the Board of Idek Sp. z o.o. points out that the PPD differs from existing solutions in that it allows an object to be picked up from the land, taken to the water and docked, and if the object cannot float, it can be transported.

- The pontoon-dock also has an advantage that no one has been able to boast of so far, because no one can do it - said President Górecki. - Namely, the PPD can retrieve a floating object, which will enter the platform and be lifted up then transported to land. From there, it will go, for example, to a hall, where painting, repair and inspection can be taken care of.

He stresses that the project has an additional environmental effect. The platform will be clean and uncontaminated, because it is only used for docking, undocking and transport, whereas painting or cleaning is usually done on docks.

In turn, Grzegorz Pettke, representative of Polski Rejestr Statków S.A. (Polish Register of Shipping), director of the Ship Division, believes that from the point of view of the versatility of the PPD

concept, its flexibility in particular should be emphasized.

This fact means that the concept has a chance for multidirectional development - it can be developed in many versions for specialized applications, e.g., for offshore wind energy, for the Navy, as well as in hydrotechnical or offshore construction.

- Moreover, the development of this concept may give the possibility for cooperation among many specializations - from purely naval to sophisticated computer techniques - emphasizes Director Pettke.

At what stage is the work of Safe engineers today?

According to Safe shipyard, the project has already been approved by the classifier, which is the Polish Register of Shipping. However, the process of manufacturing the pontoon-dock itself is estimated at 12-16 months. After this time, the vessel would be ready for trials.

For the implementation of the floating docking platform project, the shipyard received funding in the amount of 40 percent of eligible costs from the National Center for Research and Development under the Intelligent Development Operational Program 2014-2020, Sub-action 1.1.1. Industrial research and development work carried out by enterprises.



INNOVATIVE WAVE TURBINE -GREEN ENERGY FROM SEA WAVES

17MW

Having the needs of our planet in mind, a few years ago a group of WUPROHYD's engineers joined forces and created an innovative project of an ecological marine power plant, which apart from generating electricity from three independent renewable energy sources, can be used to produce green hydrogen and protect our sea shores. The most important component of the solution is the wave turbine which operates by using the circulation of water molecules.

WAVE TURBINE

The wave turbine is a groundbreaking project of WUPROHYD design office, thanks to which one will be able to finally harness the huge energy resources from sea and ocean waves. This new RES can boast an estimated capacity of 2.5-3 TW, or 2,500,000-3,000,000 MW.

WUPROHYD design office, as the only one in Poland, has developed and patented this original prototype technology for the use of sea wave energy to produce electricity. Its main element comprises an ingenious wave turbine, i.e. a sea wave converter. At the current stage of the project, the technology development maturity level is RTL4 (according to the Technology Readiness Level), i.e. model

tests were carried out for two different profiles of the turbine rotor. The tests confirmed the assumed rotational movement of the

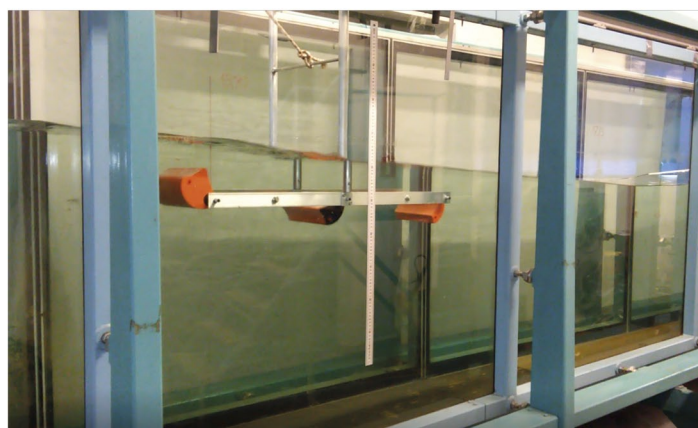


Fig.1 Wave channel - model tests of a wave turbine



turbine rotor under the influence of the circular motion of water particles. The theoretical efficiency was determined at the level of approx. 7%. Therefore, the turbine can easily be used to directly drive power generators.

WAVE TURBINE OPERATION AND CONSTRUCTION

In the current division of wave converters into terminators and attenuators, the wave turbine should be classified as a terminator, i.e. it is situated on the long side parallel to the wave crest (trough) and absorbs the wave energy in a short time. It is composed of a rotor that rotates in relation to a horizontal, stationary axis fixed in the supporting structure, which is oriented parallel to the wave crest (trough) of the wave. The rotor axis is below the water level, enabling it to work fully submerged at a depth at which the circulating movement of the water particles makes it rotate smoothly. The full rotation of the rotor takes place in time equal to the period T of the wave that moves it, in which it absorbs both the kinetic energy and the potential energy of the wave motion.

Fig. 2 - phase 3 shows the depth equal to half the wavelength $h = L / 2$, at which the undulations disappear. This means that

most of the wave energy passes under the converter turbine, therefore a turbine efficiency of approx. 7% can be considered as satisfactory. This result is believed to be even higher, as model studies are planned to optimize the rotor profile. In order to increase the amount of energy obtained, it will be necessary to use several rows of turbines so that each successive row takes over some of the energy that passes under the previous one. This comes down to using the terminator converter in an attenuating configuration.

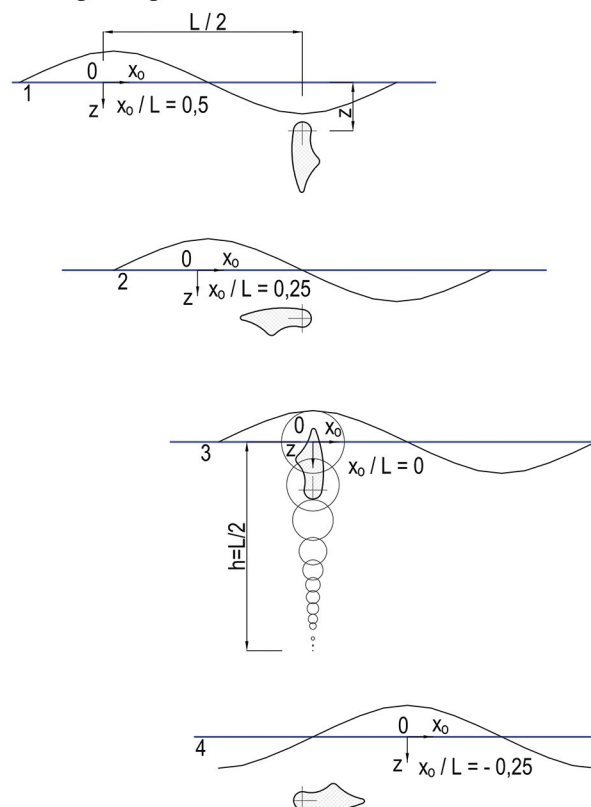


Fig.2 Phases of turbine rotor rotation under wave action

Obtaining the rotation of the turbine rotor under the influence of waves greatly simplifies the process of converting wave energy into electric energy. The turbine rotor can directly drive a power generator coupled to it by a simple gearing. This is a huge advantage of this solution over other existing converters, as they do not use the oscillating motion of wave water particles to drive power generators. Converters in use today convert wave motion into air or fluid motion, by means of which they move an air or water turbine, used to drive a power generator. As a result, converters currently available are very complex mechanical devices.

ENERGY ISLAND - ECO-FRIENDLY OFFSHORE POWER PLANT

The use of sea wave energy is still a very underdeveloped field. In reality, there are no objects that could be called offshore power plants as far as installed power is concerned. Most of them are just very expensive prototypes, with low efficiency, recovering

a small part of the wave energy. The main reason for such state of development of offshore energy is the occurrence of enormous loads due to wave forces in the marine environment, requiring powerful load-bearing structures for devices located on the seabed or floating as well as very complicated converters. Taking into account the very difficult sea conditions and having a simple device for converting the energy of waves, we have designed a floating offshore power plant - an energy island that enables one to harvest huge energy resources of seas and oceans on an industrial scale.

The invention is a floating object, LCA = ~ 250 m long and BCA = ~ 200 m wide, made of three underwater hulls with a total displacement of 78,000 T and a maximum draft of 20 m. The hulls are connected by frames and anchored to the reinforced concrete anchors lying on the seabed. In the space between the hulls, perpendicular to them, several rows of horizontal axes with converter wave turbines are located. Parallel alignment of the turbine axes to the wave crest (trough) is performed by automatic shortening and lengthening of appropriate mooring lines. The total capacity of the installed wave turbines for the conditions in the Baltic Sea is 1.6 MW. In order to take advantage of the capacity of the floating object, a sun-following rotating deck for solar panels with an area of 40,000 m² and a wind turbine with

a capacity of 12 MW or much more were installed. The capacity of one module of the ecological offshore power plant in the conditions of the Baltic Sea will amount to min. 17 MW, while in the North Sea, where the wave energy is much greater, the minimum capacity may even be as high as 34 MW.

MANUFACTURING TECHNOLOGY

The load-bearing structure of the energy island is designed to be self-erecting and attached to reinforced concrete anchors. The advantage of this solution is that it can be folded, built and equipped as much as possible in a dry dock, which is ingenious, as taking into account its dimensions in an open mode - it would be impossible for the opened structure,. In addition, such a solution reduces the costs of installing the energy island at sea, limiting the use of very expensive floating cranes and tugs to the necessary minimum. In order to install smaller pieces of equipment, the structure is equipped with a crane that can move along the track mounted on its trusses. Moreover, the very high stability of the three-hull structure will reduce downtime caused by bad weather conditions related to work at sea. In practice, the adopted production technology requires only a pontoon and a tug for transporting the elements of equipment, which have not been installed in a dock. Reinforced

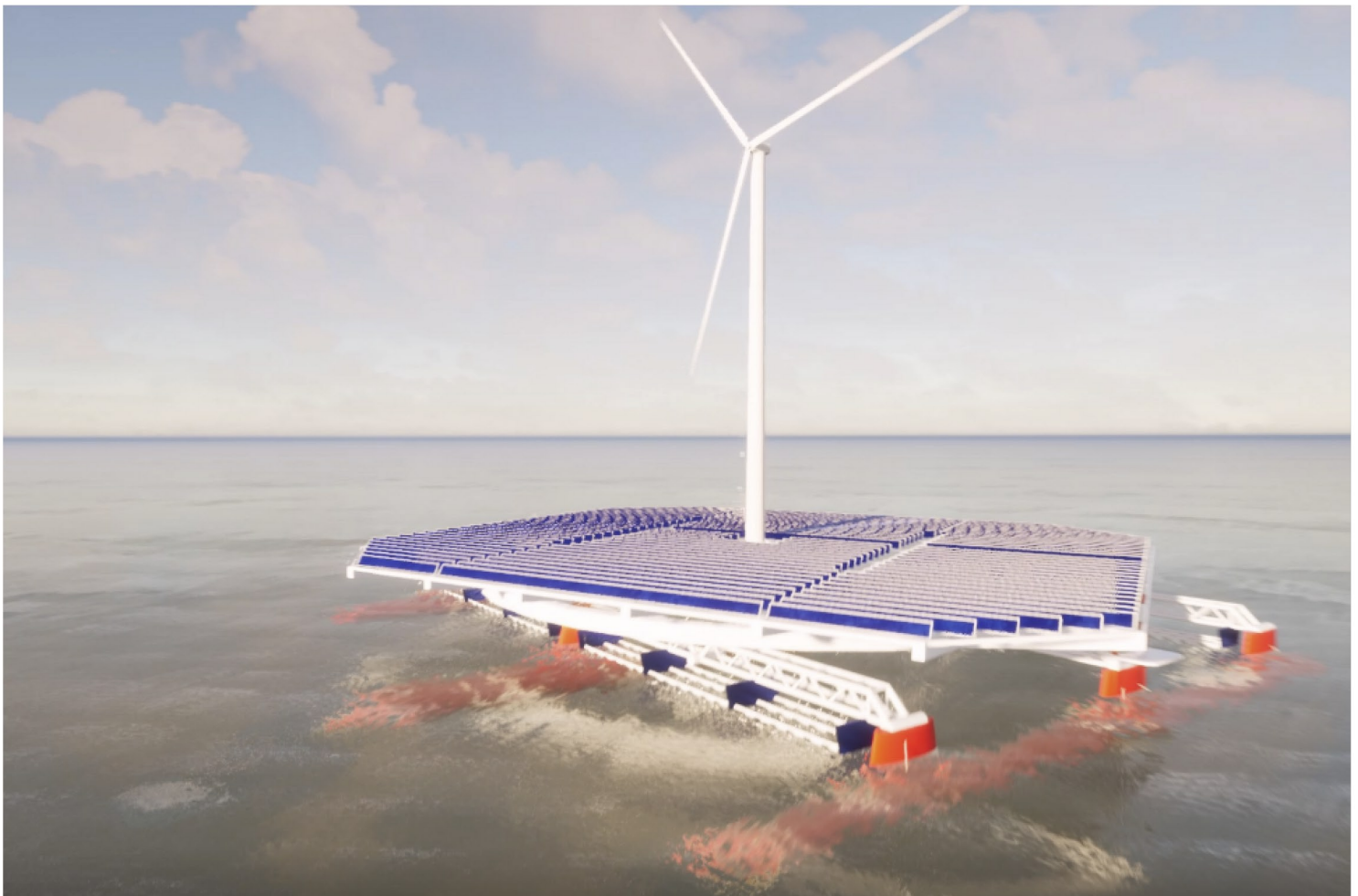
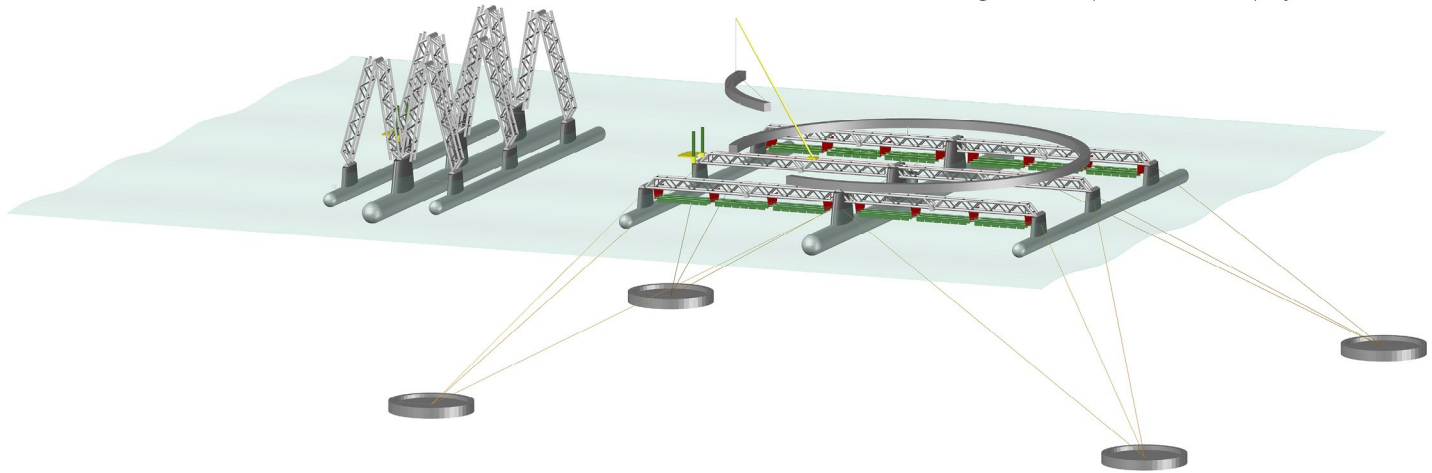


Fig.3 Offshore power plant module - general view

Fig.4 Power plant module deployment technology



concrete anchors are also designed to be floating. After being towed to their destination, they will be flooded by loading their ballast tanks with water. Anchors, if necessary, will be lifted by blowing the water from the ballast tanks with compressed air.

ADVANTAGES OF THE PROPOSED SOLUTION

The energy island designed in the concept phase can be characterised by the following :

- will generate electricity in a predictable and stable manner from **three independent renewable energy sources**, it is made in the **“floating” technology** - floating platforms, unlike the previously used foundation solutions used for wind turbines placed on the seabed,

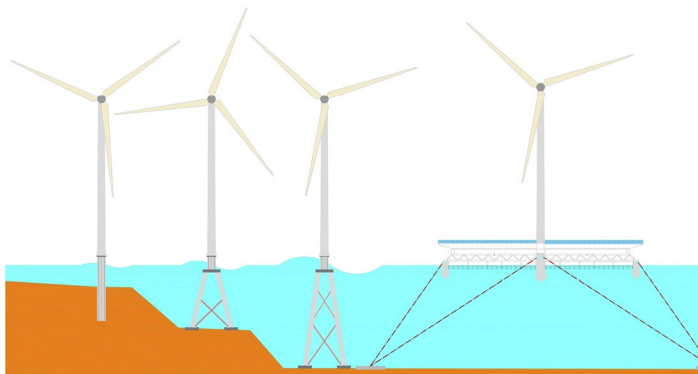


Fig.5 Advantages of floating technology

- its structure is **independent** of the depth of the water on which it is to work. Increasing the depth is related only to the lengthening of the mooring lines, so there is no necessity to make a more powerful foundation structure,
- it can be **located at large distances from the shore** at great depths so as to eliminate the negative impact of its view on the landscape, which is associated only with the cost of laying a longer cable, and not with a more powerful foundation structure,
- **ensures the operation of photovoltaic panels at a low**

temperature, which increases its efficiency and allows to increase the amount of energy produced thanks to the work in a system “keeping up with the sun”, which is unprofitable on land,

- due to its high displacement, it can be used to **produce green hydrogen**,

- absorbing the energy of sea wind waves, it can be used to **protect the sea shore**.

ENERGY FROM THE SEA

The seas and oceans constitute 2/3 of the Earth's surface, and the wave power stored in them is estimated at approx. 2.5 - 3 TW, which means that sea wind waves should be perceived as a significant renewable energy source. Including such a large source in the renewable energy system will undoubtedly increase the stability and predictability of its production, while reducing the required capacity of energy storage. The technology developed by WUPROHYD in the conceptual phase is activity aimed at enabling the use of these enormous energy resources.

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Graphics come from the archive of **WUPROHYD Ltd.**



Scan a **QR code** to find more about project!



MUNITIONS AND CHEMICAL WEAPONS IN THE BALTIC SEA – HOW CAN THEY BE REMOVED?

On behalf of investors building wind farms in the Baltic Sea, we specialize in the clearing of weapons sunk in it after World War II. We believe that the war in Ukraine will affect the operations of the wind farm industry in both the short and long term. In the short term, various decisions may be turbulent, but in the longer term, the construction of already planned and new farms is expected to accelerate.

Obviously, this concerns the fastest possible energy independence from Russia, which is clearly visible following recent decisions, e.g., stopping the construction of Nord Stream 2. It is also likely that gas investments will accelerate, such as the Baltic Pipe, which has just received an environmental decision from the Danish government. However, the construction of wind farms on the Baltic Sea is not at such an advanced stage as the Baltic Pipe. Moreover, for the first time in history, offshore wind farms will be built in the Baltic Sea, a location so heavily polluted with weapons and wreckage.

Following World War II, the anti-Hitler coalition considered sinking the remnants of the Axis powers' war arsenal - chemical and conventional weapons - in the seas as the best and cheapest way to get rid of them. As a result, a quarter of a million tons of munitions ended up in the Baltic Sea, 38 tons of which were chemical weapons. The official dumping places were: the

Gotland and Bornholm depths and the Little Belt strait. In reality, however, as confirmed by documents collected by the Institute of Oceanology of the Polish Academy of Sciences, the entire southern part of the Baltic Sea should be regarded as a chemical weapons zone. The munitions were sunk during transport to these designated locations, the so-called drop zones, and those that were in wooden crates often drifted freely.

At that time, no one considered the consequences - it was believed that the munitions would decompose and there would be no negative effects. Unfortunately, reality proved otherwise and today, more than 70 years after the end of the war, there is still a risk of people being infected and the environment contaminated by these weapons. Currently, this is a serious problem. In the opinion of the aforementioned Institute of Oceanology, the risk of chemical munitions in the vicinity of offshore wind farms in the Baltic Sea is real, and the contamination thereof can directly

threaten the implementation of projects related to the creation of infrastructure for such farms. This is due to the fact that 80 percent of what was dumped is no longer in its so-called casing, making it more difficult to detect. For example, the metal casing of a barrel bomb will already have corroded and its contents may be in the form of a spill on the seabed.

Meanwhile, environmental decisions are issued which oblige investors to remove this problem but do not detail how they are to do so, and what is more, not all investors have factored this into their plans and costs. Failure to explore the area at the bottom of the Baltic Sea is a risk of an ecological disaster. Scientists have already raised alarm about the fact that when a weapon rests on the bottom, it poisons living organisms, but this is a very slow process. However, if a ship laying a connection cable to a wind farm were to sweep the cable across such a spill of chemical weapons, a cloud of toxic pollutants would rise and contaminate up to several dozen square kilometers, depending on the strength of the sea current. Conventional weapons could also be detonated, which would thus activate the chemical weapons lying nearby. And in the Baltic Sea, among other munitions, there are KC500 bombs, each of which contains up to half a ton of active chemicals.

In summer conditions, with high air temperatures, even the vapors of these toxic agents can be dangerous. Any such contamination means huge repercussions for the economy, including stopping investments, while a single day's work of the ships building these farms costs hundreds of thousands of euros. This problem was previously ignored by one of the largest investors building wind farms and delays in the investment cost over 400 million euros.

Companies building offshore gas pipelines - referring to the infamous Nord Stream 1 and 2 - avoid spill areas so as not to come across chemical weapons. Similarly, the Baltic Pipe bypasses them from the west. These pipelines do cross the discharge route in some places, of course, yet reconnaissance was done for this and no chemical weapons were encountered. In their case, however, the risk was low from the start, which cannot be said about the locations of the planned wind farms. The question here is not whether there will be chemical weapons, but what kind and in what quantity: a few dozen, a few hundred or a few thousand?

As a company, we have various means to eradicate this problem. Currently, we are mostly exploring the seabed to locate what there is. But soon we will be the first company in the world to provide services to dispose of chemical weapons where they are found, i.e., at sea, something we have been preparing for

since 2015. Our solution is a relatively small system that can be installed on a 70 to 80-meter-long ship and is able to dispose of up to 150 kg of chemical weapons per day. It is an innovative solution, due to the fact that chemical weapons are scattered on the seabed and very often they are no longer in the form of shells, but spills, a situation which is yet to be faced. As of today, we are at the stage of installing our system in containers. It still has to undergo sea trials and certifications, but the technology itself and the finished equipment is already there. The system just needs to be assembled and installed on the ship without the risk of unsealing.

We expect that at the beginning of next year we will sail to the Baltic Sea and start burning chemicals from the munitions we locate. Our system is enclosed in several 20-foot containers into which the weapons can be loaded and neutralized with plasma technology in such a way that they are broken down into their component parts. Some of the elements themselves are harmful, but they will be separated and bottled to avoid their emission back into the environment. In view of the fact that this system is small enough to fit on a small unit, it is relatively inexpensive to operate.

The system has already cost 45 million PLN, out of which we received 20 million PLN from the NCBR. In the first phase, we plan for the vessel on which it will be installed to remove the weapons from the area of the wind farms, and later to remain in the port in a state of readiness, in case we need to intervene, because due to the lack of casing, it is impossible to detect all the remains of weapons on the seabed.

Grupa GeoFusion Sp. z o.o.

www.grupageofusion.pl





PROJMORS - TOGETHER WE **DESIGN** A NEW **REALITY**

Construction of a waterway connecting the Gulf of Gdansk with the Vistula Lagoon

PROJMORS is one of the oldest design offices in Poland experienced in maritime and industrial projects. The office was established in 1948 by Polish government as a maritime engineering office dedicated to design reconstruction of maritime infrastructure after the Second World War. Projmors was commercialized and became a limited liability company in 1991. In 2015 Projmors was acquired by the ASE Group.

Over the years PROJMORS has grown into a multidisciplinary engineering company employing designers in practically all disciplines, currently over 100 engineers. We build our strength on knowledge and experience but also willingness to take on challenges. Our office is a place where tradition meets modernity. The company consists of a team of designers with many years of experience as well as young engineers, full of energy and desire for innovation. What unites us is a genuine passion and enthusiasm to see our clients' projects succeed.

Projmors carries out projects of all sizes and complexities throughout the full life-cycle. We provide all necessary design documentation from concept development, through the basic design documentation, building permit design, detail design up to the as-built documentation phase. Apart from documentation Projmors assists its customers during construction works and provides support in solving unexpected issues and changes. This support may be extended as far as managing the project

execution phase and Projmors playing a role of client's engineer or a PMC.

Based on industry best practices and our own experience, we ensure that projects are completed efficiently to meet customer expectations. It became our standard to arrange all necessary permits and formal agreements, including a building permit, in order to provide a fully fledged package allowing our customers to start construction works.

We are specialized in design of hydrotechnical, industrial, military and public services objects. Since 2018 we have been delivering also offshore wind projects.

PROJMORS holds a first-degree industrial security certificate, which allows processing of classified information. Owing to that, we can design projects dedicated to security and defense of the country. For several years a rapid development of engineering techniques and tools has been noted and followed by Projmors, including the Building Information Modelling (BIM) technology. BIM is implemented at all phases of the facility's life cycle, from design and planning, through construction, to operation and maintenance. Use of BIM increases efficiency in whole life cycle, reduces errors and collisions. We encourage our customers to invest in BIM.

Together we design a new reality.



EKO-KONSULT 30 YEARS OF SETTING TRENDS

EKO-KONSULT was established 30 years ago, quickly becoming a pioneer in environmental consultancy. Through its publications, multiple articles and trainings, EKO-KONSULT has been shaping the awareness of consulting companies in terms of the law, procedures and methods of environmental assessment. From the start of its operation, EKO-KONSULT has delivered almost 700 reports, over 300 environmental opinions and approx. 200 industry articles.

In 2017 EKO-KONSULT joined the ASE Technological Group. For many years the Group has been promoting effective and state-of-the-art solutions increasing industrial safety. In 2019 the environmental team merged with ASE's Technical Analyses Department that was involved in complex technical safety projects. Since then EKO-KONSULT has been operating within five industries: process, explosion protection, fire safety, functional safety and environment, as well as trainings in those industries.

EKO-KONSULT organises technical conferences as part of the ASE Technological Group and cooperates with Gdańsk University of Technology and Central School of Fire Service, as well as research and development centres.

The company's experts have been involved in projects, such as the construction of the offshore gas pipeline for LOTOS Petrobaltic and documentation related with the safety of the "Baltic Beta" platform, comprehensive HAZOP and SIL analyses for Grupa

LOTOS, PKN Orlen and ANWIL SA, explosion protection analyses for the manufacturing plants of IKEA, TOYOTA, MONDI, fire safety analyses for the "Polimery Police" investment and trainings for PGE Energia, PGNiG and many more.

EKO-KONSULT currently provides technical safety services and is involved in environmental procedures for projects related with "green energy", for example when infrastructure for hydrogen transport is being designed or in projects related with the construction of power connections for offshore wind farms in the Baltic Sea.

– We can see future in new technologies and projects related with the energy transformation – says Rafał Frączek, the CEO of EKO-KONSULT. – We can be involved in various stages of such projects, of course in the broadest sense. Most of all, we focus on the initial stages of an investment. We aim at selecting proper solutions and technologies, developing technical concepts and drawing up a feasibility study.

The latest EKO-KONSULT projects include an impact assessment for offshore wind farms, obtaining a positive decision for PERN for the Płock-Gdańsk pipeline, environmental decisions and reports for oil tanks for Port Północny or technical concepts related with the use of hydrogen in public transport.

30 years of setting trends.



DEVELOPMENT IN **ACCORDANCE** WITH THE CURRENT **TRENDS**

The Maritime University of Szczecin is the only university in the region training professionals to meet the specific needs of the maritime economy. It stands for 75 years of tradition and permanent development based on economic reality. Today, MUS represents the investments in modern technologies, research and training facilities development, open opportunities for cooperation and partnership with business and last but not least - indispensable experts at the job market.

For more than seven decades, the graduates from the Szczecin Maritime University have been joining an exclusive group of highly qualified professionals. There are many seafarers, officers, navigators, mechanics and electricians among them and they all conform to the highest standards of work in the international fleet

and offshore services. Our graduates also find employment in the IT, surveying, transport, shipping and logistics sectors.

The University provides education at five faculties:

- Faculty of Navigation,
- Faculty of Marine Engineering,
- Faculty of Economics and Transport Engineering,
- Faculty of Mechatronics and Electrical Engineering
- Faculty of Computer Science and Telecommunications.

- In the past, we mostly trained seafarers. However, these trends have changed over the years," stresses the Rector Wojciech Ślęczka, PhD. Eng., Master Mariner, MUS Professor.

New horizons

Being open to new opportunities has also allowed us to take a broader look at the maritime economy and the career options that are available to graduates in all fields of study.

Most of our courses are closely related to the maritime economy, but their versatility makes it easy for graduates to apply for a wide range of top paid onshore jobs: in sea and inland ports, shipowner services, the design and shipbuilding industries. During their studies, students also gain the skillset to handle the entire offshore sector along with the complex underlying processes.



Across our courses, we aim to respond to the needs of the market. The university has close links to the economic environment, which provides a source of up-to-date information on the requirements and research interests of commercial employers and institutions.

A good example of this kind of relationship with the wider world is industrial engineering and offshore wind power course launched at the beginning of the current academic year. Although in Poland this industry is only at the formative stage, and the state is taking its first legislative decisions towards the construction of Polish offshore wind farms, young people are already sensing the potential.

- We managed to gather a group of candidates who are today already students of a new course. This is a very positive trend which shows that a perspective of new jobs is emerging. It is already known that new competencies will be sought and we will provide them - emphasises the Rector.

At present, there is great potential for IT and mechatronics courses in the field of shipping and freight forwarding. Today's ship is a powerful floating computer, an integrated IT system. Hence the idea of creating a new position for modern shipping: IT Officer, who would bring together the skills and knowledge to operate and maintain the critical IT tools needed to run the vessel in a safe manner. This original MUS concept was presented on behalf of the Polish delegation to the International Maritime Organization.

Research and development

The extensive research conducted by scientists at the Maritime University of Szczecin is not only prestige and status for the University, but most of all - an opportunity for further development. The direction of our activities is strictly determined by the maritime industry and through responding to its ever-changing needs, we directly develop our scientific potential.

We are currently in the process of assessing new scientific disciplines that we develop in our newest departments including



technical informatics and telecommunications, automation, electronics and electrical engineering. In addition, we undertake intensive research on land, within the context of transport engineering. Other fields of our research include: the operation of ships and those related to the offshore sector - hydrography, geotechnical engineering, issues regarding improving equipment reliability.

MUS's flagship project is currently the construction and research plans associated with the Centre for Operation of Floating Objects (COFO). Thanks to this project, the research works which are currently spread over several departments will be brought together in an interdisciplinary unit. COFO will focus on many research issues, including navigation automation and the operation of unmanned vessels. The Centre's building has already undergone full approval and is being put into operation, gradually fitted out with equipment. COFO will start its official operations later this year and will be fully functional within two years.

Thanks to this technology, researchers and also students will be able to examine algorithms related to navigation, manoeuvring and positioning. This will not only open up new scientific paths but will also raise the level of thesis and dissertations completed at the Maritime University of Szczecin.

The topics our students approach and methods they use in research are highly regarded in the industry and will be even more attractive thanks to the newly established Centre.

COFO is being developed as part of a European Union project (Regional Operational Programme for West Pomerania Province). The idea of the project assumes that the Centre will be used by domestic enterprises with a particular focus on regional entrepreneurs. Thanks to science and research, West Pomerania Province is going to increase its overall development in a more dynamic way in the coming years.



Polish Offshore Wind Power

Polish Offshore Wind Power (OWP) has become a very hot business and political issue in the last dozen months, which raises numerous expectations and shows considerable potential for the Polish offshore economy and the power sector. Due to the importance of such critical projects, it needs to be kept in mind that one of the crucial areas that remains to be secured with respect to this new sector in Poland are suitable regulations. And such regulations, unfortunately, are missing. Legal matters that concern the Polish Wind Offshore Power have immense business significance, because without adequate regulations it will be difficult for enterprises, banks, and insurance companies that become involved in such projects to determine risks related to an adopted business model. What is more, adequate and modern legislation concerning OWP does not mean only the creation of secure legal frameworks for entrepreneurs who are planning to invest or have a share in this market, but first and foremost it means the energy security of Poland, which should become an absolute priority in the present times.

Offshore wind farms are systems that will be founded in a contiguous zone, where Poland will have the exclusive authority over them, which in turn creates specific risks and duties for an investor. Such risks, if they are measurable at all, increase exponentially if no transparent and stable legal environment is created.

First of all, it needs to be remembered that an offshore wind farm is a critical structure that should be covered with adequate security protocols and actually secured in a suitable manner (there are no Polish Coast Guards). In the present legal system, numerous regulations are missing that would provide an option to create an effective security system for offshore wind farms. On the other hand, the times when such projects are to be developed are becoming more and more turbulent, which in turn should be another incentive for Polish decision-makers to take adequate measures.

Secondly, it is noteworthy that the Polish legislator has failed to create any regulations so far that would ensure the obligatory participation of Polish firms in such a large and essential business enterprise for the Polish offshore economy. There are no obstacles for introducing such regulations, which would certainly enhance the safety of such projects, thanks to the participation of Polish entities in their construction, maintenance and servicing.



It has to be strongly emphasized that after months of debates and discussions, there is still an urgent need to introduce both a legal and broad definition of local content, which would take into account as wide as possible a spectrum of entities that would participate in projects of the Polish Offshore Wind Power. Unfortunately, sectoral agreements do not fill in this gap, because they are a concept that is very 'soft' legally, albeit needed businesswise. A main downside of sectoral agreements (also with regard to hydrogen) is their general character and lack of enforceability, because they are based on civil law, with no regulatory consequences.

Secondly, the 'Offshore Law' is not a legal act at all, which would regulate this sector. In fact, this Act is largely of promotional nature, except perhaps the regulations that concern subsidies. Instead, the Offshore Law should be a legal act that regulates this sector in Poland in a systemic manner. Such a law in Poland is missing, in order to provide the adequate 'legal framework' for this new sector of the offshore economy in Poland, which is creating a completely new sector in the Polish territory.

In my opinion, creating many fragmented regulations with regard to the Polish Wind Offshore Power should be avoided, because this may lead to the lack of clarity and numerous gaps. Finally, such fragmentation may make such projects, which are critical for the Polish energy security, depend excessively on discretion of authorities or vague practices of government officials, rather than on transparent regulations that would be coherent with the adopted energy policy.

What is more, it should be noted that the Polish Public Procurement Law is not adapted to the needs of the offshore sector at all, which has been signalled a number of times. The introduction of relevant regulations with regard to sectoral procurement dedicated only to this sector might guarantee effectively the share of the Polish local content in OWP projects and accelerate their contracting.

Consequently, much remains to be done in Poland in the legal aspect of the Offshore Wind Energy. It is to be hoped that the Polish decision-makers will take actions as soon as possible to clarify legal issues in this respect, which will certainly contribute to the acceleration of the process of finalising specific stages of such projects, but also to their security, which is strictly correlated with the energy security of Poland. It needs to be noted that numerous solutions and legal constructs adopted in EU states, e.g. Denmark and the Netherlands, may be transferred successfully and to a large extent to the Polish legal system.

According to my observations, the number of entities, both Polish and foreign, that are waiting for suitable regulations and the legal systematization of the above-mentioned scopes is growing exponentially. Unfortunately, decisive legislative actions by Polish decision-makers are still missing.

Legal adviser Mateusz Romowicz



Misfires and Chemical weapons

Another major issue related to the Offshore Wind Power in Poland, which has been reported more and more frequently recently, is the impact on such projects of misfires and chemical weapons on the seabed of the Baltic Sea in zones adjacent to areas where Offshore Wind Farms are to be erected. There are no regulations in this aspect either that would meet the needs of the newly created market. It has to be kept in mind that without removing unexploded ordnance and chemical substances remaining after the WW2 from the seabed, the projects of the Polish Offshore Wind Power will not be launched. An essential problem is the inertia of the legislator, which should be replaced as soon as possible by the reasonable and well-thought-out legislative actions.





ELRoute 2.0. INNOVATIVE CABLE MANAGEMENT SOFTWARE FOR SHIPS

Eleship has developed innovative software that will make it easier for engineers, as well as designers, shipbuilders and ship owners to manage cabling on vessels. This is the ELRoute 2.0 system. - Over the last 20 years the number of cables on ships has tripled. Our system will allow the organization of project work and avoid common mistakes - say engineers from Eleship, who hope to commercialize this innovative idea.

Companies are moving with the times, and introducing new systems. Technological thought is also changing dynamically, which has forced changes in the way we think about designing runs and laying cables on vessels.

- Suffice it to say, the number of cables on a ship has tripled in the last 20 years. That means that on an average ship, there are up to 250 kilometers of cables. This is because we now have more equipment that needs power and more automation on board - says Edwin Dudziak, management consultant at Eleship.

Changing the number of cables on vessels is also a challenge for engineers.

- We have reached a limit. Running the cables using Excel tables has become very inefficient and time-consuming, and caused a lot of errors. We wanted to remedy this situation - states Tomasz

Kurpisz, CEO of Eleship. - We came up with the idea of creating a software to manage the cabling system.

It turns out that along with the increase in the number of cables, the requirements of classification societies have also increased.

- There used to be far fewer requirements. Now the cables have to be divided into groups, according to categories, and separated from each other. Often the cables must be routed in dedicated cable ducts, and they cannot exceed a certain number in a bundle... - the expert enumerates.

The increasingly complex requirements of ship owners and equipment suppliers have also changed the way Eleship looks at cable routing.

Designing cables on ships will be easier

- We put together our vast experience and the requirements, and



decided to face the problem of simultaneously maintaining quality and avoiding design errors while making cabling on ships - says president Kurpisz.

These solutions and Eleship's proprietary work methodology were initially created for the company's own needs.

- To realize our idea, we used computer systems to manage the whole cabling system properly. Almost three years ago, our idea received funding from NCBiR to create innovative software. And so a system was created which implements our methods and experience in showing how the cables should be properly laid.

Eleship experts are already considering selling the ELRoute system as a separate product or service for shipowners and classification societies. The system should be ready in the second half of 2022. Then it will be possible to commercialize it.

The greatest advantages of ELRoute 2.0

The software will certainly benefit electrical design offices (providing design services), shipowners (documentation of the cabling of a built vessel and later upgrades), classification societies (a tool for the quick analysis and verification of the correctness of the

cabling design), and shipyards (cost optimization, acceleration of work, reduction of losses, operational control).

The management of Eleship say that foreign companies are already interested in their system. - *This is excellent news for us. The idea of creating such a system was conceived much earlier, but only now have we put everything together to have the most advanced product on the market - says Dudziak.*

Eleship was founded in 2011 by a group of engineers, designers and electricians. During that time, it has grown from four to 25 people.

- *It is worth remembering that Eleship is the largest company of its kind in Poland when it comes to designing electrical, electronic, radionavigation and automation systems. We are not dependent on others - says Tomasz Kurpisz.*

Eleship designs electrical installations for all types of vessels.

- *These can be offshore, passenger and ro-ro vessels. We have a lot of experience with research vessels. The last two ships which were built in Poland - for the University of Gdansk and the University of Gothenburg - were, in terms of electrical installations, designed by us - recalls the president.*

They have successfully performed works for the navy. They have all the necessary AQAP 2110 certificates and the ISO 9001 quality management certificate. They emphasize that electrical systems are the so-called heart of the ship. Electricity flows from the stern to the bow and from the mast to the keel.

- *There are many systems on a ship which require a power supply or need to be controlled, and we design such a power supply and automation by selecting the cables, protection and equipment - Tomasz Kurpisz concludes.*





GDYNIA - POLISH CITY OF THE FUTURE

IDEAL CLIMATE FOR INVESTMENT,
MODERN BUSINESS AND LIVING

GDYNIA AND THE SEA ARE ONE

Gdynia grew out of the sea and is still actively developing. Its maritime tradition goes hand in hand with the most modern technological achievements, which are successfully implemented and serve all the inhabitants and companies located in the city.

100 years ago a port was built here and with it grew the city. Even today, the maritime economy significantly determines the pace of Gdynia's economic development. The Port of Gdynia is one of Poland's fastest growing ports, and the construction of the external pier, which will increase its area and transshipment capacity, guarantees an increase with regards to the volume of reloading in the Baltic Sea. According to experts, Gdynia has all the assets to benefit from investments related to the construction of wind farms in the Baltic Sea.

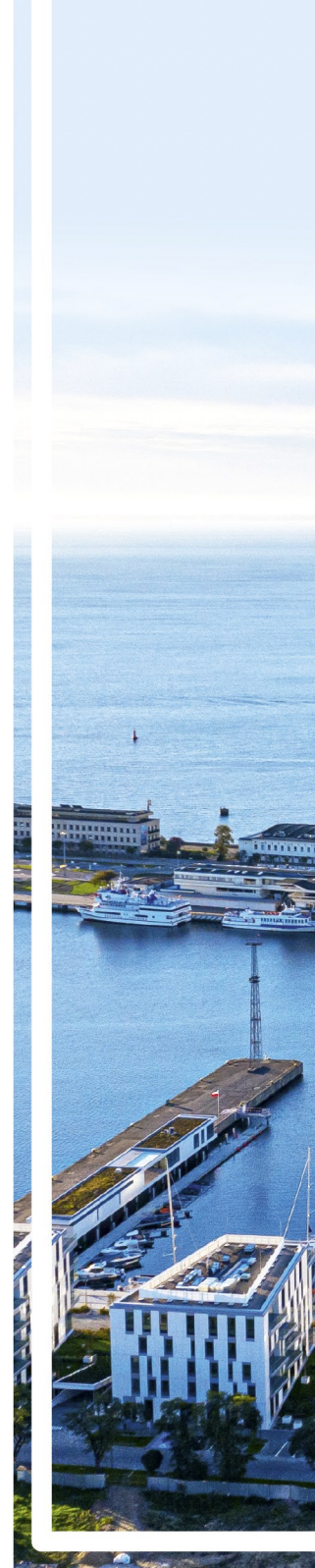
More than half of all logistics and shipbuilding companies in the region are located in Gdynia. It is over 200 companies, each of which can benefit from the human capital of excellently educated young people. The Gdynia Maritime University and the Naval Academy have a well-founded reputation as the best centres of maritime education. The educational offer is supplemented by Gdynia's trade schools. This academic potential, unique in Europe, is currently being used to prepare qualified personnel for contemporary maritime industry and work in the dynamically developing offshore area.

Gdynia's obvious advantage is its strategic location and excellent accessibility of the city – by air, sea (regular ferry connections with Sweden) and land (A1 motorway, S6 expressway, direct railway connections with all major cities in Poland) as well. A new, much larger ferry terminal, from which the largest ships on the Baltic will depart, is already waiting for passengers. The construction of the Droga Czerwona (Red Road), which will provide a direct connection between the Port of Gdynia and the national road network, including the S6 expressway, is also drawing nearer. This will improve accessibility to the port and increase its transshipment and development potential.

INTELLIGENT CITY ACCESSIBLE TO ALL

Gdynia takes advantage of its development opportunities and attracts new companies also from the BPO/SSC sector. The city is one of the most friendly places to live and work in Poland and Europe. It offers a high quality of life and favourable conditions for personal development, which is more and more often a factor determining the choice of place of residence. The city's prestige lies in its consistent efforts to build a place where people live well. The solutions implemented take into account the needs of different groups of residents, and each new public space is created with attention to detail and accessibility for all.

In 2021, Gdynia joined the group of five cities in the world receiving the ISO 37122 certificate. This





is a confirmation of the effective implementation of the sustainable development strategy and the use of available technologies. The city also reached the podium in the Livcom Award 2019 ranking, winning the third place in the world in the category of medium-sized cities in terms of quality of life. Moreover, The fDi Magazine, which is part of the Financial Times, has awarded Gdynia the title of "Polish City of the Future" three times in a row.

Creative industry plays an important role in Gdynia's development. In 2021, the city joined the UNESCO Creative Cities Network in the field of Film. It is also famous for its international rank of cultural and sporting events and festivals. All this creates a huge potential used by the inhabitants, but also by tourists for whom the open, friendly Gdynia is a perfect place to catch a breath, especially since Gdynia is one of Polish cities with the cleanest air.



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Bałtycka Baza Masowa

Baltic Bulk Terminal Ltd. , the joint venture company established by Port of Gdynia and Zakłady Azotowe "PUŁAWY" S.A., operating export of polish chemical products, particularly fertilizers. Two cargo handling and storage terminals were built within a period of 1997-1999, one for liquid another for bulk cargoes.

Company's terminals are located in the oldest part of Port of Gdynia at Szwedzkie Quay and Wendy Quay. Comfortable localization near the primary port's entrance and quays' technical parameters makes our ship's positions attractive for customers. Modern equipment, effective organization of labour and automated process of loading brings efficient accomplishment of tasks. All technological processes supervised by qualified personnel natural environment friendly.

Terminals has been exploited since **1999**, offering variety of services:

- export of bulk cargoes,
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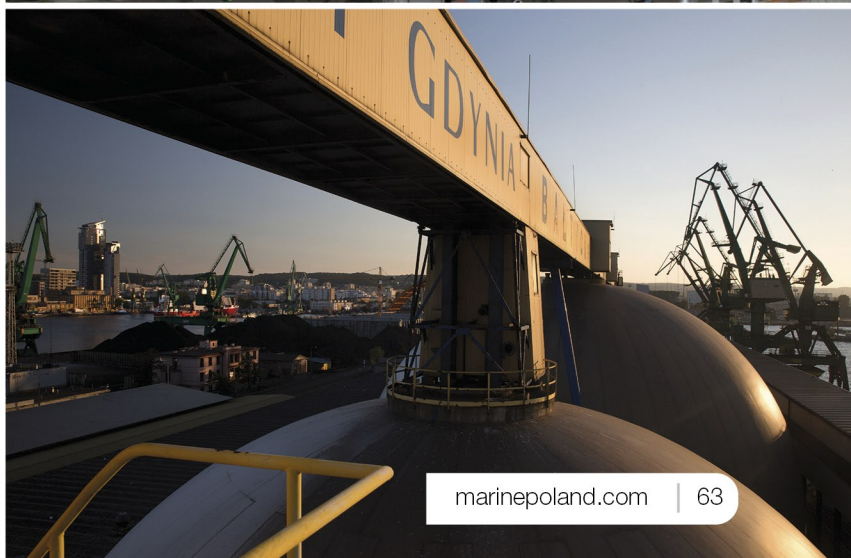
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Caring about quality
Baltic Control®

Baltic Control Poland LTD Sp. z o.o.

Baltic Control Poland Ltd with office in Gdynia belongs to the international **Baltic Control® Group**, which is one of the global companies providing services in the field of inspection, expertise and certification.

INSPECTION SERVICES

The Polish **Baltic Control®** office is located in Gdynia. Through the network of experts, we provide inspection and laboratory services for the producers and traders of cereals, seeds, feed, oil products, fertilizers as well as all other goods transported, in the following scope:

- **Quantity inspection** of bulk, bagged and liquid goods (draft survey, ullage survey, weighing supervision, volumetric measurements, tally),
- **Quality control** of goods, **sampling** and laboratory services for assessing the quality of agricultural products,
- Checking the **cleanliness of the holds**, storage places and means of transport before loading,
- **Maritime inspections:** bunker survey, on & off-hire, damage control of goods as well as ships / and containers, lashing goods inspection,
- **Recycling industry** - we have many years of experience in inspecting scrap (ferrous and non-ferrous), paper, textiles, plastics and other waste.
- **Other inspection** and appraisal services adjusted to individual customer requirements.

Our company is ISO 9001: 2015 and 17020:2012 certified. We are an active member of the TIC Council - international association representing independent testing, inspection and certification companies. Many clients, both domestic and international, entrust to us protection of their interests during transport. We carry out our inspections according to both national and international standards.



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- **GMP + FSA** - Feed Safety Assurance system ensuring **feed safety** at all stages of production, from cultivation to transport. Is an internationally recognized guarantee of the safety of feed given to farm animals;
- **ISCC** - International Sustainability & Carbon Certification - is a system for certifying the biomass and biofuels production chain in a sustainable way using renewable sources. ISCC is based on the requirements of the **Directive of the European Parliament on renewable energy sources (2009/28/WE 2009)**;
- **VLOG** - applies to both food industry and agricultural production, including feed and feed ingredients, transport and logistics, and processing. The VLOG certificate of compliance is a guarantee that the product is GMO-free;
- **Second party audits** - individually tailored to the needs of the organization.

By choosing our services, you focus on high quality of work. Our strongest points are experienced inspectors, experts and auditors. Thanks to their knowledge and experience gained over many years, we are able to meet even the most complex requirements of our clients.

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biuro@balticdivingsolutions.pl
+48 502 839 113



VAT No PL5882402794
fb.com/BDS Diving





CHARTERS #IWS #MARINE OPERATIONS #OFFSHORE #RENEWABLE ENERGY

ABOUT US

Baltic Diving Solutions is Poland based diving, ROV, inspection, maintenance and technical support to the shipping, oil and gas and renewable energy sector contractor.

Our priority is to provide highest standards of services based on the personnel that have over 15 years international experience in subsea industry and modern equipment that follows latest industry standards. Impressive safety record and efficient planning of operation are the key values of our operations.

Baltic Diving Solutions has implemented ISO 9001, ISO 45001 and ISO 14001 QSHE management system and is approved contractor by the ABS, Bureau Veritas, DNV, Lloyds Registered and RINA.

VESSELS

- Baltic Surveyor
- Baltic Jet
- Baltic Messenger

DIVING SYSTEMS

We operate state of the art diving systems for various applications - inshore, nearshore and offshore.

EQUIPMENT

BDS operates wide range of unique equipment. Falcon ROV, USBL, pipe/cable tracking systems, MBES, UXO equipment, marine RTK, Toyo dredging pumps, hydraulic tool, topside and subsea welding and burning sets allow us to support wide range of marine projects.

BALTIC ENGINEERING

The BALTIC ENGINEERING Repair Techniques Company started its service activity in October 1992. At the first stage of development the Company was providing services in repair to machine and equipment parts using the Chester Molecular chemically set agents. At that time the market requirement was to quickly extend the range of repair technologies by using welding repair techniques based on the Castolin equipment and products, and our company met this requirement and extended the scope of the services offered to clients.

In order to meet the expectations of its partners, Baltic Engineering has extended its offer since 1995 by provision of complete services in repair to floating craft, industrial plants as well as to machines and equipment both for maritime market and shore-based companies. When the activity was started in our own plants in 1997 the existing company structure and profile has finally crystallized. It allows us to efficiently carry our large repairs to ships, vessels and industrial plants, at the same time the reconditioning activity is still maintained.

Our floating dock purchased in 2012 enables us to provide complete and comprehensive services for small craft.

Out of concern for a clients' comfort and high position on the market, Baltic Engineering regularly upgrades the level of its activities and obtains certificates proving the high quality of its services: ISO 9001:2015 Certificate, AQAP 2110:2016 Certificate, Approval Certificates issued by the Polish Register of Shipping, authorization of the Chester Molecular™ manufacturer, authorization of ZM "WOLA" and other.

OFFER:

- complete repairs to machinery and equipment including the diesel engines, turbochargers, pressure boilers, different type pumps, compressors for various media and specialist machines that are in possession of particular contracting parties;
- repairs to pipeline systems;
- repair to machine and equipment parts by cold and hot powder surfacing, welding and by means of chemically set molecular agents;
- application of preventive coats by surfacing or application of chemically set agents;
- machining using our own and capital-related companies' the park of machines and equipment;
- in case of permanent partners we employ our proven subcontractors nearly in every branch where necessary;
- technical consulting, designing within the scope of our speciality.

Based on our proven co-operating parties and subcontractors our offer covers practically all the ship-related repair work such as electrical, automation, hull and fitting and outfitting work.

Owing to high qualifications, experience and responsibility of our employees the so-called "flying squads" are very popular with the shipowners to provide services while the ship is in harbour or at sea.

www.baltic.gda.pl

BALTIC ENGINEERING Spółka z o.o. Sp. K.

80-046 Gdańsk, ul. Cienista 14, Poland

phone: +48-58 3034539, +48-58 3034508, +48-58 3225010

e-mail: firma@baltic.gda.pl



baltic
engineering





BOHAMET

Bohamet S.A. is the undisputed leader in the production of ship windows and doors for almost 40 years. From the beginning of its activity, **Bohamet S.A.** focuses on the development and continuous improvement of production processes. As a result of our products better meet the growing needs of customers. Thanks to the high quality of our products and services we have earned the opinion of a reliable and trustworthy partner.



Almost forty years of activity have given us an established position on the market and recognition among customers to whom we offer a wide range of products. The main areas of our activity are:

- _ windows, portholes, wipers
- _ doors and hatches
- _ light aluminum doors and windows (including balcony systems)
- _ glass production (including safety glass: bulletproof, fireproof, heated glass, energy efficiency glass)
- _ metal processing,
- _ special military products (bulletproof, EMS, anti-blast)
- _ products for the mining industry.

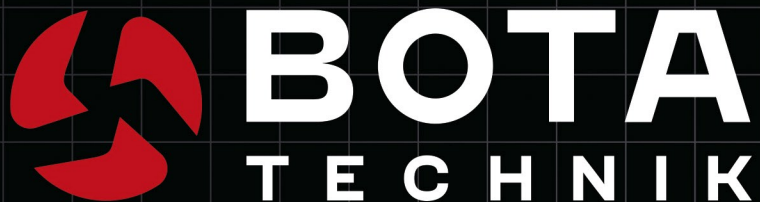
We make every effort to support our customers technically and commercially and help them find the right system solution even for the most difficult individual projects. We do this to make your surroundings a safer place. The products we deliver are fully certified to meet international industry standards (MED, Lloyds, DNV, USCG, and BV certification).



Bohamet S.A.

Ciele, ul. Toruńska 2
86-005 Białe Błota

www.bohamet.com
office@bohamet.pl
+48 52 320 3900



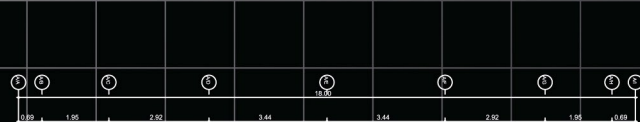
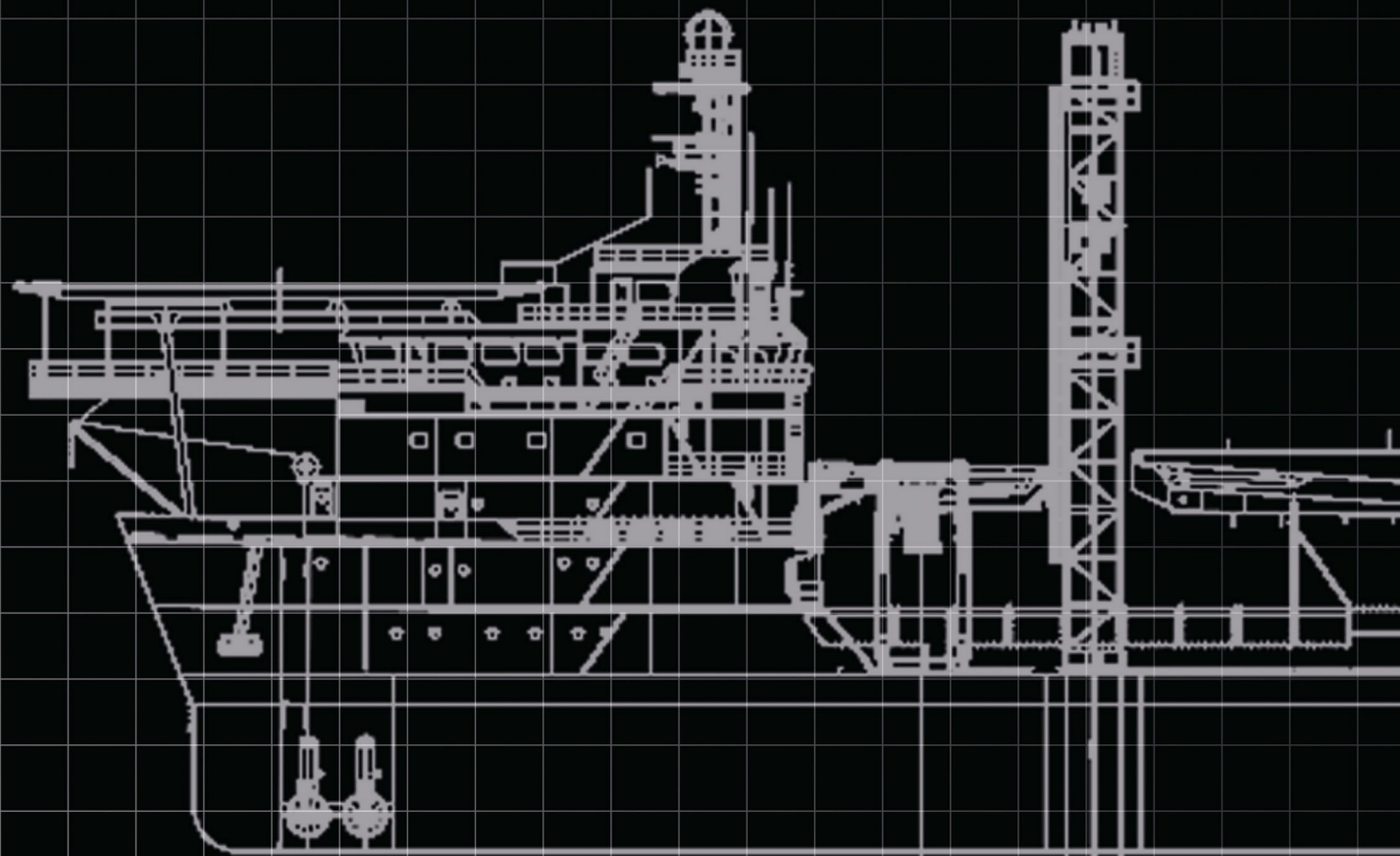
WORLDWIDE SERVICE

MARINE SYSTEMS

Bota Technik's core business concerns marine propulsion systems service. We deliver modern solutions for global shipping and offshore markets. We are located in Rotterdam (Netherlands), Szczecin (Poland) and Gdansk (Poland), where we have a modern workshop and main office facilities. Our highly qualified team comprehensively supports customers worldwide.



botatechnik.pl



**TUNNEL
THRUSTERS**



**CPP / FPP
PROPULSION
LINES**



COUPLINGS



**STERN
TUBE SEALS**



**MARINE
ENGINES**



**HYDRAULIC
DECK
MACHINERY**



GEARBOXES



**STEERING
GEARS**



CRANES



**REMOTE
CONTROLS AND
AUTOMATION**





SIMPLY THE BEST!

Bulk Cargo – Port Szczecin Sp. z o.o.

Bulk Cargo – Port Szczecin: universal seaport with great prospects.

Bulk Cargo – Port Szczecin established in 1994 is the biggest, multipurpose stevedoring company within the ports of Szczecin and Świnoujście. Bulk Cargo – Port szczecin has evolved from a reloading and storing company specializing mainly in bulk cargoes into organization which handle a broad spectrum of cargoes coming through the ports at the Odra River mouth. Our core business are handling and storing of bulk Commodities: coal, coke, ore, scrap, fertilizer and general cargoes: steel products, forest products, break-bulk in big bags.

As the most universal stevedoring company in Poland, with its annual turnover of 4-6 million tonnes and over 300 skilled workers, we offer efficient, high quality cargo handling. We have the deepest in the port of Szczecin berths and the largest storage and warehousing areas. Our attractiveness is further enhanced by a very convenient location at the crossroads of transport routes, comprehensive reloading and storing offer covering wide variety of cargoes.

We offer:

- Deepest berths in the port of Szczecin
- 10 berths with a total length of 3100 m and draft up to 9.15 m
- The largest areas of storage yards and 50000 sqm in warehouses
- In 2024 two berths draft up to 11,15 m.



www.bulkcargo.com.pl

Bulk Cargo – Port Szczecin sp. z o.o.

70-661 Szczecin, Gdańska 21, Poland

phone: +48 91 430 73 73, 430 71 12 fax: +48 91 462 35 29

e-mail: ppysiak@bcps.pl, pwarchol@bcps.pl



C.Hartwig Szczecin International Forwarders Ltd.

- We are one of the largest shipping companies with the Polish capital.
- Professionalism of the action, we base on more than 155 years of experiences.
- Through continuous investment, we respond to ever-changing needs of our contractors.
- We are always at your disposal at any place and time.
- We constantly improve the quality of our services, among others, through the use of assessments and opinions of our customers.
- For years, we have a strong position on the market of freight forwarding services.
- More than 150 skilled workers with full involvement serve each customer, paying particular attention to individual needs and requirements.
- freight forwarding services of heavy and oversized cargoes, Project Cargo
- storage and handling - we have our own storage areas (storage yards), roofed warehouses with a total surface area of 20 000m² located near highway A6 and the express way S3
- quality and quantitative inspection and the transport securing in cooperation with reputable companies on an international scale
- issuing and completing documents in commodity turnover
- tariff-transport counseling and intermediation
- advice on transport and customs affairs
- packaging&customizing and inward/outward processing of goods
- we have Customs Agency, which provides support/services at the highest level
- we organize customs clearance in simplified procedures
- favorable location of the C. Hartwig Szczecin International Freight Forwarders Ltd gives opportunities to take every transport-logistics and forwarding challenge
- container depot, located near the port of Szczecin, allowing for a full service of cargo containers.

The overriding aim of the C. Hartwig Szczecin company is the high quality of the services and the satisfaction of our customers. We provide our customers with the reliability and professionalism in the organization of broadly understood freight forwarding services, in this:

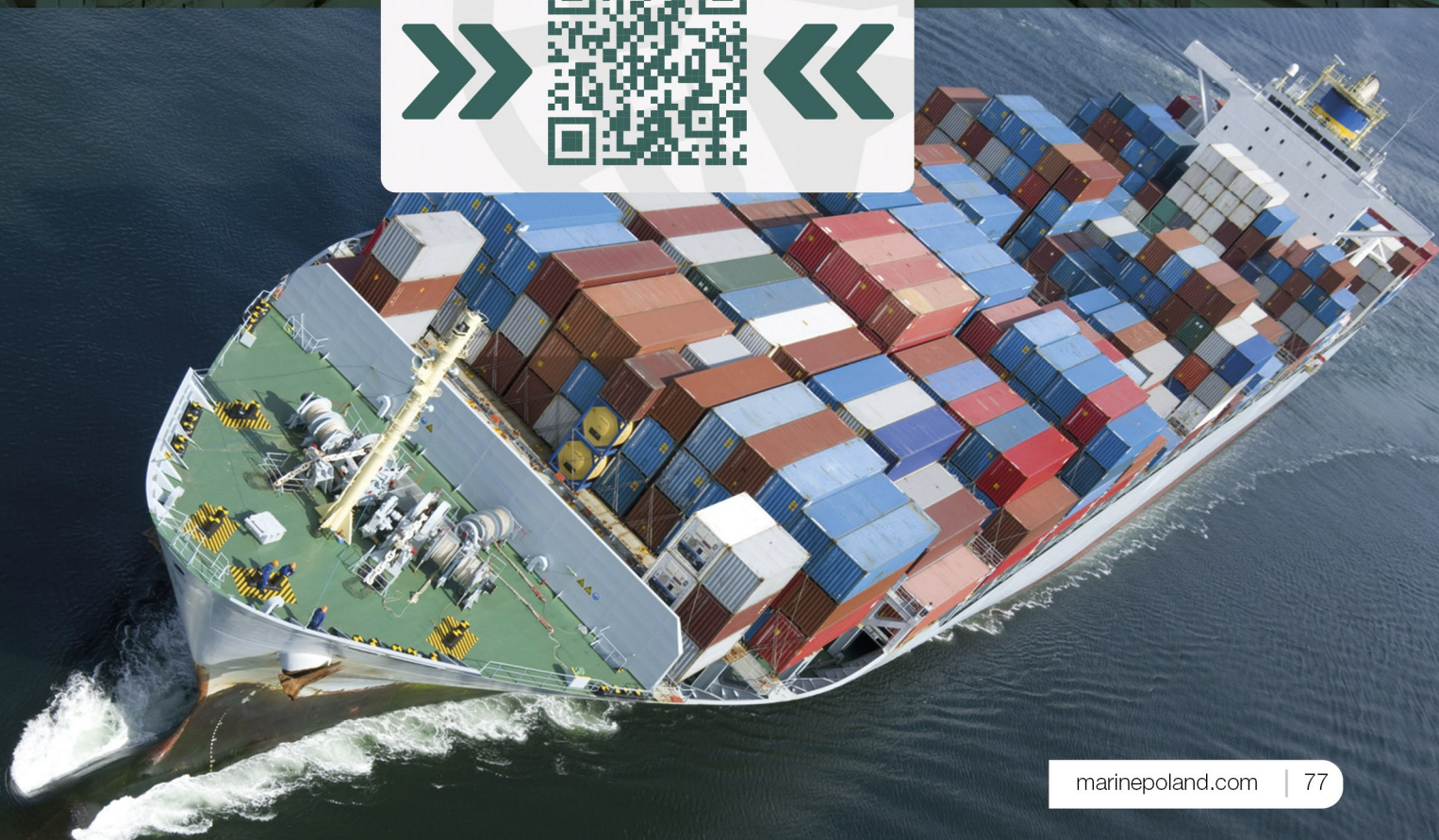
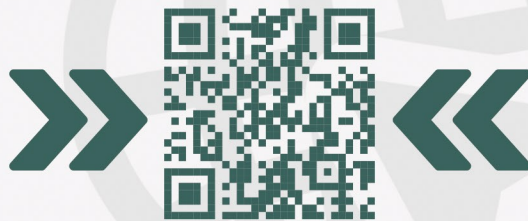
- freight forwarding by sea, land, rail, road, air, barge and port handling services, as well as commodity turnover of strategic importance / of dual-use
- freight forwarding service on the basis of the FIATA bill of lading
- handling of hazardous goods (ADR)

C.HARTWIG SZCZECIN Spedytorzy Międzynarodowi Sp. z o.o.
71-620 Szczecin, ul. Jana Kazimierza 3, Poland
phone: (0-91) 48-06-700
e-mail: management@hartwig.szczecin.pl

www.hartwig.szczecin.pl



C. Hartwig
SZCZECIN
ROK ZAŁ. 1858

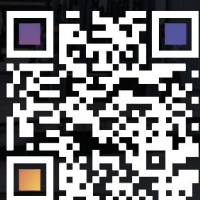



CARGO LIFT



Cargo Lift is currently a leading company in Pomerania that mainly carries out orders from forwarding companies, customs agencies or shipowners in the field of heavy and oversize cargo reloading in container relations. It also offers storage of goods and transport of standard containers as well as oversize cargo using its own fleet and pilotage.

We have very specialized equipment, the latest acquisition of our company is a 54-ton forklift, equipped with a traverse with a lifting capacity of 40 tons. It is the largest forklift truck in Poland. All the traverses that we have are designed by us and adapted to various types of loads, and have the required approvals. As a result, the solutions that we propose to our clients improve and reduce the costs of reloading.



cargo.lift.gda

Wiesława Gielecka Cargo Lift
Ul. Mostek 2/8, 80-759 Gdańsk
Tel. +48 698 756 858
kontakt@przeladunekgdansk.pl

www.przeladunekgdansk.pl





www.crist.com.pl

CRIST S.A.

Our activity started in 1990 – initially as a business partnership of two engineers and since 2010 as a resiliently growing joint stock company.

Shipbuilding, offshore constructions, steel structures, sea engineering, civil engineering – these are the fields we specialize in. We steadily develop and adjust our offer to changing market demands. We are the only shipyard in Europe which has already constructed 4 units of Jack-up Vessels. Three of them are nominate for installation and servicing of sea wind farms.

CRIST belongs to the group of companies distinguishing themselves through innovativeness, niche products and the organization of the supply chain. The company cooperates with Clients from Poland, Germany, Norway, Denmark, Finland, Iceland, France, Belgium, The Netherlands and Scotland.

Our priority is to secure services and products which not only meet the acceptance but also exceed Clients expectations and demands. In our performance we focus on reliability. We care about the highest quality which is always controlled and certified by international technical organizations and classification societies.

CRIST has always been active in the field of shipbuilding, steel constructions and ship-repairs. Economic changes and growth of renewable technologies – such as wind and hydroelectric energy – created possibilities of activity on new markets.

For that reason we are presently participating in the implementation of projects of specialized coastal structures, sea transport and units for exploration of marine resources.

For many years we have been supporting eco-conscious initiatives what has initiated the execution of demanding and exciting projects: offshore constructions, barges and ships destined for installation of wind turbines

Producing for the offshore business we successfully take advantage of our market niche. The construction of sophisticated units for installation and servicing of sea wind farms ranks us within the group of European leaders in this branch.

www.crist.com.pl

CRIST S.A.

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DAMEN

DAMEN ENGINEERING GDAŃSK SP. Z O.O.

Relations, sustainable development and innovative approach are the guiding principles of our company

The target of Damen Engineering Gdańsk is to raise awareness of sustainable development - internally, among employees and in external communication. We show that the company is not only a market player, but also a team of people promoting valuable activities for the climate and local community.

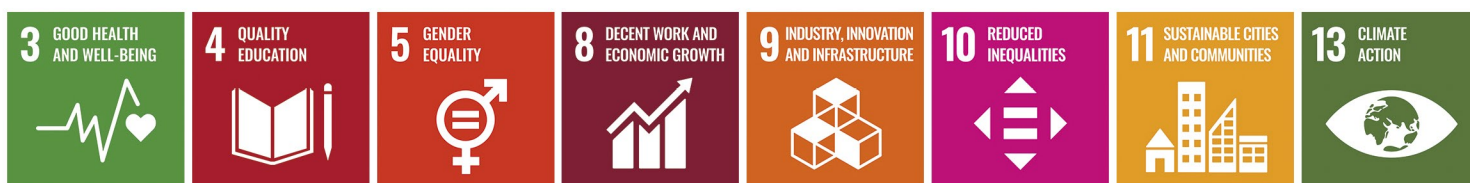
Damen Engineering Gdańsk is a competence center in the field of custom engineering, one off and prototype units with a strong drive to optimize ship performance, but most of all Damen Engineering Gdańsk there are relationships - cooperation - people. We are one DAMEN team across the world. At Damen Engineering Gdańsk, we use our extensive experience, outstanding knowledge and awareness of the values of our work, especially impact to the environment. Our success is based on teamwork, we build the DAMEN community, We feel joint responsibility for the continuous development of the business and support and complement each other.



www.damen.com

We build our company in accordance with the Sustainable Development Goals, which are the basis of our activities.

Our engineers are constantly developing competences as a team and deepening their knowledge of innovative technologies, emission-free drives, ecological solutions that can be used on board a ship and sustainable design. From our perspective, as a design office, the most valuable and most important is the 13th goal of SDGs - taking action to counteract climate change. We develop projects related to renewable energy, such as platforms for operating wind farms, designing zero-emission vessels and ferries. We are also looking for innovative solutions for a modern fish farming business. In addition to renewable energy, we invest in our local environment by participating in planting new forests or sponsoring ... beehives located on the roof of our office building!



Damen's goal is to become the most sustainable shipbuilder

We are a group of experienced specialists and together we create innovative solutions.

Together with other companies from the Damen Shipyards Group we take part R&D project NAVAIS (New, Advanced and Value-Added Innovative Ships) founded by European Commission H2020 program – focused on reduction of lead time for design and production of platform-based ferries and workboats and on modular approach to design and production phases.

We are working out configuration procedures, modules and diagrams that will eventually lead to configuration, interfacing and modelling ship's systems in the digital domain.

NAVAIS supports the transition from an engineered-to-order business model to an assemble-to-order business model, which allows shorter lead times, constant quality, reduced design and production costs, thereby creating a competitive advantage in the European shipbuilding industry.

NAVAIS project provides also guidelines and goals for low-impact design of vessels.

This activity deals not only with exhaust gases emissions, such as CO₂ and NO_x, but also with underwater radiated noise (URN) because of a growing concern that URN has a negative impact on marine life.

DAMEN ENGINEERING GDAŃSK SP. Z O.O.
80-309 Gdańsk, Al. Grunwaldzka 415, Poland
e-mail: komunikations.deg@damen.com



DAMEN SHIPYARDS GDYNIA S.A.

Damen Shipyards Gdynia S.A. is one of the first private shipyards in Gdynia (Poland), founded in 1991 by Jacek Duch and Andrzej Denz. Based on the finest traditions of the Polish shipbuilding industry, has been successfully growing and operating for over 30 years. In 1996 this Pomeranian shipyard joined **Damen Shipyards Group** and 23 years later, together with Amels Holland, became a part of Damen Yachting. **Damen Yachting**, created in 2019 division within Damen Shipyards Group, focuses on delivering customized superyachts, designed according to individual requirements of the clients.

Damen Shipyards Gdynia S.A. facility builds and delivers partially equipped hulls of superyachts. Nowadays the Shipyard is involved in building process of LE60 series.

In the past, up to 2010, also fully equipped tugboats (40 pcs) were delivered by the Company.

Damen Shipyards Gdynia S.A. has been consistently and steadily strengthening its position in the international shipbuilding industry; the Company currently employs a team of over 120 high-class specialists in their field. Their work results in great quality final products highly appreciated by Damen Yachting customers from all over the world.



Damen Shipyards Gdynia S.A.

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e-mail: damen@damen.pl



DAMEN

DAMEN SHIPYARDS GDYNIA S.A.



DCT GDANSK

A Member of the  PSA Group

The most competitive gateway to the fastest growing region in Europe.

DCT Gdansk is Poland's largest and fastest growing container facility, and the only deep-water terminal in the Baltic Sea Region having direct ocean vessels calls from the Far East. Located in the heart of the Baltic, in the Port of Gdansk, the terminal operates as a natural Baltic Hub.

DCT connects Poland to the largest shipping trade-lane between Europe and Asia, ensuring the Polish goods can be traded with China more efficiently in terms of costs, delivery times and a lower carbon footprint per container than alternative ports.

DCT Gdansk was the first terminal that attracted direct calls from Asia to Baltic Sea. This Baltic Hub is today the destination for the largest vessels in the world departing from China, Korea and other Asian countries. This process initiated a split of the

most important shipping trade-lane in the world, Asia – Europe, into Asia – North West Europe and Asia – Baltic.

The Baltic Hub handles import and export, transshipment and transit. With an easy nautical accessibility comprising of 17m deep approach channel and up to 17m depth along the berth, year-round ice-free access combined with operational excellence, DCT is a natural gateway for all CEE containerized trade volumes. Thanks to infrastructure investments of the Polish Government and the City of Gdansk, DCT terminal is well linked with the international hinterland, which ensures its ideal position as a true Central European Gateway.

DCT Gdansk as the Baltic Hub is one of the most efficient ways to serve the Baltic Sea market via transshipment and also the most cost competitive way to serve the hinterland markets of the Czech Republic, Slovakia, Belarus and Western Ukraine.



Annual Throughput Capacity:
3.250.000 TEU



Berth Specifications:
1300m of Quay Length
with up to **17m** Depth



Year-Round
Ice-Free Access



RTG Cranes Number:
40



RMG Cranes Number:
3



STS Cranes Number:
14



Rail Siding:
7 Rail Tracks with
Combined Length of **5,25km**



Warehouse Size:
8.200 Sq Meters



Reefer Plugs:
1.092

DCT Gdansk S.A. Deepwater Container Terminal Gdansk
80-601 Gdańsk, Kontenerowa 7, Poland
phone: +48 58 737 90 00
e-mail: marketing@dctgdansk.com
www.dctgdansk.com

Since the start of its operations in 2007, two deep-water quays (T1 and T2 – launched in 2007 and 2016 respectively) have been built with a total capacity of 3 million TEUs. From the terminal's beginnings to becoming one of the 15 largest container terminals in Europe in 2020 – this significant milestone will be the next step in DCT Gdansk's history. With the construction of the new terminal, known as "Baltic Hub 3", a third deep-water quay located at the new port area will be created, increasing the handling capacity of DCT Gdańsk by 1.5 million TEUs, to 4.5 million TEUs. The investment is worth Euro 450 million, and the third deep-water quay will be 717-metre-long with a depth of 18.0m and 36 ha of yard will be built. The Baltic Hub 3 project also involves the purchase of 7 quay cranes that are able to handle the world's largest vessels, and 20 semi-automated Rail Mounted Gantry cranes for the container yard, which will be remotely operated by operators located in ergonomically-designed workspaces. This will allow for a safer, efficient, modern and more comfortable working

environment 365 days of the year. The construction is planned to start in Q2 2022 and Baltic Hub 3 is scheduled to be operational by mid-2024. When completed, DCT Gdansk will be among the largest container terminals in Europe in terms of handling capacity and be able to continue serving, supporting the fast-growing Polish economy, the Central, Eastern European (CEE), and the Baltic countries.

DCT Gdansk can boast an impressive track-record of continuous development in terminal infrastructure and modern handling equipment. It is also actively involved in various environmental and local community protection activities, being the foundations for sustainable socio-economic development.

DCT Gdansk is part of the PSA Group - "The World's Port of Call", the remaining shareholders are the Polish Development Fund (PFR) and the IFM Global Infrastructure Fund managed by IFM Investors.



EKO-KONSULT Sp. z o.o. is a leading technical and environmental consultancy firm with 30 years of experience in the marine and coastal projects

EKO-KONSULT is distinguished by its outstanding and unusual combination of specialized engineering knowledge and excellent practice in the safety analysis with the extensive experience in environmental protection. Hence, we offer comprehensive services from the early stage and through the whole life cycle of a technical facility, or investment projects, guaranteeing environmental outsourcing as well as support in the safety analysis and risk assessment process.

As company based in the coastal zone of the Baltic Sea, one of the main areas of our activity are projects involving all sectors of the maritime industry, such as transmission, exploration and extraction or warehousing.

Since the early 90s we've been leading technical and environmental consultancy company, implementing coastal and off-shore projects including:

- Storage and transmission of natural gas
- Refining, petrochemical, chemical, storage and transmission of crude oil and petroleum products
- Oil and gas exploration and extraction at the sea
- Offshore wind energy
- Port terminals and waterways

We can boast vast experience in almost all branches of the industry and given our location, primarily in maritime and coastal projects.





As technical and environmental consultancy pioneers, we've engaged in environmental procedures for the strategic national projects from electric power, oil and gas sectors. We've worked on environmental procedures involving:

- exploration, extraction, storage and transfer of crude oil,
- extraction, storage and transfer of crude oil and natural gas onshore and offshore,
- electricity connections for wind farms in the Baltic Sea.

EKO-KONSULT has collaborated with maritime scientific and research institutions, including Maritime Institute in Gdańsk, Gdynia Maritime University and Faculty of Oceanography of Gdańsk University.

Many key companies, both polish and international have been entrusting EKO-KONSULT with the technical and environmental consultancy. We've assisted investors throughout the entire implementation cycle, from the analysis of variants and concepts, through the development of environmental documentation, support in relations with the local community, to post-implementation analyzes and in every case - endeavor expectations.

Our team of specialists have thorough knowledge in specific environmental conditions within the maritime and costal area, guaranteeing top-quality analytical work in accordance with current formal requirements, with emphasis on time and detail.

EKO-KONSULT Sp. z o.o.
80-557 Gdańsk, Narwicka 6, Poland

phone: +48 58 554-31-38/39
e-mail: biuro@ekokonsult.pl



Zarząd Portu Morskiego
Elbląg Sp. z o.o.

Elblag Sea Port Authority Co Ltd

The Harbour of Elbląg is the biggest Polish harbour on The Vistula Bay. It is located on the river Elbląg, 6 km from its estuary to The Vistula Bay (latitude: 54° 10'5" N; longitude: 19°23'S"). The Vistula Bay is connected with The Gulf of Gdańsk by inland navigation along the river Szkarpawa and by Pilawa Strait near Baltiysk. In Elbląg starts Elbląg Channel (Oberland Canal -129,8 km), the unique in the world, technical relic, which is a tourist attraction.

Port Elbląg is a local harbour, designed for inshore goods, passenger and tourist navigation at The Vistula Bay and The Gulf of Gdańsk. Annually over 30 thou. of passengers are shipped. Total site area - 470 hectares; Length - 4,5 km; Total quay length - 2,5 km (including 0,3 km of passengers quays). Depth of fairway- 3,5m (1,8 m in extreme conditions).

Favourable geographic position in the context of potential economic relations and co-operation with Kaliningrad District, Baltic Republics and countries of Scandinavia. Port of Elbląg creating circumstances to enlarge trade (border crossing point, Commodity Exchange); has a good condition of technical infrastructure (strengthened quays, open store areas, sidings, cereal elevators). Port has a presence of all institutions necessary for service of passenger traffic and goods traffic (Border Guard, Customs House, Port Authority, Management Board of the Harbour, Point of Fitosanitary Control). Elblag has a convenient conditions for sailing and other water sports.

The terminal's handling capacity is estimated at 0.5 - 1 million tons / year (bulk cargo) and 0.1 thousand. tons of general cargo.

The terminal can handle ships with a freight capacity of 3 - 3.5 thousand. DWT and allows the use of all possible transshipment technologies. A modern passenger terminal was built on the right bank of the river together with the infrastructure of the sea border crossing meeting the requirements of the Schengen Convention. It has a berth 200 m long and 3.5 m deep, as well as a bridgehead for ferries.

The Port of Elbląg is and will remain a local port, but it may be of a more regional importance. The goal of its development is not and cannot be competition with the ports of Gdańsk and Gdynia, but rather their complement.

Shipping to the ports of the Baltic and North Sea is currently incidental and not much can be changed here without Russia allowing third-party flags. It can develop only after the channel has been built by the Vistula Spit. The entrances to the channel will be protected against sea waves from the necessary breakwaters. The construction of the canal will allow cargo ships with a carrying capacity of 3.5 - 4 thousand to enter Elbląg. DWT and passenger lengths up to 120 m and width up to 22m. The channel will not only shorten the route to the ports of the Tri-City, the western part of the Baltic Sea and the North Sea, but will also enable year-round navigation. The decision to crush ice on fairways in winter will be able to be taken freely by Polish institutions at the request of carriers, and therefore based on economic calculations.



www.port.elblag.pl

Zarząd Portu Morskiego Elbląg spółka z o.o.

82-300 Elbląg, Portowa 1-3, Poland

phone: +48 (55) 234 46 31

e-mail: port@port.elblag.pl



Zarząd Portu Morskiego
Elbląg Sp. z o.o.



← ELESHIP →

Electrical Design & Engineering Ltd.



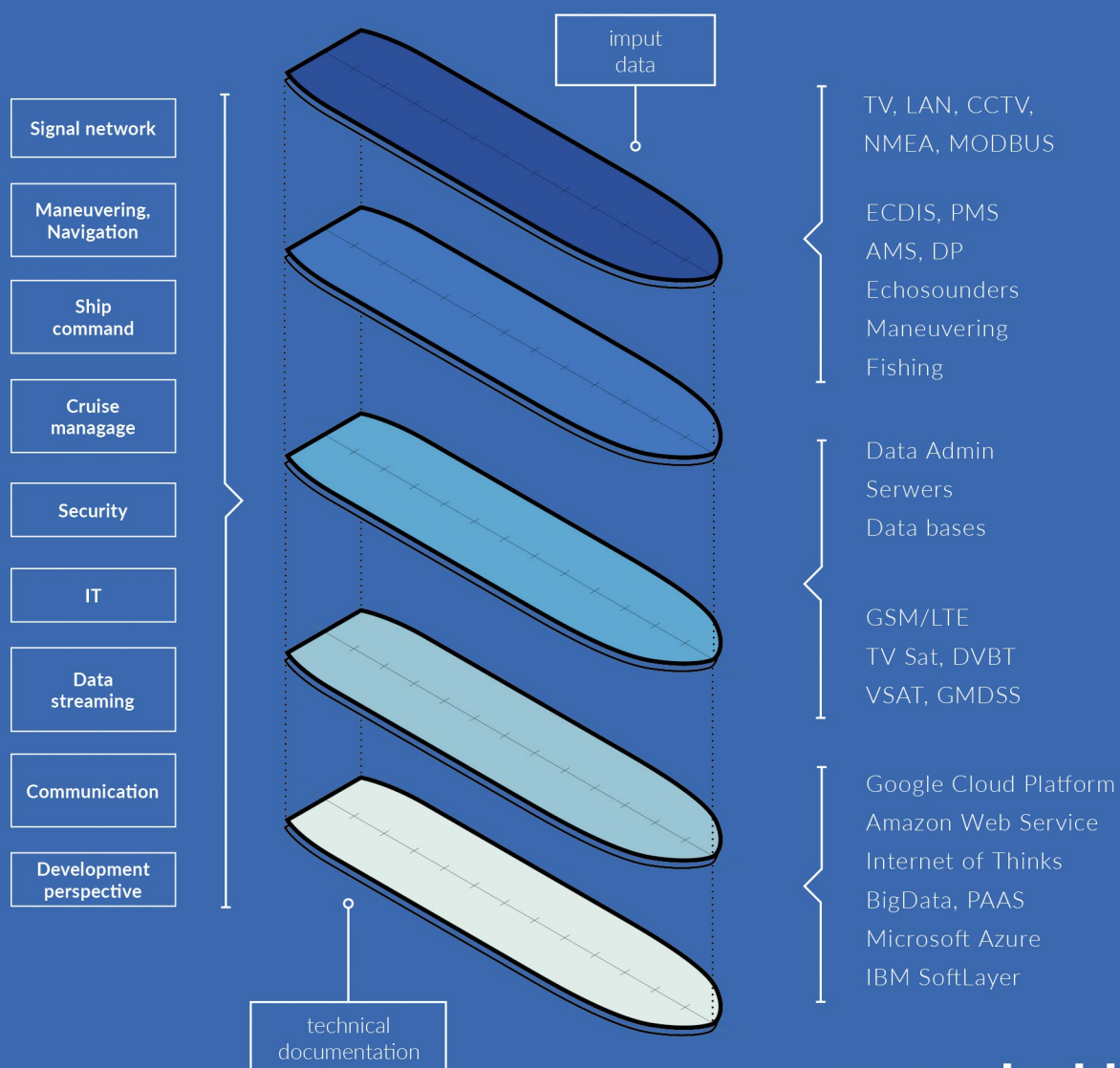
Eleship Electrical Design & Engineering Ltd. was founded in February 2011. The company provides services in design range of electrical system, radio and communications for marine units for the following stages:

- Initial assumptions and technical description,
- Assumptions for technical conditions for devices and apparatus
- Approval support and correspondence leading with classification societies and other authorities, Owners and equipment suppliers,
- Development of technical-classification projects
- Development of workshop documentation
- Perform as build documentation

During the project implementation, we use cable system management program Elroute - Project co-financed by the European Union under Measure 1.2 Sectoral R&D programs, the INNOship program, the Intelligent Development Operational Program 2014-2020.

ELESHIP Electrical Design & Engineering Ltd.
ul. Nowy Świat 42/44, 80-299 Gdańsk, Poland
phone: +48 58 727 90 51
e-mail: office-gdansk@eleship.pl





www.elship.pl/en



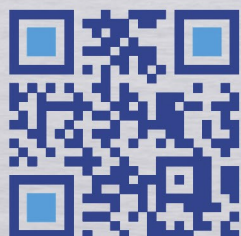
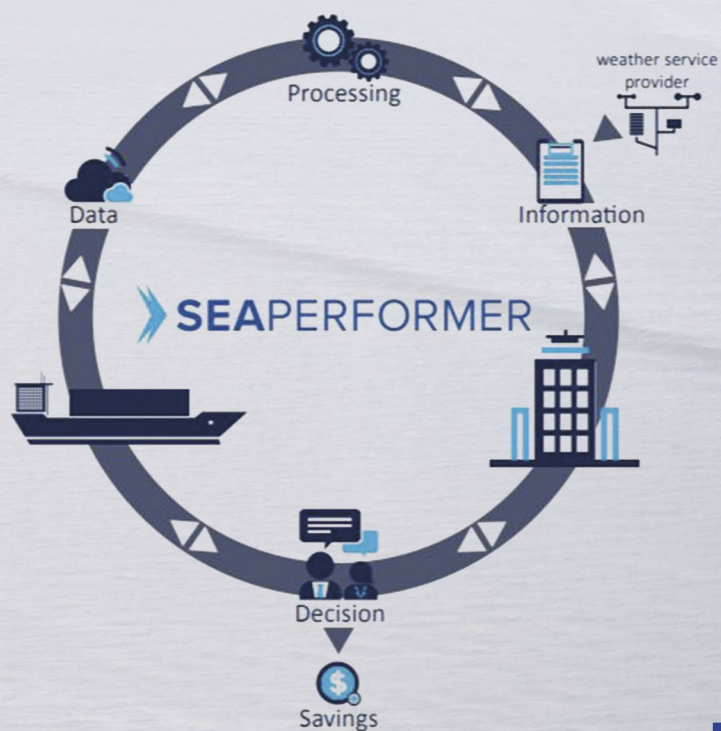


HIGH LEVEL ENGINEERING

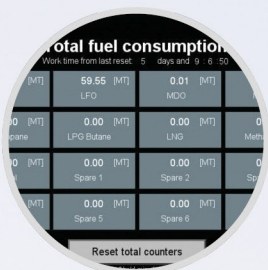
since 1989

ENAMOR, based in **Gdynia**, Poland. Hardware and software developer, integrator of high-tech equipment for maritime and defence sector. We render 24/7 services in the field of installation, commissioning, overhauls and repairs of electronic, navigation, communication and automation equipment worldwide. Our mission is to promote the latest know-how, implemented into cutting-edge solutions and reliable products.

Carbon Intensity Indicator (CII) Support



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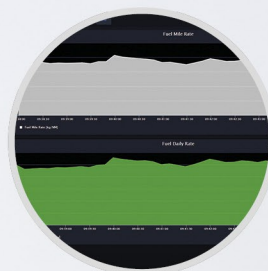
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DATA AGENT**



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TC600E



Famor - innovative solutions

FAMOR is a provider of complete solutions in the field of lighting and electrical equipment.

FAMOR Product Portfolio:

- Marine switchboards:
 - main;
 - emergency;
 - auxiliary switchboards (starters, lighting & heating panels, distribution boxes, etc.)
- Control consoles:
 - bridge;
 - ECR;
 - cargo & ballast systems
- Control columns for deck equipment
- Marine and industry lighting equipment (fluorescent, incandescent, LED, explosion-proof)
- Lighting equipment for trains vehicles
- Searchlight and floodlight (halogen, sodium, metal-halide, xenon, LED)
- Signaling devices:
 - bells, hooters and sirens;
 - signaling columns;
 - signal-position lanterns;
 - signal lights (flashing light and continuously light)
- Evacuation signs and lights

FAMOR S.A. is well known Polish manufacturer of complete range of low voltage distribution and lighting equipment to home and foreign markets for over 60 years. We offer reliable, modern and energy-saving products.

Obviously, our manufacture has been constantly changing adjusted to increasingly customer demand. At present the Company is focused on the shipbuilding industry and train vehicles building industry, where are very high demands of quality and durability of products is essential, the same quality requirements we apply to remaining our product groups as mining, industry, streets and hospital lighting.

We obtained several quality management certificates including ISO9001, ISO14001, AQAP2110, ISO3834-2, ISO13485 also NATO supplier certificate. We have research development department. Many products are designed and manufactured according to individual clients requirements. We also offer services related to metal machining, welding and powder painting.



www.famor.pl

Famor S.A.

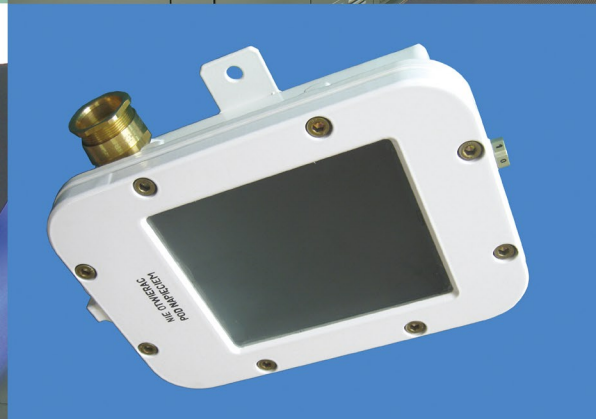
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e-mail: sekretariat@famor.pl



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innovative solutions





Gdynia Maritime University

Gdynia Maritime University is the largest maritime university in Poland and one of the largest in Europe offering education to future officers of merchant marine vessels and engineering and managerial staff for the region and the maritime economy.

The origins of Gdynia Maritime University date back to 1920. Today, after nearly one hundred years, thanks to the experience, dedication and knowledge of its employees, the University is ranked among the top maritime universities in the world.

Gdynia Maritime University currently consists of four faculties: Electrical Engineering, Marine Engineering, Navigation and Management and Quality Sciences, and has two ships, a training sailing ship, the "Dar Młodzieży" and the "Horyzont II" - a modern research and training vessel, at its disposal.

Gdynia Maritime University employs highly skilled academic staff and benefits from modern laboratories for research and training in surveying and technology transfer for the needs of businesses and economic organisations. The University provides services which aim to facilitate access to new innovative technologies and new potential markets.

Research activity is focused on areas connected with the development and needs of the region. Gdynia Maritime University is a beneficiary of projects under the Regional Operational Programme for Pomerania, the Ministry of Science and Higher Education, the National Centre for

Research and Development, the National Science Centre, as well as other EU funded programmes and the European Space Agency programme. The University's R&D work is carried out in compliance with multiple priority research directions under Regional Smart Specialisations and National Smart Specialisations.

Gdynia Maritime University runs several international scientific research projects and has an unquestionable academic status confirmed by six entitlements to award doctoral degrees (PhD) and two entitlements to award postdoctoral degrees (DSc).

In the last ten years, the University has completed projects with a total value exceeding 25 million euros oriented at research, teaching and infrastructure, at the same time expanding its research and laboratory facilities.

Gdynia Maritime University is the organiser of the Executive Offshore Wind MBA – the first in Poland, and only the second such education programme in the world. Programme participants will develop the competencies required to work in management roles in offshore energy companies and institutions.

The University is currently developing the Gdynia Maritime University Offshore Centre within the area of the Port of Gdansk. The Centre will provide infrastructure and facilities for specialist research and development work to be carried out for the needs of the innovative maritime industry. Construction is scheduled for completion in March 2023.



www.umg.edu.pl/en

Gdynia Maritime University

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e-mail: rektorat@umg.edu.pl



GDYNIA MARITIME UNIVERSITY



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The Group has an extensive experience in fieldworks related to sapper work, both on land and in water bodies, as well as to geology and geophysics.

Currently, the widely understood sapper works have become the basis of our activity. We are one of the most experienced private entities in Europe dealing with sapper works performed in the water.

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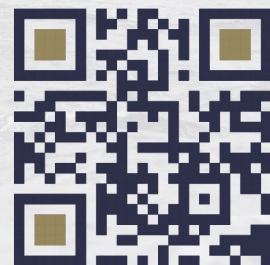
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e-mail: office@havdesign.pl

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Kancelaria Radcy Prawnego

The Law Office Legal Consulting - Mateusz Romowicz,
with its seat in Gdynia, was established in 2006 by Mateusz Romowicz.

The Law Office provides services to clients from different branches and sectors of the economy in Poland and abroad. These include companies from the shipbuilding, maritime, shipping, and construction industries, and companies involved in international trade or transport.

The Law Office provides a wide range of legal services for commercial companies and individuals running a business. The form and scope of the legal services offered by the Consultancy take into account the legal requirements imposed on entrepreneurs, the pace of business, and the specifics of international trade relations.

We collaborate with our clients based on an understanding of the nature of their business, and tailoring our offer to the needs and objectives of their operations. The specialists working with us guarantee the highest level of ethics and competence of the services provided.

The Law Office provides legal services in Polish, English, and German.

The Consultancy consistently ensures that all orders are carried out in a timely manner and at the highest professional level.



www.kancelaria-gdynia.eu
www.prawo-korporacyjne.pl

Kancelaria Legal Consulting - Mateusz Romowicz
Śląska 35/37 Str., V floor (Twin Office building)
phone: +48 58 350 59 93, fax: +48 59 746 33 95
e-mail: mateusz.romowicz@kancelaria-gdynia.eu

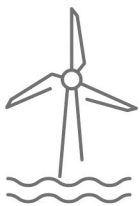
An important aspect of the services we provide is our response speed, and the awareness that we may not - at any stage - block business decisions in an unjustified manner

We strive to recommend to corporate clients solutions that optimise economic and tax risks.

To ensure efficient communication with the Consultancy, each client is assigned a lawyer who is responsible for getting to know the specifics of the client's business operations and for ensuring efficient communication between the Consultancy and the client.

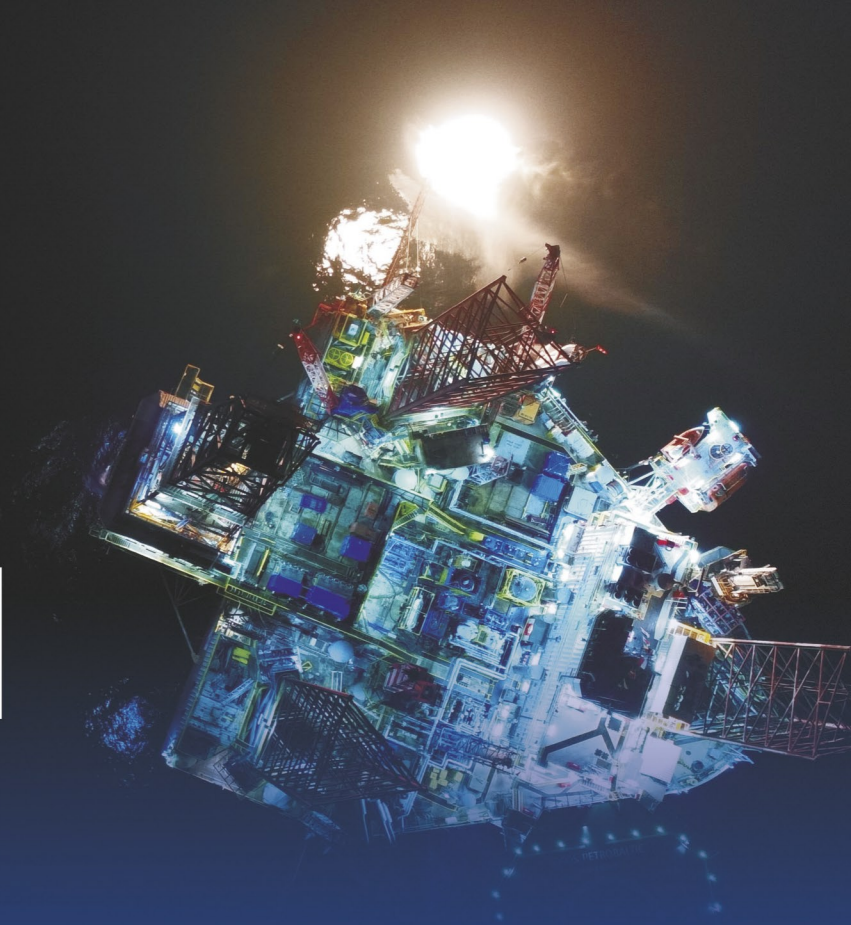
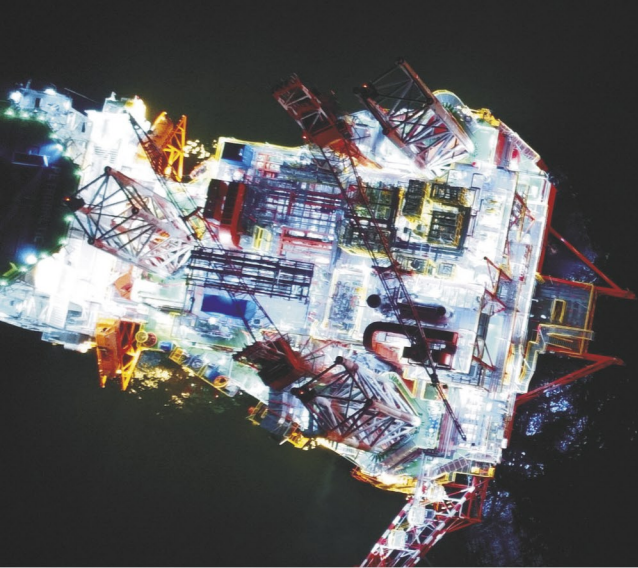
The Law Office's team delivers timely, comprehensive and professional legal services to its Clients. In addition to their wealth of knowledge, what distinguishes our people is their experience in maintaining long-term, day-to-day services alongside legal consulting for physical persons and for economic entities of a variety of legal-organisational forms.

The Law Office also focuses on providing legal support for newly emerging sector of Polish wind offshore by preparing complex analysis and providing legal services for businesses focused on this market.



Legal Marine

Mateusz Romowicz



LOTOS Petrobaltic S.A.

LOTOS Petrobaltic is a Polish-based company engaged in exploration for and production of crude oil and natural gas on the Polish shelf of the Baltic Sea, also providing a complete range of offshore logistics, marine site survey (including geotechnical seabed investigation) and fleet management services.

LOTOS Petrobaltic holds three licences (Łeba, Gotland, and Rozewie) for the exploration for and appraisal of crude oil and natural gas deposits and for hydrocarbon production in Poland's offshore areas, with a total area of 3,177 square kilometres. The licences are located in the eastern part of Poland's offshore territory. LOTOS Petrobaltic and its subsidiary also hold two production licences for the B3 and B8 fields, which are currently in production.

The business of Energobaltic, a LOTOS Petrobaltic Group company, is handling natural gas associated with oil produced from offshore reservoirs in the Baltic Sea. The company uses this gas to generate heat, electricity, LPG, and gas condensate at the Władysławowo CHP Plant. The Miliana Group companies provide maritime logistics services, also to LOTOS Petrobaltic. These include crude oil

storage and transport, rescue and spill containment assistance and geotechnical services. The LOTOS Petrobaltic Group also owns special purpose vehicles established to carry out specific investment projects, for instance the B8 field development project.

The new goals and projects to be pursued by LOTOS Petrobaltic beyond offshore hydrocarbon production include implementing an offshore wind energy programme and taking an active role in the energy transition. This will involve growing the scope of the maritime logistics activity and potentially participating in the supply chain for offshore wind projects.

Involvement in the offshore wind supply chain will allow LOTOS Petrobaltic to sustainably expand into new areas of operation. The company already provides comprehensive seabed exploration services to the offshore sector. Further offshore wind projects will include the construction of installation and service units, which will make LOTOS Petrobaltic a national operator in the market of offshore wind farm building, commissioning and maintenance.

www.lotospetrobaltic.pl

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phone: +48 58 301 30 61 do 69
e-mail: petrobaltic@lotospetrobaltic.pl





Morska Agencja Gdynia Sp. z o.o.

We are one of the oldest companies in the sectors of transport and logistics operating in the Polish market.

Our company guarantees delivery of cargoes to any place in the world - by sea and on land. Thanks to our long experience and creativity of our staff, Morska Agencja Gdynia is a brand which cooperates with exporters and importers from all over the world, shipowners, shipping lines, freight forwarders, ports, maritime offices, customs and immigration, banks and financial institutions as well as insurance companies.

We organize road, sea and rail transport of several thousand containers a year, freight vessels, arrange road and rail transport, deal with heavy and over-size goods, dry and liquid loads as well as with general cargo. Our company ensures storage and distribution of our customers' goods in modern warehouses and also provide bonded storage. The company's offer also includes offices to let.

For years we have been a correspondent of protection and indemnity clubs. We work as an emergency agent for the benefit of foreign insurance associations, supporting them during settlement of claims in road, rail and sea transport.

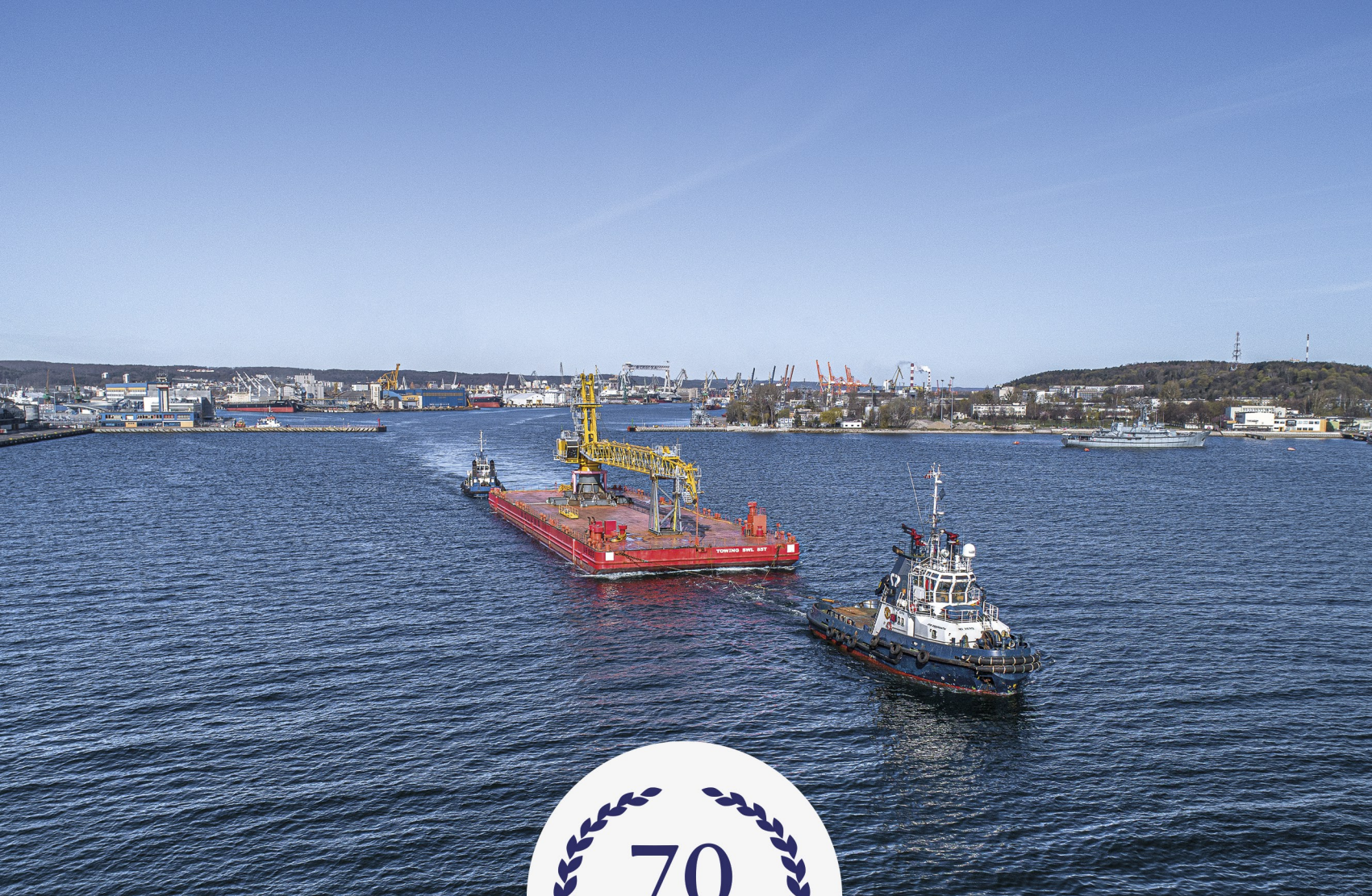
Polish Seafarers are offered attractive and safe work. Each year our company arranges about 1500 contracts for officers and ratings to the vessels of reputable shipowners from Germany, Great Britain, Denmark, Ireland, Greece and the USA.

Our professional team may challenge any task related to logistics of international trade.

www.mag.pl

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Morska Agencja Gdynia Sp. z o.o.
ul. Tadeusza Wendy 15, 81-341 Gdynia
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e-mail: mag@mag.pl

Marine Projects Ltd.



MARINE PROJECTS Ltd. Sp. z o.o. is a private owned shipyard operating actively on the shipbuilding market.

During the past 30 years of its history Marine Projects Ltd. established in 1989 had accumulated an extensive experience and knowledge enabling us to respond quickly and efficiently to our Customer's needs and requirements. For many years our Shipyard closely cooperates with our traditional partners and Customers from Germany, Netherlands and Norway.

Marine Projects Ltd. Sp. z o.o. is very conveniently located in Gdańsk at Vistula River bank. This arrangement makes possible an easy road transport connection to the Yard and gives a good access to the open sea and inland waterways.

Production activities scope:

- complete, fully outfitted vessels up to 100 m length;
- complete, fully outfitted harbour tugs and workboats;
- various sailing vessels;
- fully outfitted superstructures (deckhouses) of block weight up to 1 000 t;
- partly outfitted hulls up to 100 m length or longer in parts;
- pontoons and platforms;
- fabrication of steel structures for the shipbuilding industry, like large outfitted hull blocks and sections and structures for shore industrial plants;
- conversions of ships and yachts;
- wide scope of outfitting, pipefitting, electrical works and rigging as well as all kinds of painting works.

Marine Projects Ltd. shipyard is staffed by a highly motivated workforce of a few hundred employees well qualified to conduct various kinds of demanding jobs required for the execution of wide scope of newbuildings aided by own professional technical office.

Production facilities and technical infrastructure:

- production site of over total 52 000 m², including 6 600 m² of covered halls and workshops;
- building ways for hulls up to 100 length;
- one 600 m long outfitting quay;
- own floating DOCK with lifting capacity 3 500t (overall length 110m, supported length 100m, clear breadth 18,35m, ships draught 5,9m, carnage: 6,3t + 6,3t);
- self-propelled floating derrick 'Conrad Consul' with 400 t lifting capacity (largest floating crane in Poland);
- self-propelled floating derrick 'Conrad Goliath' with 100 t lifting capacity;
- one large seagoing 3 500 t self-ballasting transport pontoon 'Conrad 2' (60 x 20 x 4.5 m);
- one handy 480 t transport pontoon 'Conrad' (40 x 10 x 2,0 m);
- two numerically controlled water-plasma cutting machines and hydraulic frame bending machine for profiles;
- automatic, semi automatic and manual welding with approval and under supervision of classification societies such as ABS, DNV-GL, PRS, BV and LR;
- computer aided design (CAD) capability: AutoCAD, ShipConstructor, Maxsurf, Hydromax, HullSpeed, Rhino 3D, Orca, NavisWorks, Aster, SolidWorks and Nupas Cadmatic.
- quality control (NDT tests, Leica tachymetric 3D measurement system, etc.).
- ISO 9001 quality management system.

www.marineprojects.pl

MARINE PROJECTS Ltd. Sp. z o.o.

Sienna 45, 80-605 Gdańsk, Poland

phone: +48 58 52 03 150, fax: +48 58 52 03 151

e-mail: marineprojects@marpro.pl



Marine Projects Ltd.



Our strength lies in people

We are an independent family-owned company operating in the European offshore market for more than two decades. Our service portfolio includes comprehensive geophysical and geotechnical surveys, environmental surveys and inspections of subsea infrastructure. We have the world's leading specialised test and measurement equipment at our disposal, relying on cutting-edge technologies.

Sectors in which we provide our services:

offshore wind farms	oil and gas
maritime administration	dredging works
telecommunications	mineral resources
pipelines and cables	science

We focus on conducting **work in safe, sustainable, efficient and effective manner.**

We are a team of professionals, full of passion and knowledge, who want to change the industry for the better while maintaining the highest standards of safety, and employing the most up-to-date technologies available on the global market. It is the power of teamwork that is the key to the success and viability of every project we undertake.

Geophysical surveys

hydrographic surveys

analysis of OWF seabed characteristic

seismic surveys

OBN seismic surveys

preparation of reports and maps

preliminary surveys for the detection of potential unexploded ordnance

Geotechnical surveys

sediment sampling

static CPT sounding

geotechnical drilling

preparation of comprehensive administrative documentation

Environmental surveys

bird and bat surveys

benthos surveys

ichthyofauna surveys

geochemical and hydrochemical surveys

hydrometeorological surveys

ROV inspections

subsea infrastructure inspections

cable and pipeline pre-lay surveys

as-built documentation of subsea infrastructure

construction process monitoring



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e-mail biuro@mewo.eu
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Based in Gdańsk, we have established ourselves as a leading manufacturer of large steel structures for both our domestic and foreign markets. We carry out projects mainly for the offshore industry (primarily for the Scandinavian market), but also for: shipbuilding, construction infrastructure, petrochemical and oil-processing industry. We also produce construction cranes and bespoke structures.

Our versatile production facility enables us to either make a construction from scratch, or to modernize or renovate any construction. We are constantly investing in fabrication technologies.

Many years of experience gained implementing a variety of complex projects in the field of steel structures, mean that our services have been recognized and appreciated by many clients within Poland and abroad.

Our Main Clients: Aker Solutions AS, Bladt Industries AS, AS Nymo, Aibel AS, Bring Logistics AS, Cargotec Finland OY, National Oilwell Varco AS, Grupa Lotos SA, KT Kinetics Technology S.p.A., Skanska Sverige AB, Meriaura Oy Finland

Our Services:

- fabrication of projects as both a General and Sub-Contractor
- modernization and repair of industrial installations and technological equipment
- purchase of materials
- preparation of shop drawings
- fabrication & assembly
- quality control

- NDT (Non-Destructive Testing)
- Surface protection
- PFP (Passive Fire Protection)
- Loading and sea fastening operation

What we do:

- **Oil and gas/ offshore wind:**
Structures for the oil and gas industry, oil rigs, elements of offshore wind farms: topsides, boat landings, subsea construction elements, towers for offshore platforms and wind turbines, aluminium staircases, pipelines and pipeline steel supports (CS, SS, Duplex).
- **Structures for the petrochemical and petroleum industry:**
Fuel tanks, industrial installations, tanks and technological equipment (including technological installations, heat exchangers, furnaces, steel stacks, columns, reactors).
- **Cranes and bespoke structures:**
Sections of gantry cranes and booms, silos, tanks, conveyors, belt conveyors, spreaders (bucket wheel excavator).
- **Shipbuilding and marine structures:**
Booms, vessel ramps, superstructures for floating vessels, hull sections, deck hatches.
- **Infrastructural constructions:**
Bridges, flyovers, footbridges, chimneys structures for industrial halls, stadiums, coalbunkers, halls.
- **Aluminium structures:**
Staircases, ladders, stairs, platforms, handrails, assembly of cable tracks.



www.mostostalpomorze.pl

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70 YEARS
Morska Stocznia Remontowa
GRYFIA



ABOUT US

Morska Stocznia Remontowa „Gryfia” S.A. has been occupying a significant place on the map of Europe for 70 years in the field of comprehensive repairs and reconstruction of commercial ships, passenger ferries and specialized multi-purpose vessels.

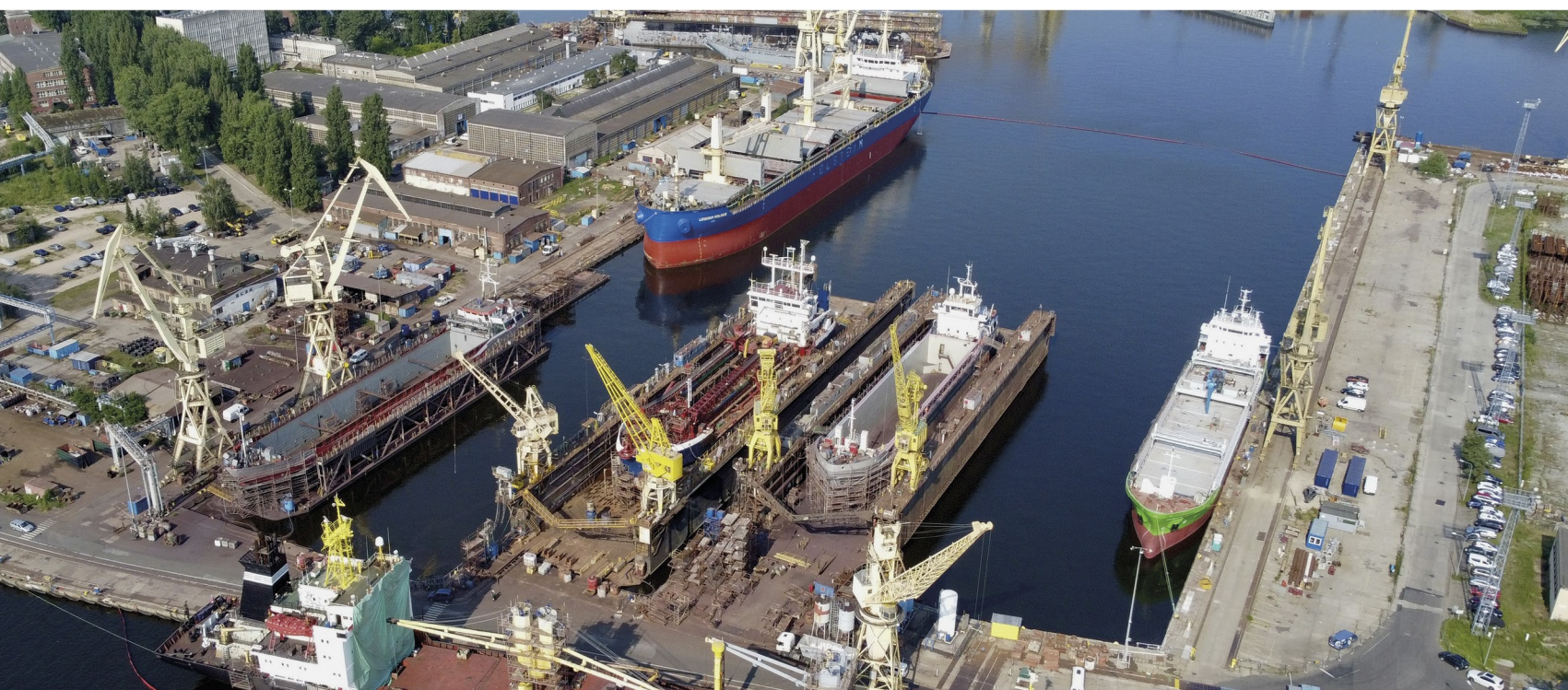
The central location of the shipyard in Europe, its close proximity to the main communication routes of Western European land transport and important shipping lines within the Baltic Sea basin, have formed favourable conditions for the repairs of the world's largest shipowners.

SHIPREPAIRS

REBUILDINGS • CONSTRUCTION

POTENTIAL

MSR „Gryfia” S.A. has three floating docks, one of which belongs to the largest ones in Poland, which it possible to dock ships of total weight of up to 17,000 tonnes; has a qualified workman force; the necessary infrastructure; quays with a total length of over 1,4 km; adequate lifting capacity; numerous workshops, that of machining included. Nowadays, the shipyard has been building a new dock that will allow to dock ships total weight up to 27,000 tonnes. The facility of the new dock will be a fully welded, monolithic structure, designed and built pursuant to the requirements of the Polish Register of Shipping. It will be one of the largest docks in this part of Europe.



70 YEARS
Morska Stocznia Remontowa
GRYFIA

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e-mail: info@msrgryfia.pl



www.msrgryfia.pl

Muehlhan Polska Sp. z o.o.

First Choice for Industrial Services Internationally

As one of the full-service providers in its industry, the Muehlhan Group offers its customers a broad spectrum of industrial services and high-quality surface protection. Our very strong organisational skills, in-depth technical expertise and more than **130 years of experience** enable us to satisfy our customers' exacting quality requirements.

With more than **3,000 employees at over 30 locations worldwide**, we generate **€ 300** million of sales revenues each year. From a local service provider we advanced to become a global player in the 1980s. Today, we act as an international organisation, offering top-rate services covering

- **Surface protection**
- **Steel Construction**
- **Insulation**
- **Scaffolding**
- **Passive Fire Protection**
- **Speciality (Rope) Access**

in our **Ship, Oil & Gas, Wind Energy** and **Industry** business segments.

Our Vision

We continuously improve our technologies and services to remain the quality leader in our markets and to keep our number one position in the industry. Our customers, suppliers and employees value us as a professional and dependable partner.

Muehlhan Polska Sp. z o.o. employs across both Divisions over 500 highly qualified and experienced employees and dispose about a large and modern machinery park. This combined with over 130 years of experience allow us to offer highest quality services and products to satisfaction of our customers. High competence, quality and compliance with HSE rules of our services is confirmed by following certificates **ISO 9001, ISO 14001, OHSAS 18001, IRATA, FROSIO, NACE, EN 1090-2 EXC4, ISO 3834.**

www.muehlhan.com

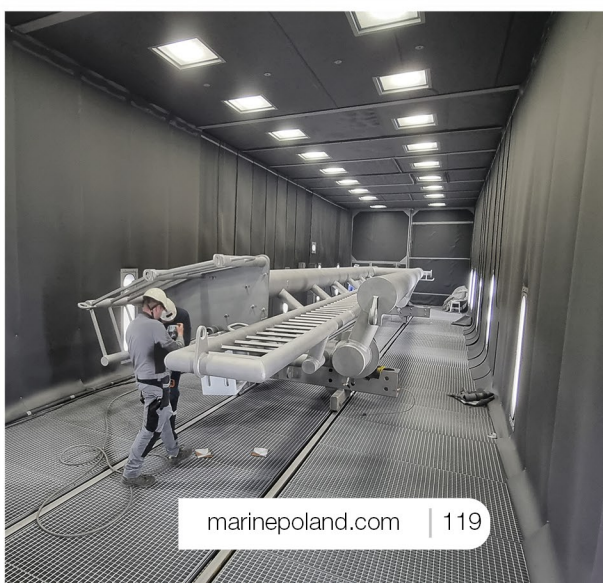
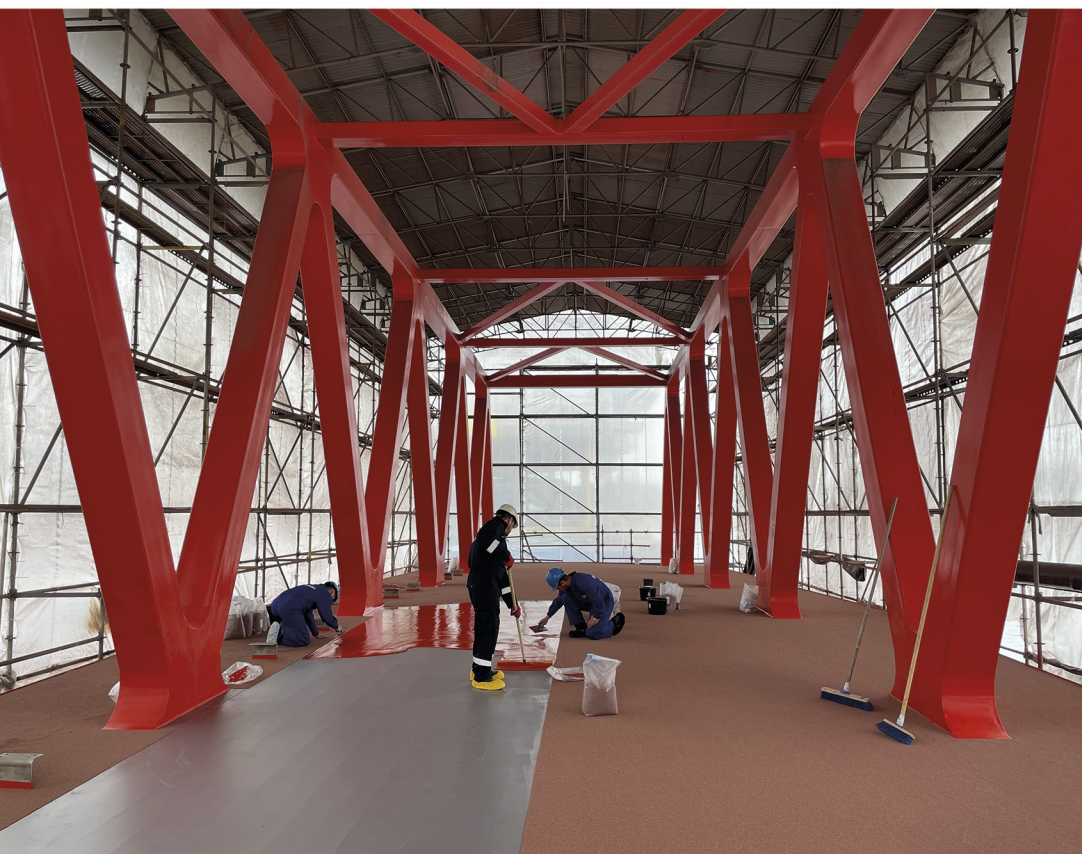
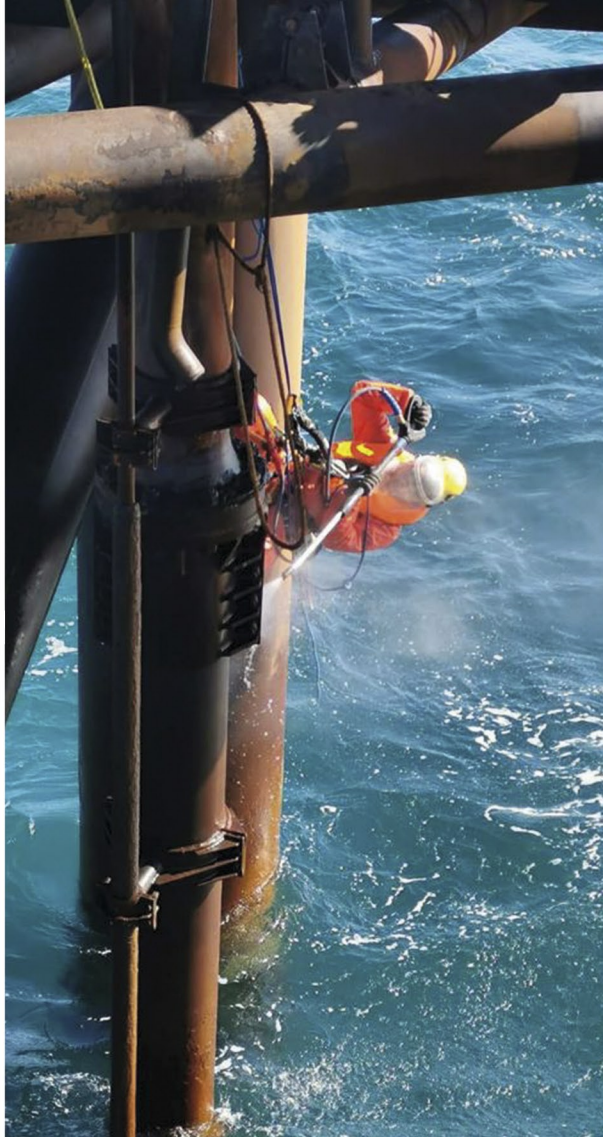
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Surface Protection

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fax: + 48 (0) 58 343 02 24
e-mail: gdansk@muehlhan.com





The **Maritime University** of Szczecin

The Maritime University of Szczecin is a modern university with a long tradition - in 2022 we celebrate our 75th anniversary. From the beginning, we have been guided by a flexible approach in the age of changing realities. The development of the economy is dynamic and new times require a new approach - that is why we also change and upgrade our University by investing in new technologies, cooperating with the business environment and, as a result, developing research and courses tailored to the actual needs. Developing education and research that serve the university's socio-economic environment has been woven into the DNA of our activities and mission for over seven decades.

When it comes to our fields of study, we have come a long way since the beginning of our existence. In the beginning, we were focused on maritime professionals only, then we develop programmes to train staff employed in port services, the shipbuilding industry and the transport sector. For years, we have offered courses related to the rapidly developing transport and logistics industry, which were later followed by other undergraduate and graduate programmes. Naval Architecture and Shipbuilding, Surveying and Cartography, Hydrography, and finally Geoinformatics and Computer Science courses - are open to new technologies, and from the upcoming year also Teleinformatics or Automation and Robotics - all these new degree programmes have allowed the University to gradually turn towards the IT.

Modern technology is not just designed to make work more comfortable, but above all to ensure safety. In the case of the maritime industry, it is about the safety of maritime traffic, ships, cargo, environmental protection - and foremost - it is about the safety of people. It is this very idea that we find fundamental to our daily academic work:

creating solutions that improve the safety of people and the natural environment.

Sensitivity to these issues, combined with solid technical knowledge and skillset passed on to students in our daily work - form the essence of our educational mission. Its implementation can be seen both in the creation of new courses - such as Industrial Engineering and Offshore Wind Power (launched in the academic year 2021/22, attracting much interest from candidates) and in the projects we are involved in.

In 2022, we will be working on MARE Foundation project "Operation Ghost", commissioned by the global brand BIOTHERM. Once again, our research and training vessel, Navigator XXI, will sail to the waters of the Baltic Sea to carry out the highly specialised operation of clearing the wrecks of ghost nets, which are extremely dangerous to the marine ecosystem.

The year 2022 will also see major investments in our modern research and training facilities. In addition to the development of a training centre with a swimming pool and simulators for advanced safety training, an interdisciplinary Centre for Operation of Floating Objects will also be inaugurated. We also plan to launch the Polish Maritime Rescue Training Centre, which will upgrade our competence in work on safety in maritime shipping to another, higher level.

Nowadays, the Maritime University of Szczecin consists of five faculties that offer 17 courses, including 3 in English, and is a major institutional and business partner as well.

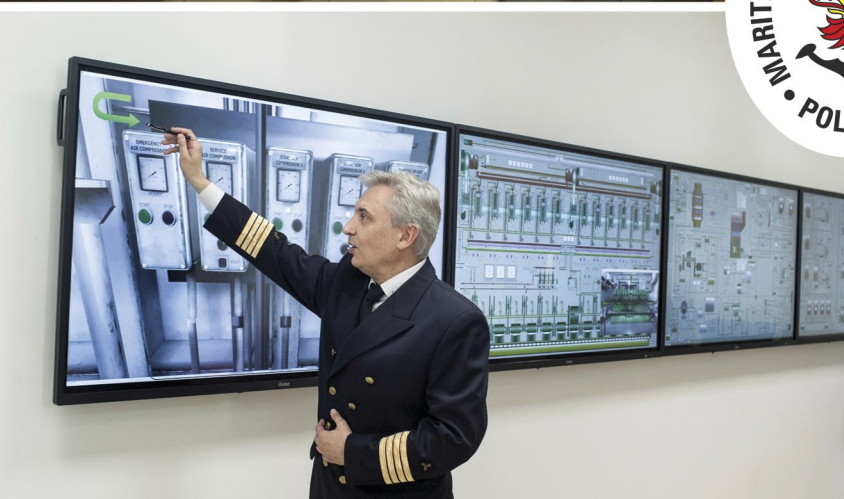


Akademia Morska w Szczecinie

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phone: 91-48-09-400

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NAFTOPORT Sp. z o.o.

Naftoport - based in Gdańsk Northern Port - is the only crude oil transshipment terminal in Poland and the biggest Polish transshipment terminal of refined oil products.

It provides the alternative, to land one, oil transport via pipelines. No other maritime terminal may supply crude oil and petroleum products to Polish refineries. The company also provides possibilities of crude oil transit from Russia and storage at PERN facilities in Gdańsk and is an element of the petroleum supply logistics for two eastern German refineries.

The Company handles transshipment for: crude oil, diesel oil, fuel oil, gasoline, jet fuel, condensates. Transshipments of oil products are carried out for Grupa LOTOS, connected with Naftoport by pipeline network.

Naftoport is environmentally-friendly, it fully respects and implements the occupational health and safety rules, and operates modern, specialised control and measurement equipment.

The Company is an owner of five cargo handling berths, shielded with breakwaters and secured against oil spills with the permanent, foldable and pneumatic dams. The cargo handling facilities ensure the possibility of hydrocarbon vapors reception. The fire-fighting system is performed from both the land and the water. The jetties are equipped with permanent water and foamfire-fighting installations. The installations are supported by fire-fighting cars and vessels.

The Naftoport Oil Terminal is suitable for oil tankers with the length up to 350m, width 60m and the maximum draught of 15m.

In the year 2021 Naftoport provided services for 266 tankers and transshipped almost 18 mln tonnes of crude oil and liquid fuels. It was the record-breaking year in the history of the Terminal.

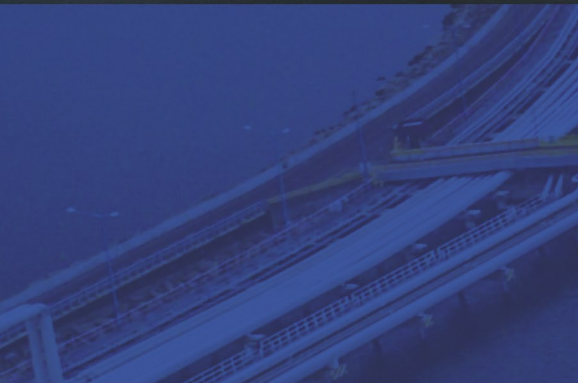
www.Naftoport.pl

NAFTOPORT Sp. z o.o.

Kpt. ż. w. W. Poinca 1, 80-561 Gdańsk, Poland

phone: +48 58 343 74 25, +48 58 737 74 25, fax: +48 58 343 76 06

e-mail: naftoport@naftoport.pl



Shiprepair Yard "NAUTA" S.A.

Nauta Shiprepair Yard established in 1926 has performed several thousand of extensive repairs on various types of ships. It has also designed and built over 500 fishing and special purpose vessels.

Nauta offers:

- A 24 hour – 7 day – 365 days per annum service;
- Comprehensive repairs and special surveys of all kind of vessels;
- Increased production assets offering complex engineering, mechanical, welding, electrical, fitting and hull services;
- Number complicated conversions and lengthening/shortening projects irrespective of the line of the cut, including conversions of oil and gas drilling rigs;
- A team of highly skilled professionals and a number of meticulously selected co-operators, all of whom are always ready to meet the growing demands of our clients;
- Installations of exhaust gas cleaning systems;
- Installation of Ballast Water Treatment Systems;
- Hydro blasting up to 2500 Bar;
- Nearly 2000 m of berths;
- 4 docks.

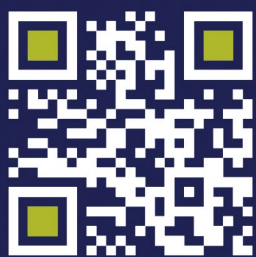
www.nauta.pl

NAUTA SHIPREPAIR YARD

3 Czechoslowacka Str., 81-336 Gdynia, Poland

Phone: +48 58 621 21 48, +48 58 621 25 00

e-mail: poczta@nauta.pl



95 YEARS | NAUTA



The mobile machining service (in-situ machining) is used to precisely remove excess material while maintaining the performance tolerance regime. Its purpose is to provide an alternative to stationary machining devices and eliminate the need for their disassembly and transport.

COMPANY

The NGLMachining company was founded as an answer to the market demand expecting mobile machining services while maintaining the performance tolerance regime. Our goal is to find an alternative to stationary machining, eliminating the need to disassemble and transport the machined component. We focused our efforts primarily on innovation and non-typicality of applied solutions, as well as the timeliness and the performance precision.

The technical and process solutions we offer found applications in these industry branches, where the dimensions and accessibility of structural elements were a problem in the repair-manufacturing technology. The elimination of transport costs, while expanding service simultaneously, enabled us to perform production tasks significantly faster and, in case of failure, to restore continuity of the production faster.

In order to develop and improve our services, we continually expand our machine park and improve qualifications of our team. By modifying and expanding our offer, we respond to the constantly growing and changing needs as well as requirements of our Customers.

IN-SITU MACHINING

Tasks presented to us by the industry become more and more unusual and complicated. Until recently, some of them were impossible to perform or were a logistic and economical challenge. The opportunities offered to us by mobile machining today are virtually limitless. Combination of technology with skills and experience of operators and measurement teams allows us to perform even the most complicated projects.

During execution of works in the field of mobile machining, we use specialised, portable machines designed for confined spaces. Mobile boring machines, milling machines, and lathes used by us are characterised by a compact and modular structure. This equipment has been designed for work in harsh conditions, using a drive system allowing to deliver optimum power with respect to the load proportion.

We work at the construction and maintenance operations in power distribution companies, chemical and food industries, in the construction of steel structures and ships.

We reach with our services not only Polish companies, but also the foreign ones. We are everywhere, where the machining is difficult and requires non-standard solutions.

3D MEASUREMENTS

NGLMachining provides precise measurement data that influence the optimization of production processes. FARO® laser systems, which we apply on a daily basis, give us the possibility of collecting data and their multidirectional analysis in relation to any set coordinate systems.

FARO® measuring instruments and systems that we use (FARO® Laser Tracker VantageE, FAROArm®, FARO® ScanArm) are the best and most comprehensive devices for measurement and 3D visualization. They create a new quality in industrial metrology with their precision and functionality far exceeding the capabilities of commonly used tacheometric devices.

We carry out measurements for the needs of various industries with numerous applications. The complexity of the FARO system allows us to use it in many directions: from measuring small workpieces to measuring large-size structures. The data collected owing to the METROLOG inspection software can be analysed and presented on a multi-level basis in the form of clear and intuitive reports.



www.nglmachining.com

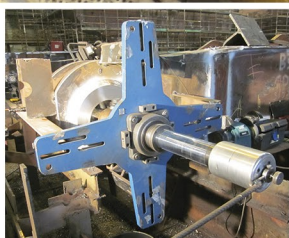
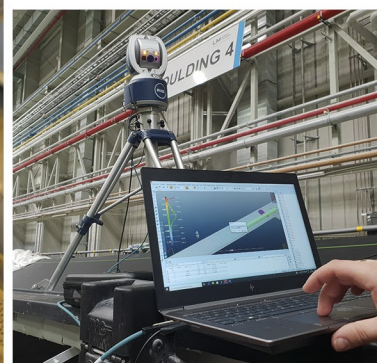
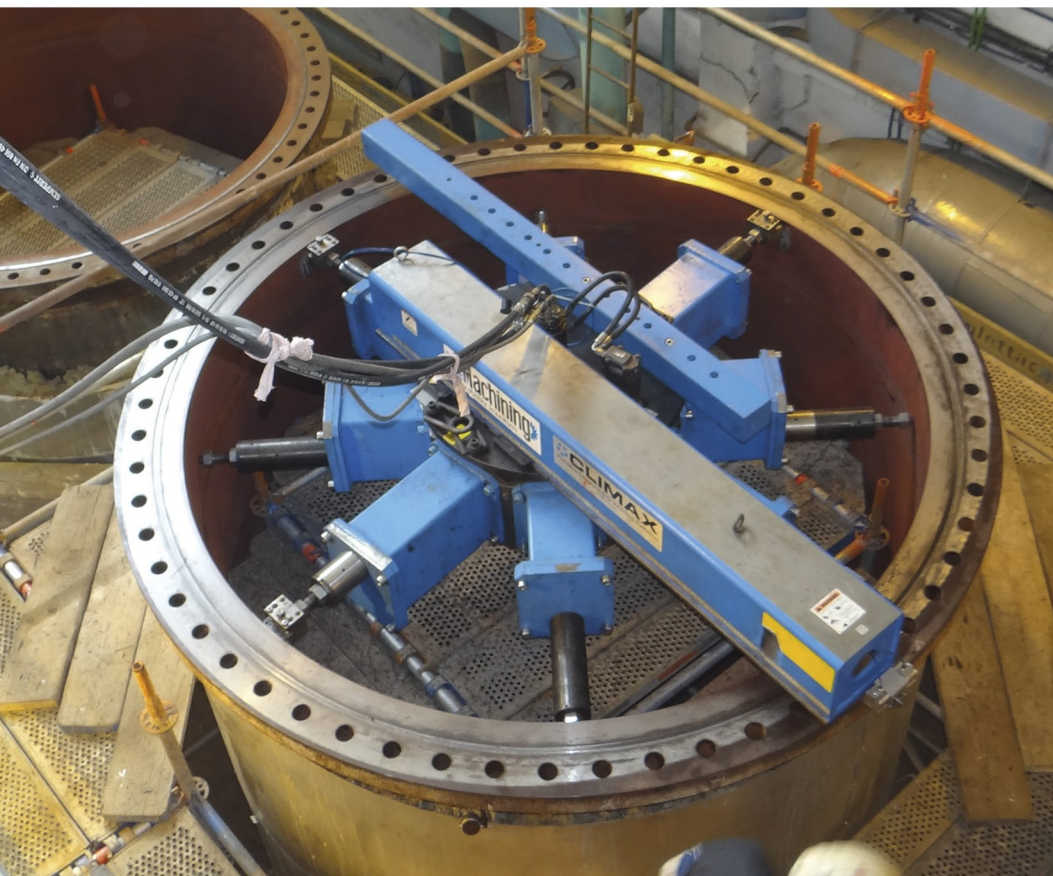
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phone: +48 505 126 744 / +48 728 998 335

e-mail: r.bogusz@nglmachining.com

in-situ machining



The mobile machining service (in-situ machining) is used to precisely remove excess material while maintaining the performance tolerance regime. Its purpose is to provide an alternative to stationary machining devices and eliminate the need for their disassembly and transport.

OKMARIT LTD.

Freight forwarding and logistic especially focused on project cargo OOG handling is a core activity of OKmarit from the year of company inception in 1991. Logistic including road, inland and sea we have in our veins and great number of successful forwarding projects constitute our company's body. We do offer highly professional service tailored to contractual and budget's needs of our Customers. Our trained and highly motivated staff is fully conversant with today's ever-changing logistic scene and using sophisticated instruments is able to offer best possible solution on economical moving of all types of cargo.

Whatever your requirement are, our approach ensures your projects receive the personal attention they deserve.

The agency and husbandry service was always vital part of our activity and we attend vessels in all Polish ports with full range of agency matters. We serve all types of vessels like dry cargo, crude and chemical tankers, barges, also ships calling Polish shipyards for repairs.

We are on standby for 24 hrs 7 days a week. Our office is located in the town of Sopot with easy access to Gdansk and Gdynia. We also cover Szczecin with our sub agents there.

Please rush for our competitive PDA.

Chartering is our natural reinforcement which tides up all our activities. We are especially experienced in the handing and carriage of project/out of gauge/ heavy lift cargoes and dangerous goods and special cargoes. We represent both charterers and shipowners. We fix on single basis, time charters, long terms contracts or bareboats charters.

You can rely on our follow up and post fixture service which completes the deal.

Contacts details:

okmarit@okmarit.com.pl

s.olszewski@okmarit.com.pl



www.okmarit.com.pl

Okmarit sp. z o.o.

81-868 Sopot, Al. Niepodległości 758/1, Poland

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e-mail: okmarit@okmarit.com.pl





POLISH MARITIME TECHNOLOGY FORUM

Polish Maritime Technology Forum constitutes of entities, who are courageously looking ahead and perceiving 21st century challenges as the new opportunities.

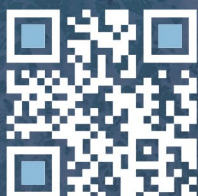
WE INVITE ALL WHO SHARE THE VISION.

Challenges to be met in the 21st century drive the request for a new and far more broad approach towards the maritime industries. Conservative approach is a result of a traditional perception which clearly distinguish the three areas namely: the ship newbuilding, the ship repair and the supply chain. This seems not to be fully adequate nowadays.

The prime mover for the changes is a continuous development of the technology, which creates new opportunities far more open for exploration of waters, seas and oceans resources. Technology development is an activator for the changes of entities vigorous within the maritime economy. It seems to be that the right response for the challenges of the future is a broad co-operation by a number of diversified players, who complements each other and together gathers tremendous knowledge and skills un-available for those acting individually, even if belonging to an industrial group. Complementation and interfering of the ideas, opinions, skills and tasks is inevitable and just the necessity.

There is nothing new in saying that process of the continuous technology development determines abilities for responding to the market needs and expectations now and especially in the future.

This is why we are seeking for a common ground of the communication, exchange of the ideas and the co-operation leading to the synergistic effects and to meeting the 21st century challenges.



www.pftm.pl

Polskie Forum Technologii Morskich
81-336 Gdynia, ul. Czechosłowacka 3, Poland
phone: +48 602 481 451
e-mail: biuro@pftm.pl



Port of Gdansk Cargo Logistics S.A.

Comprehensive port services

Handling and storage
General cargo and bulk cargo
Import and export

For almost **30 years of market activity**. Services are performed on 7 quays located along both sides of the Martwa Wisła river:

- Węglowe
- Rudowe
- Administracyjne
- Dworzec Drzewny
- Oliwskie
- Wiślane
- Szczecińskie
- WOC

Certificate:



Maximum handling capacity of 6 million tons per year.

We have storage space: customs warehouse, halls, warehouses and storage yard.

We offer transshipments: bulk, groupage, oversized, container

- Steel products as profiles, sheet piles, bars, reils, wire rods, billets, blooms, slabs, rolled oils, rolled sheets and strips, tubes, welded maches
- Scrap (feedstock scrap-metal)
- Constructions, oversize sections, project cargo, vehicles, building and road construction machineries and modular houses
- Containers and Ro-Ro
- General cargo – unitized cargo in big bags, pallets and crates
- Coal, coke
- Dry bulk cargo as clinker brick, expanded clay aggregate, dolomite, feldspar and bentonite

We care to apply all procedures providing high quality proffesional services.

Experience is our strength.

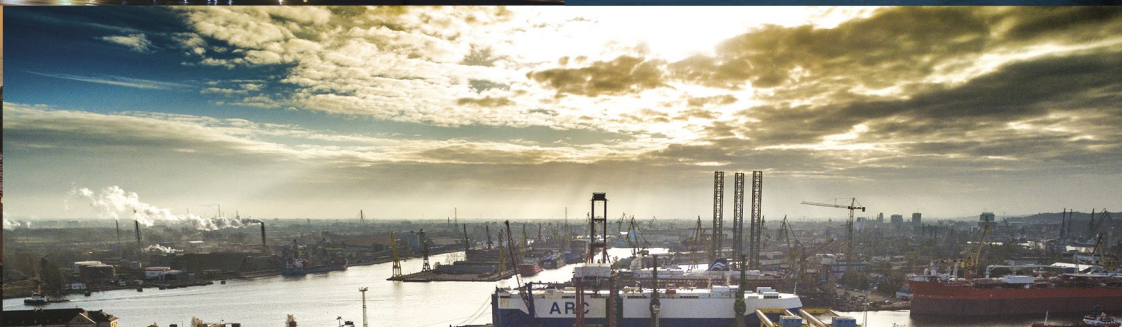
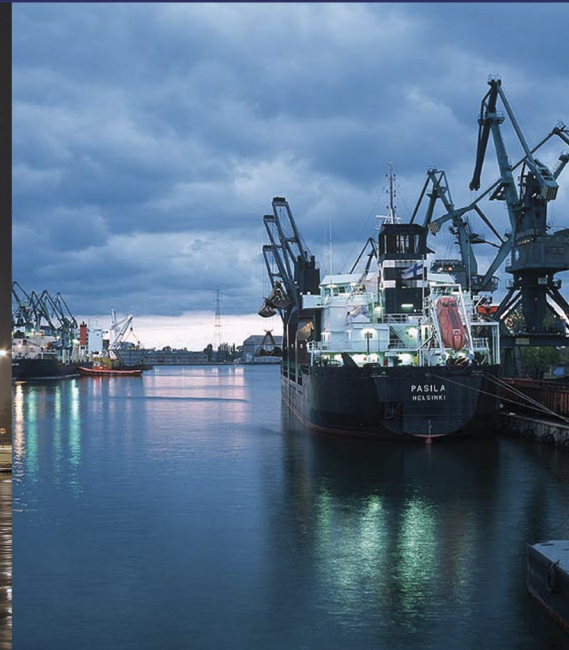
www.pge.pl

Port Gdański EKSPLOATACJA S.A.

Roberta de Plelo 6, 80-548 Gdańsk, Poland

phone: +48 58 737 63 00, +48 58 737 64 20

e-mail: marketing@pge.pl, pge@pge.pl





PKP POLSKIE LINIE KOLEJOWE S.A.

EFFECTIVE TRANSPORT WE CONNECT RAILWAY AND PORTS

www.plk-sa.pl



**Republic
of Poland**



**Funded by
the European Union**

Projects „Improving rail access to the Gdynia port” and „Improving rail access to the Port of Gdańsk” are subsidized by the CEF „Connecting Europe Facility”.

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Ireneusz MERCHEL

President of the Board
PKP Polskie Linie Kolejowe S.A.

Investments improving rail access to the Tri-City seaports increase the possibilities of transporting cargo by rail. Longer and heavier trains travel to the wharfs, which therefore carry more goods.

Ensuring an efficient and safe way of transporting goods by rail, the most environmentally friendly means of transport, is one of the priorities of PKP Linie Kolejowe S.A.



Handling of longer (740m) and heavier trainsets (load 221 kN per axle)



Transshipment of larger amounts of goods



Increased level of safety for the transported goods



Ecological transport of goods – reduction of CO₂ emissions into the atmosphere



Shorter time of train service



polferries

sea travel since 1976

Polish Baltic Shipping is a ferry shipowner with over 45 years experience. Their ferries under the Polferries brand connect Poland with Scandinavia.

Currently, the company operates five ferries: m/f Cracovia, m/f Mazovia, m/v Baltivia on Świnoujście - Ystad and Świnoujście - Copenhagen via Ystad lines and m/f Wawel, m/f Nova Star on Gdańsk - Nynäshamn line.

Polferries is not only a sea carrier, but also a tour operator. They offer trips to the most interesting places in Sweden, Denmark, Norway and Finland. The offer includes accommodation in hotels throughout Scandinavia.

Polferries Travel Agencies offer also business events (conferences, training, team building, etc.) on board. All ferries are equipped with appropriate conference and training facilities.

Polish Baltic Shipping actively support the development of marine education in Poland, proposing attractive "Blue School" program.

We cordially invite you to our ferries!



Polish Baltic Shipping Co.
41 Portowa Str., 78-100 Kołobrzeg, Poland
phone +48 94 35 52 102
email: info@polferries.pl, polferries.pl



POLISH OCEAN LINES INC.

Shipping activities

Polskie Linie Oceaniczne S.A. is a shipping company with over seventy years of tradition in sea transport around the globe. Currently, we operate our own ro-ro ships and run the management of a container ship.

The ro-ro ships POL MARIS and POL STELLA are employed on the shipping line connecting Turkish and Italian ports, while the container ship Port Gdynia sails between Spain and West Africa.

Commercial and Technical Management

Thanks to our experience in running Commercial and Technical Management on our own ships, we have also been providing such services to external shipowners for many years. We specialize mainly in the operation of dry cargo vessels; however, our team is also experienced in working with offshore vessels and tankers.

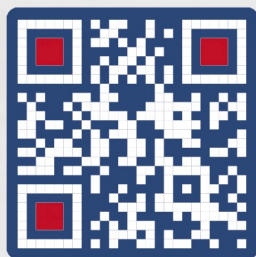
Shipchandling activities

Based on many years of experience in organizing ship supplies, PLO has a special division POL-Supply Shipchandler. This department serves shipowners in Polish ports and shipyards by providing provisions, and technical, hotel and other supplies. We can be proud of our regular cooperation with domestic and foreign entities.

POLISH OCEAN LINES INC.

Polish Ocean Lines Inc
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phone: +48 58 668 96 01
fax: +48 58 668 96 24



www.plo.com.pl



POLISH OCEAN LINES INC. is a shipping company with over **70 years** of experience in liner business. Currently, the company's activities are concentrated on maritime transport services.





1951

70 years

Polskie Ratownictwo Okrętowe sp. z o.o.

GENERAL INFORMATION

Polskie Ratownictwo Okrętowe sp. z o.o. (PRO) is company with all shares belonging to the Treasure of Polish State. PRO has got experience with ship-operating for more than 70 years tradition on towage, salvage, offshore and heavy lift markets.

The company provides shipping and crane services for the offshore industry, and in the particular offshore installations support service, ocean towage, salvage, anchor handling, seismic support, heavy lifting, transshipment and transport of heavy lifts.

The mission of the company is to operate the modern fleet, taking into account the highest safety level of life and health, natural environment, property and maintaining the highest level of quality in all activity areas.

The Company fulfils the requirements of international recognized organizations and classification societies like Polish Register of Ships and DNV GL. Documents of Compliance, Safety Management and **ISO 9001:2015** Certificates are established. PRO is the leading shipping company in Poland, operating modern, specialized fleet of AHTS vessels – Anchor Handling Tug Supply vessels and the one of largest on Baltic Sea floating crane 330 tons lifting capacity, self-propeller with fully revolving 360 degree arm.

For over **70 years**, we provide long-distance and oceangoing towing services for various objects on all worldwide directions. We performed already a lot of towages for new built vessels and hulls, dredgers, barges and pontoons, tankers, bulk carriers, ro-ro and ferries, all types vessels with engines or propulsion failures, cranes, floating pipes, etc. Variable objects.

For over 25 years we build our position on the international offshore markets, providing services for gas and oil platforms installations and terminals. Operating the modern fleet of medium size AHTS we are specialized in platforms positioning, transport of goods and personnel, anchor handling, project cargo barges transport and barge support, providing services for gas and oil terminals and tankers worldwide.

The floating crane MAJA provides services of transshipments up to **330 tons in all ports of the Baltic Sea**. We also offer crane rental for heavy cargo maritime transport on the deck between the ports of Baltic Sea. Ensuring the highest standards of quality and safety we are successfully working for major offshore, gas & oils and research companies. Our experience, knowledge and professionalism are confirmed by ISO and ISM certificates.

And last but not least ... The letters PRO, besides being abbreviation of company name, mean also PROfessionals.



www.progdynia.pl

Polskie Ratownictwo Okrętowe Sp. z o.o.

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e-mail: office@progdynia.pl



PORT OF GDAŃSK AUTHORITY SA IS ONE OF THE KEY POINTS ON THE LOGISTICAL MAP OF THE WORLD.



It plays a crucial role as a link in trans-European transport corridors connecting the Baltic with the Adriatic Sea and the North Sea. An unquestionable advantage of the property is its excellent accessibility, both from the water and the land. A bypass and motorway A1 are in close proximity to the port. The road-trail investments carried out in this area allow transporting cargo from any quay to motorways and express road networks in just a few minutes. However, Port of Gdańsk is also a significant market impact base, which covers approximately one hundred million consumers in the Czech Republic, Slovakia, western Ukraine and Belarus. It is a marine gate to one of the most dynamically developing regions of the European Union - Central-Eastern Europe.

The port area of about 700 ha is home to over one hundred companies with various business profiles, including over 20 contractors completing their handling in sea transport. These are primarily petrochemical, energy, agri-food and construction industries. The range served by the quays of Port of Gdańsk covers more than 70 different types of goods. The products handled here are i.a.: grains, aggregates, coal, sugar, citrus fruit, frozen fish, containerised loads, energy cargo, and cars. The dominating cargo groups are lumber, mostly containerised, which constitutes nearly 44% of total handlings, and liquid fuels (35.5%).

As a transport hub in the Baltic Sea basin, the Port of Gdańsk features a dense network of regular shipping connections. Currently, it operates 21 regular sea connections. Apart from Europe, the regular destinations of goods are the USA, Central and South America, and Asia. Considering the available ocean connections (alliances: 2M and Ocean Alliance), the Port of Gdańsk is the only Baltic port that supports direct container connections with China. The world's largest transoceanic vessels, requiring deep-water berths, arrive at the port. The port also serves feeder lines, connecting the Baltic and the North Sea ports.

Thanks to multimillion investments, the conditions of shipping have largely improved. The water lane in the inner port was dredged and widened, and therefore the availability of this part of the port for bigger ships has increased. Over 5 kilometres of quays were modernised. In 2021, the extension of the internal transportation system in the External Port was completed. It covered bringing rail and road traffic to deep water handling terminals. 7.2 km of roads, 10 km of new tracks and 16 turnouts were either built or rebuilt. 4 new flyovers were created, a new additional lane for the DCT container terminal appeared, new lanes for coal terminals and an advanced control command and signalling system. A buffer car park for lorries – the first in this part of the port – was also built.

Due to the fact that the investment projects of the Port of Gdańsk exhaust the land opportunities for special development of quay infrastructure along the coastline, the Port directs its plans towards the waters of the Bay of Gdańsk. One of the key investments in the area of Polish maritime economy, which would allow Gdańsk to become an intermodal transport interchange, being the hub in the region of the Baltic Sea and a distribution-logistic centre for Central and Eastern Europe, is creating land from the marital area located within the administrative boundaries of Port. DCT Gdansk will build the Baltic Hub 3. Thanks to the extension of the terminal with another quay, the handling capabilities of DCT will increase to 4.5 million TEU. The project will include the construction of a deep-water quay whose worth will amount to approximately 2 billion PLN, with a length of 717 metres, a depth of 18 metres and a storing place with an area of 36 ha. The Port of Gdańsk is also preparing to modernise other quays, with a total length of 1.9 km in the External Port.

The next few years will bring challenges connected with building the installation terminal for wind farms or offshore terminal FSRU (regasification LNG).



Modern handling terminals, efficient access infrastructure of the port and a wide shipping links network allow the Port of Gdańsk to strengthen its position in the Baltic year by year. According to a ranking of the largest Baltic ports, it ranks second in terms of total cargo handling. However, in terms of container traffic, it is an undisputed leader. The Port of Gdańsk has been the fastest growing port in Europe in the last decade, with a growth rate of 110%. In the ranking of European ports, it ranks 18th.

Such high positions are influenced by handlings. In this regard, 2021 was record-breaking. 53.2 million tons of goods were handled, which constitutes an increase of 11%. The record-breaking result was due to, among others, the handling of liquid fuels – 18.8 million tonnes with a growth rate of 37.9% (over 5 million tonnes more than in 2020). This is an absolute record for Naftoport – nearly 18 million tons. An increase of 10% was recorded by containers. Cargo handled at the DCT terminal reached 2.1 million TEUs. Grains recorded a 7.6% increase – grain handling reached nearly 1.6 million tonnes. There was a 5.5% increase in general cargo handling, including containerised cargo – total cargo handling of this cargo group reached 23.3 million tonnes.



Fot. Karol Przybyła / @karolgdansk.



PORT
GDAŃSK

COMES **2ND**
IN THE BALTIC SEA



TOTAL CARGO HANDLING Q1 2022

1. Ust Luga	26,100 mln t	(+2,3%)
2. Gdańsk	14,802 mln t	(+11,3%)
3. Primorsk	14,766 mln t	(+17%)
4. St. Petersburg	12,668 mln t	(-12%)



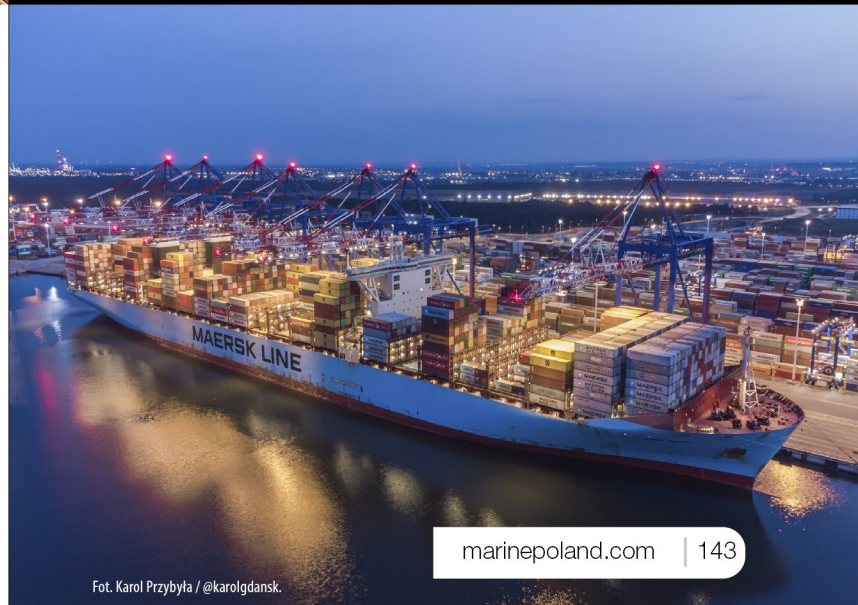
CONTAINERS Q1 2022

1. Gdańsk	561 396 TEU	(+9%)
2. St. Petersburg	437 858 TEU	(-12%)
3. Gdynia	237 712 TEU	(-0,7%)

The results for Q1 2022 are even better. The Port of Gdańsk Authority SA outran two Russian ports (Primorsk and St. Petersburg Port) and moved up to the second spot in the ranking of Baltic Sea ports in terms of cargo handled: It noted very good results in most handling groups. A total of 14.8 million tons of goods were handled by the port - which is an increase of 11.3% as compared to the same period of the previous year. Lumber still constitutes the most numerous handling group - about 6 million tons (which is a growth of 2%). Liquid fuels occupy second place. They noted an increase of 25.7%, reaching 5.7 million tons. Also, coal, with over 1.6 million tons, was handled with positive results. An increase was also noted in containers (+9%), passengers (+12.3%), Ro-Ro cargo (+19.6%). The record belongs to wood - handled over 3535% more than last year.



PORT
GDAŃSK



marinepoland.com | 143

Fot. Karol Przybyła / @karolgdansk.



Port of Gdynia Authority S.A.

The Port of Gdynia is a universal modern port and also one of the leaders in cargo handling in the Baltic Sea. It specializes in handling general cargo, mainly unitized cargo transported in containers and ro-ro system, based on a well-developed network of multimodal connections including those with its hinterland. Port of Gdynia also handles ferry connections.

The location of the facility, on the southern coast of the Baltic Sea, makes the Port of Gdynia a very important link on Corridor VI of the Trans-European Transport Network (TEN-T), which forms a trade route between Central Europe, Eastern Europe and Scandinavia. Regular shipping lines connect the Port of Gdynia with the largest European ports, such as Rotterdam, Antwerp, Hamburg and Bremerhaven.

The port has very modern handling and storage equipment, dedicated to various types of cargo. The total amount of cargo handled is about **26,7 million tonnes per year**.

Expansion of the Port of Gdynia is needed and possible thanks to its steady growth in transshipments and good forecasts for the coming years. The value of investments made and commenced in the last 3 years is over PLN 1 billion. The greatest goal is also the Outer Port.

The full potential of the port will be used after the construction of the Outer Port, which is a strategic investment of the Port of Gdynia. The project, as a priority task of the Port of Gdynia Authority S.A., has received the approval of the Government of the Republic of Poland and has been included in the governmental draft of the Polish seaport development program until 2020 (with an outlook until 2030). The Deepwater Outer Port will be built on the basis of the existing Silesian Quay - on artificial land extending beyond the current protective breakwater. Its construction has become a necessity in the face of growing market competition and forecasts of demand for container cargo

handling in Polish seaports, which will increase to about 9.5 million TEU in 2050. The Outer Port, as a pier being a flooded sea area, increases the port area by 151 ha and the handling capacity by 2.5 million TEU.

Handling of containerized cargo at the Port of Gdynia (985 919 TEU in 2021) is the domain of two modern container terminals, namely:

- Baltic Container Terminal Ltd. (owned by ICTSI),
- Hutchison Ports Gdynia S.A. (Hutchison Port Holdings Limited)

There are other terminals situated in the Port of Gdynia which are dedicated to bulk cargo, including:

- Baltic Grain Terminal Ltd.,
- HES Gdynia Bulk Terminal sp. Z o.o.
- OT Port Gdynia Terminal Ltd.,
- Baltic Bulk Terminal Ltd.,
- Koole Tankstorage Gdynia Ltd.,
- Onico Gas Terminal,
- Aalborg Portland Poland Ltd.,
- Speed Bulk Materials Terminal Ltd.



www.port.gdynia.pl

Port of Gdynia Authority S.A.

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e-mail: info@port.gdynia.pl





PORT SZCZECIN-ŚWINOUJŚCIE

THE PORT THAT'S READY FOR TOMORROW

Situated on the estuary of the Oder River, Szczecin-Świnoujście is one of the largest universal port complexes on the Baltic Sea.

Ports of Szczecin and Świnoujście are very important links in the integrated transport system. They are:

- parts of the TEN-T core network,
- components of the Baltic-Adriatic TEN-T Corridor,
- links to the CETC (Central European Transport Corridor) and the Scandinavian-Mediterranean Corridor, and
- connections to the large transport network in their hinterland.

The excellent location of Szczecin and Świnoujście seaports provides access to all modes of transport, including environmentally friendly ones, such as sea, inland waterway (E-30) and rail (CE-59, E-59). Motorways A11 and A20 connect the ports with the European system of motorways, and expressway S3 (E-65) provides access to the south of Poland, Czechia, Slovakia and the South of Europe.

In the southern part of the Świnoujście seaport, situated is a ferry terminal, a leader in providing ferry services to and from Scandinavia. Additionally, the port of Świnoujście operates a dry-bulk terminal handling such cargoes as grain, coal and ore, whereas the northern part of the port provides modern infrastructure for LNG vessels. The port of Szczecin handles both general cargo, including containers, steel products and project cargo, as well as dry and liquid bulk. The two ports offer loading and storage of food and

products. The total cargo handling in the two ports is about 32 million tons.

The Szczecin-Świnoujście Seaports Authority provides management of the ports. The Authority is a joint stock company owned by the State Treasury. While implementing its investment policy, the Ports Authority has been very successful in attracting EU funds. With respect to the utilization of the EU funding, it is the leader in the West Pomerania Province.

The ports have been implementing a comprehensive investment programme worth EUR 3 billion. All investment projects adhere to the highest possible industry standards with due respect to the natural environment. After its completion in 2050, the annual handling capacity is expected to triple.

The Szczecin and Świnoujście Seaports Authority has been encouraging investors to finance the building and operation of their own terminals, as well as to develop port industry. Parties interested may enjoy water and land access infrastructure, as well as technical facilities. The ports still have 140 ha of investment land to be developed by investors in the future. Investors may rely on the Seaports Authority (ZMPSiŚ SA) for close collaboration at all stages of project pre-work and implementation. The Authority offers land for long-term lease and other preferential terms and conditions. Our mission is to provide conditions conducive to the development of seaports in Szczecin and Świnoujście, the most universal port complex on the Southern Baltic Sea.

www.port.szczecin.pl

Zarząd Morskich Portów Szczecin i Świnoujście SA

70-603 Szczecin, ul. Bytomska 7, Poland

phone: +48 91 430 82 20

e-mail: info@port.szczecin.pl



PROJMORS

We design a new reality

PROJMORS is one of the oldest design offices in Poland. It holds its position by maintaining a **high standard of design services and a flexible approach to customer's needs**. PROJMORS is continuously developing and offering new opportunities as well as a wider and wider range of services at the highest level. We specialize in **hydrotechnical, industrial, public and military design**, and since 2018 we are delivering offshore wind projects.

Our office is a place where tradition meets modernity. The company consists of a team of designers with many years of experience as well as of young engineers, full of energy and desire for innovation. Our team makes us confident that **we can deliver demanding projects where we apply modern technologies as well as proven durable solutions**. We have embraced the Building Information Modeling (BIM) process in recent years. BIM is implemented at all phases of the facility's life cycle, from design and planning, through construction, to operation and maintenance.

Scope of services:



Investment programs, concepts, feasibility studies



Comprehensive project documentation with a set of permits



Comprehensive investment contractor services with supervision



Expertise, technical advice

Selected areas of activity and our locations





**WE
INVEST
IN THE
FUTURE**

PROJMORS

Biuro Projektów Budownictwa Morskiego Sp. z o.o.

Narwicka 2D,
80-557 Gdańsk, Poland

+48 58 520 33 03
projmors@projmors.pl
www.projmors.pl

PROJMORS is a part of:





The aim of the company "PROMAP" is to raise the profile of its products along with taking care of self-development.

The potential customers are given technical backup at their disposal and we are able to offer an optimal solution and fulfill our customers' needs.

All the products of our company meet all the definite requirements and standards in this area (such as ISO, MED) and also requirements of classification societies.

The company has many years experience and expertise in producing custom build ship windows for cruise liners, yachts, ferries also. Hence, we are prepared to be receptive to all innovations and technical new developments. We supply a large range of products as well as materials (mainly profiles) used in production.

”

PROMAP a limited liability company with its headquarters in Bydgoszcz, Ludwikowo 2a, Poland was founded in 1995 and is a member of van Wingerden Group, with trade name, wigo head office Vuren - Holland.

“



www.promap.eu

The principal business activity embraces:

1. Primarily, the production of all kinds of ship windows and portholes
2. Yacht windows and portholes
3. Some types are:
 - cabin windows with and without deadlight;
 - wheelhouse windows with different geometric shapes;
 - A60, A30 and A0 class windows without or with electroheating glass;

- windows with electro-heating glasses;
- windows with anti-reflective and bulletproof glasses;
- horizontal sliding windows;
- vertical sliding windows with balance spring/damper;
- all other ship window fitments according to customer's requirements and specifications;

This also applies to fixed sidelight portholes.

PROMAP Ltd.

Ludwikowo 2a, St., 85-502 Bydgoszcz, Poland

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fax: +48 52 376 47 26

e-mail: office@promap.eu





POLSKI REJESTR STATKÓW S.A.

PRS is an independent expert company providing surveys, certification and advisory services for companies from various industries all over the world.

Our services are divided into below areas:

Ship surveys that is:

- classification and statutory surveys of sea-going ships, including naval ships and special craft, inland waterways vessels, yachts and boats, and other vessels, as well as facilities related to the exploration and exploitation of the sea and water bodies,
- survey of the construction, modification and repair of the above mentioned objects,
- technical supervision over the production of materials and equipment of ships including Type Approval Certification,
- approval of manufacturing and repair plants, research stations, laboratories and measurement service suppliers,
- survey of containers under construction and in service, testing, inspection and approval of containers,
- development of ship stability and cargo software for specific ships,
- reporting, monitoring and verification of CO2 emission from ships,
- Verification of the Inventory of Hazardous Materials declaration
- ship tonnage measurement,
- certification for compliance with ISM and ISPS Code and the requirements of MLC 2006,
- type approval of products, so called EU RO Mutual Recognition,
- advice to ship-owners in emergency situations (e.g. Emergency Response Center),
- CAP survey, assessment and certification,
- approval of method 2 for determining the verified container weight,
- underwater surveys by PRS own diving team;

Industrial Surveys covering:

- technical supervision over cubature and hydro-technical construction as well as construction and operation of environmental protection objects,
- technical supervision over the construction and operation of pipelines, transportation systems for gas, oil and petroleum products, power, cooling equipment and industrial installations,
- technical supervision over the construction and operation of roads, bridges and related facilities,

- certification and supervision over the design, construction and operation of fixed offshore platforms, based on own regulations,
- certification of offshore wind power plants components,
- supervision over the design, construction and operation of offshore wind farms,
- certification and supervision over the design, construction and operation of energy systems based on renewable energy sources,
- reliability and risk assessments of industrial facilities,
- technical supervision over floating objects permanently moored;

Management System Certification as a certification body accredited by the Polish Centre for Accreditation for compliance with:

- ISO 9001 - quality management systems,
- ISO 14001 - environmental management systems,
- Polish Standard PN-N-18001 - occupational health and safety management systems,
- OHSAS 18001 - occupational health and safety management systems,
- ISO 45001 - health and safety management systems;
- ISO 50001 - energy management systems,
- ISO 22000 - food safety management systems,
- FSSC 22000 - food safety management systems,
- ISO/IEC 27001 - information security management systems,
- ISO 3834-2, ISO 3834-3, ISO 3834-4 - welding works,
- ISO 22301 - business continuity management systems;

EMAS verification - Eco-Management and Audit Scheme, including external audits of packaging recyclers and waste holders as well as electronic and electrical equipment recovery organizations and treatment plant operators;

Products Certification as a Notified Body assigned by the European Commission with no. 1463 for conformity with:

- Directive 2014/90/EU on marine equipment (MED),
- Directive 2013/53/EU on recreational craft (RCD),
- Regulation 2016/425 on personal protective equipment (PPER),
- Directive 2014/68/EU on pressure equipment (PED),
- Directive 2014/29/EU on simple pressure vessels (SPVD),
- Directive 2014/30/EU on electromagnetic compatibility (EMC),
- Regulation 305/2011 for construction products in scope of certification of factory production control (CPR);

Verification of annual reports on greenhouse gas emission as an accredited and registered verifier of reports in the European Emissions Trading System (EU ETS);

Persons Certification, i.e. certification of welders for metal aluminium and other metals and accredited certification of staff authorized to make permanent connections in scope of PED;

Tests of ship structures flammability, like bulkheads, windows, doors (according to the scope of accreditation AB 1431) in PRS Testing Laboratory and testing of life-saving appliances and personal flotation devices as well as environmental, low-voltage, material strength and accelerated aging tests;

Engineering Related Consultancy (technical appraisal and consulting, technical and financial analysis);

R&D (participation in projects);

Training courses and seminars.

www.prs.pl



CLASSIFICATION & SURVEYS



INDUSTRIAL SUPERVISION



CERTIFICATION



KNOWLEDGE SHARING



R&D



Training courses and seminars



PRs - Head office

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phone: +48 58 346 17 00; +48 58 751 11 00;

e-mail: mailbox@prs.pl



POLSTEAM (POLSKA ŻEGLUGA MORSKA)

Polsteam (Polska Żegluga Morska), based in Szczecin, is the largest Polish shipowner and one of the largest in Europe. The main sector of the company's activity is the transport of bulk cargoes in irregular shipping on a global scale. Polsteam transports approx. 16 million tons of cargo annually. Through its company Unity Line, the company also provides ferry services on lines between Świnoujście and Ystad and Trelleborg.

Polsteam is a state-owned company. At the same time, it creates a group of subsidiaries. The domestic companies of the Polsteam Group are dominated by joint-ventures related to sea transport. The most important of them are: Żegluga Polska S.A, Polsteam Frachtowanie, Polsteam Shipping Agency and Unity Line. The Polsteam Group also includes the Pazim company, which manages the most attractive office and hotel complex in Szczecin.

Polsteam owns and operates 57 ships with a total capacity of 2.2 million DWT, including 53 bulk carriers and four ferries, managed by its own ferry company Unity Line. As for the size of bulk carriers, 8 vessels are classified as panamax (80,000-82,000 DWT), while the remaining 45 vessels are handysize (17,000-39,000 DWT). Some of them are called laker (or salties), i.e. oceangoing ships adapted to navigation on the American Great Lakes.

The shipowner employs approximately 2,200 seafarers and approximately 200 employees onshore. When it comes to the domestic maritime economy, Polsteam is the largest shipowner, and Polsteam fleet accounts for about three-quarters of all ships owned by Polish shipping companies.

The Polsteam's structure of transported goods is dominated by grain (approx. 50% of the total transport volume), requiring ships of the highest standard. These standards are confirmed by the Port State Control and U.S. Coast Guard, inspection services that carry out inspections in European and American ports. In the statistics of these institutions, Polsteam vessels have control results much better as the world average.

In the category of bulk carriers, Polsteam fleet is relatively young with approx. 8 years average ship's age. Nevertheless, the ships are constantly modernized and adapted to new international regulations coming into force. At present, the shipowner is installing ballast water treatment systems on all his ships, in accordance with the requirements of the IMO BWM Convention.

The most important market for the operation of Polsteam ships is the Atlantic market and transport between North and

South Americas and Europe, North Africa and the Middle East. The market of the American Great Lakes is also very important for Polsteam, where the shipowner operates his laker-type ships. In terms of the size of this niche fleet, the Szczecin-based shipowner ranks second in the world.

At present, Polsteam has a stable financial situation and proportionally low debt in relation to the value of its assets. Therefore, the shipowner intends to start implementing another investment program in the near future. In its first stage, the priority will be the purchase of laker-type bulk carriers, due to the large and constant demand for this type of vessel. In the second stage, the shipowner plans to purchase a modern, ecological ferry tonnage for his company Unity Line.

Polsteam commercial offer:

- World-wide bulk cargo trampings.
- Ferry service in the Baltic Sea.
- Commercial, operational and technical fleet management.
- Charter and brokerage.
- Agent service in Polish ports.
- Comprehensive technical fleet management.
- Casco insurance consulting.
- Manning with highly qualified maritime staff.
- Advice giving and intermediary service while negotiating employment terms and conditions for seafarers, including ITF standards.

FLEET:

Polsteam operates 57 vessels with a total tonnage of 2.2 million DWT. The fleet can be divided into panamaxes and a large group of handy-size vessels. Apart from bulkers Polsteam operates 4 ferries: m/f Polonia, m/f Gryf, m/f Wolin, m/f Skania managed by Unity Line.

With modern and relatively low aged tonnage Polsteam is a very competitive partner in the international shipping market.

www.polsteam.com.pl

Polska Żegluga Morska

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Transforming our hydrogen
expertise into your net-zero solutions.

Make it sure, make it simple.



With 160 years of experience in the marine industry, RINA is a multinational company that helps build strong successful businesses. Through a network of 200 offices in 70 countries, we provide classification and technical advisory services to meet the challenges of designing and building ships ever more demanding in performance, safety and environmental sustainability.

We have been operating in the maritime sector since 1861. Today, technical competence, attention to quality and focus on innovation are the pillars that allow us to support shipping in the digital transformation path and in achieving CO2 emissions reduction objectives established by IMO.

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RINA Marine Poland survey station Szczecin

RINA Survey Station
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RINA Poland Plan Approval

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RINA Certification Poland Office Katowice

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T. +48 32 2058968

rina.org

*With great satisfaction we would like to inform you that, on 1st January 2021 **SAFE Co. Ltd Sp. z o. o. and Alkor Sp. z o.o.** have been combined into a single business entity.*

The company is located close to the center of Gdansk city and has convenient sea, land and air connections. It makes possible the effective organization of the deliveries in the domestic relations as well as the foreign relations and also enables quick personal contacts, necessary in business relations.

Depending on the client's requirements, our products may be manufactured according to the rules and with approvals of the all major control institutions and Classification Societies.

Shipbuilding / Steel Construction Department and Ship Repair:

- Building of the vessels or another floating units with length up to 90 meters
- Building sections and blocks of the vessels' hulls.
- Building of the hull outfitting including aluminum super-structures and wheelhouses.
- Building of the rudder blades, Kort nozzles, machining of the propulsion lines.
- Building of the steel constructions for offshore industry and constructions of bridges or viaducts
- Transport and loading of the heavy and large-sized cargos or construction up to 330 tons with the floating crane, larger - with the operation of pushing to transport pontoon.

- Floating docks with the following parameters: length -155 m, inner width – 24m, lifting capacity – 6000Tons.

Anticorrosive Department:

- Performing anticorrosive works according to NORSOK
- M-501 standard.
- Performing fireproofing protection: Chartek, Interchar, Jotachar, Firetex certified.
- Performing floor systems eg. Hummervoll.
- Performing works according to IMO MSC resolution.
- Performing protection of waste gas desulfurization installations
- Performing thermally sprayed aluminum and zinc
- Well experienced management, foreman and quality control with FROSIO level III certificates.

www.safe.gdynia.pl

SAFE Co. Ltd Sp. z o.o.

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 **safe** Co. Ltd Sp. z o.o.
ENGINEERING SERVICES



SEALAB

Sealab Sp. z o.o.

Sealab Sp. z o. o. with headquarters in Gdańsk exists since 1990. We deal with the assembly, design and servicing of automation systems in shipbuilding and civil engineering.

We work closely with companies such as :

- Autronica Fire & Security
- Raft suppression
- European Safety Systems E2S
- Kidde

FIRE and GAS monitoring systems are highest quality Autronica products . We design, build and implement our systems using such technologies as: Integrated Fire and Gas detection - AutoSafe IFG is the leading interactive-addressable system for integrated fire and gas detection, developed in close collaboration with the petrochemical, oil and gas industry. Omicron Gas Alarm System - OGS 2.1 is a micro controller based gas alarm system, built for detection of potential toxic or explosive gases in pump room or other locations. The most common gases to detect are hydrocarbon gases in LEL concentration, oxygen, and hydrogen-sulphide. Omicron Gas Sampling System - OGS 3.1 is the latest revision of the 3rd generation, fully computerised sampling system for gas detection developed by the company.

Dry Chemical Powder produced by Raft is a fire extinguishing system especially designed for LNG bunkering stations. The system is able to break the chemical reactions during the combustion process.

Deluge Fire Suppression System is a system employing open nozzles attached to a piping system connected to a water supply through a valve that is opened by manual operation. When this valve is opened, water flows into the piping system and discharges from all nozzles attached thereto.

3M Novec 1230 - Novec™ 1230 Produced by Kidde instantly vaporizes upon discharge, totally flooding protected spaces and absorbing heat better than water. The Novec™ 1230 system suppresses a fire before it can start by detecting it at invisible levels. And once the danger has passed, Novec™ 1230 quickly evaporates without harming any valuable assets.

Ex sounders and beacons. E2S offers intrinsically safe, explosion and flameproof and non-sparking alarm horn sounders, PA/GA and mass notification systems and manual call points for use in both gas and dust atmospheres.



www.sealab.pl

Sealab Sp. z o. o.

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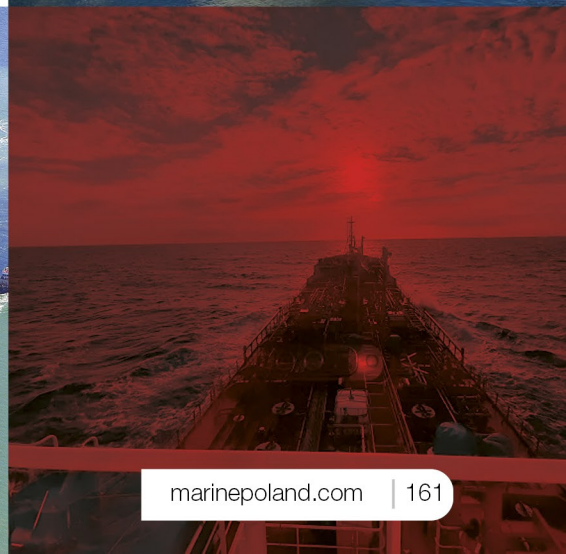
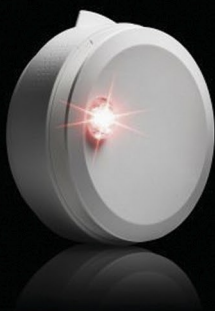
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SEALAB





SIARK-PORT Sp. z o.o.

Effective in cargo handling.

Siark-Port operates on the berth with a length of 360 m and draft of 10.60 m and provides storage services on 65 000 sq m of storage yards.

We are open to cooperation with importers or exporters planning to ship bulk by sea, other companies dealing with similar activities and with logistics companies interested in our services. We provide a cooperative partnership in cargo handling within the supply chain.

THE SCOPE OF THE SERVICES OFFERED:

transshipment • handling of liquid and dry bulk cargo • handling of package freight, heavy cargo, oversize cargo • load securing on the ship • packing
dry bulk materials in big bags directly next to the vessel • container
stuffing and stripping • storage of dry and unit-load
goods • load manipulating, sorting • mooring • railway wagons loading and unloading

www.siark-port.pl

Siark-Port Sp. z o. o. Przedsiębiorstwo Przeładunkowo-Uługowe
80-561 Gdańsk, Pokładowa 7, Poland

Phone: (58)-343-70-77

e-mail: biuro@siark-port.pl





THE YEAR 2021 IN NUMBERS:

1.5 million of tons handled • 175 ships • 42 thousand trucks handled
30 employees • 30 years on the market

We believe that effective cargo handling is shaped by a combination of timing, skilled employees and application of appropriate technical and operational solutions. As a company, we put emphasis on the training and compliance with safety rules by our staff. We highly value feedback from our customers, as it helps us to improve our service, both technology and quality wise.





The Stocznia Szczecińska “Wulkan” is a leading shipbuilding contractor and service provider and a partner in implementing offshore projects in the Region of Western Pomerania.

Scope of business

As a company, we commenced our business in 2014. We employ some key staff and personnel, who have been active in the shipbuilding and offshore industries for years now.

In terms of organisation, we have been incessantly improving our processes in the area of project management and, as part of our production, we cooperate with subcontractors in the construction of finished ships and large-scale steel structures in the marine power engineering segment.

The Stocznia Szczecińska “Wulkan” has been cooperating with several tens of companies, which employ nearly 1,800 staff and personnel, and which make use of the Shipyard's technological infrastructure. Those are primarily companies from the shipbuilding sector associated with shipbuilding and offshore industries. The Shipyard's infrastructure makes it possible to implement a full technological process of building ships and other large-scale structures, including those for the offshore sector. Thanks to a partnership-like and economically efficient operating formula, it is possible to meet the most serious challenges in those production areas. We are able to process up to several tens of thousands tons of steel per annum.

The proper implementation of the production process at the Stocznia Szczecińska “Wulkan” is guaranteed by a continuous improvement of the implemented integrated Quality and Health & Safety Management System that is based on the standards:

ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, EN 1090-1+A1:2012, EN ISO 3834-1:2007 and AQAP 2110:2016.

Infrastructure

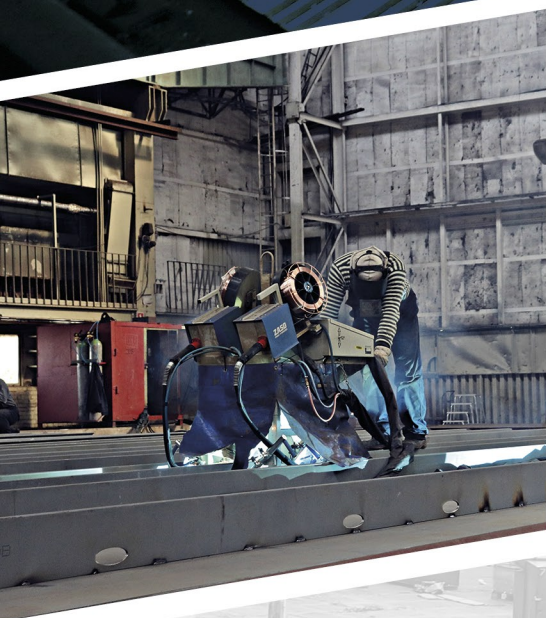
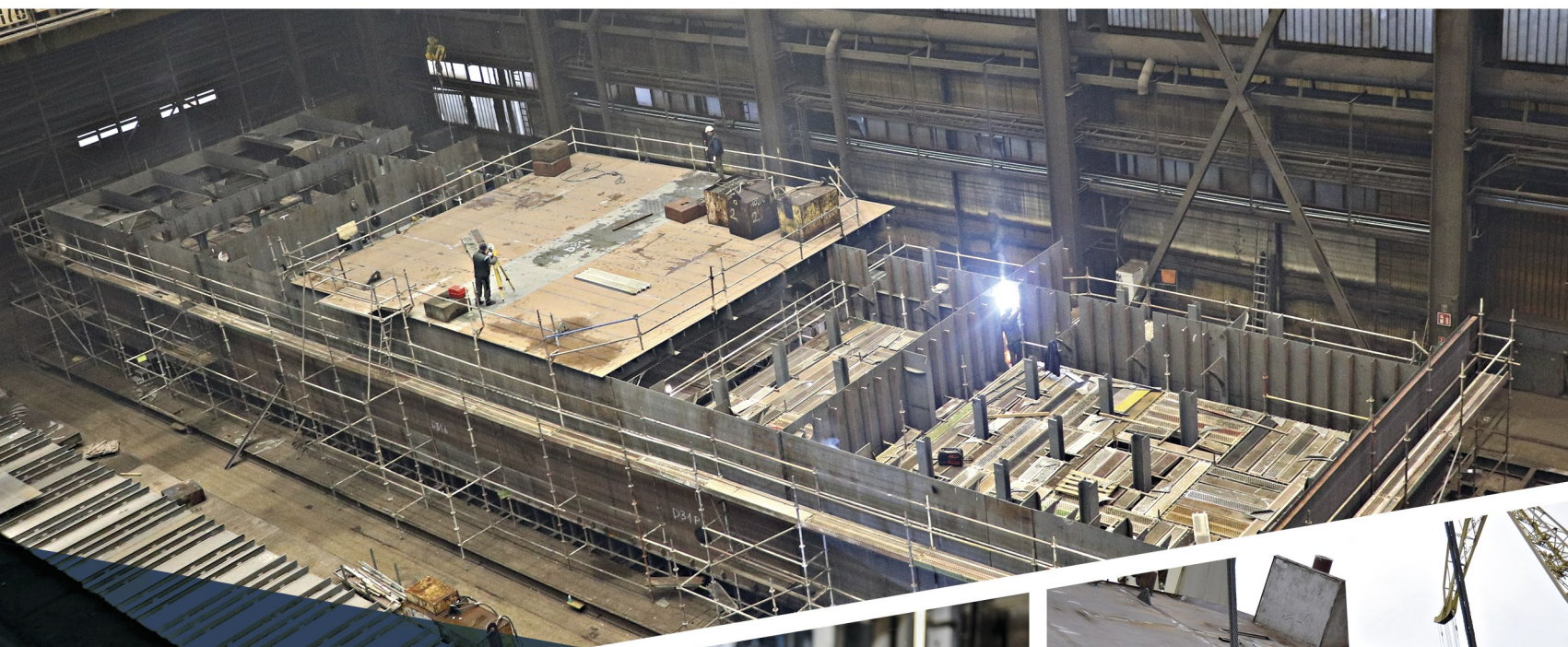
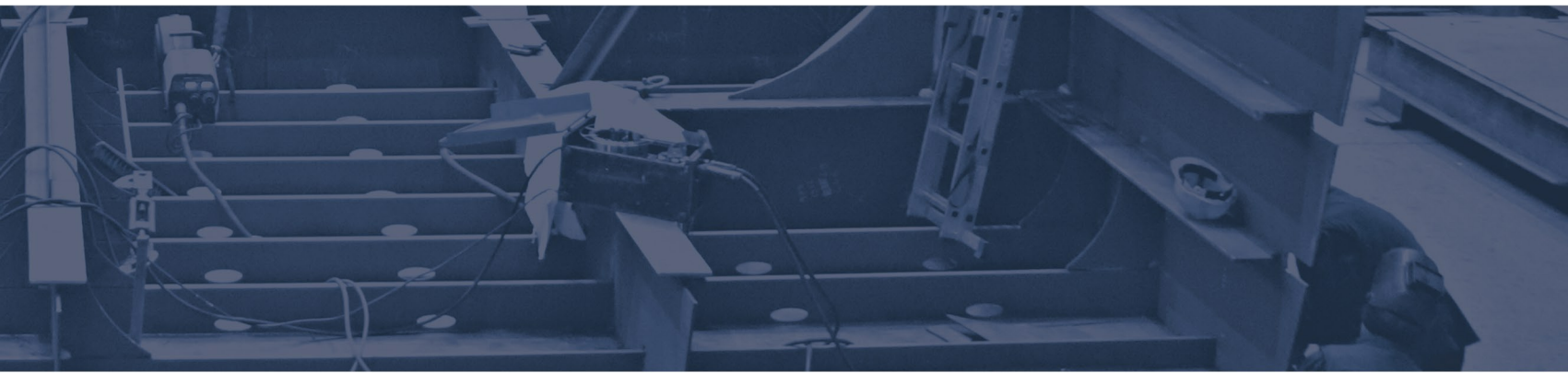
The Szczecińska Stocznia “Wulkan” is a company, whose technical infrastructure enables the pursuance of production in a stream-and-slot technological chain system, dedicated to the ship-building and offshore production. As part of the possessed technological process lines, we carry out work ensuring the highest quality in the fields of:

- Surface protection and pre-treatment of metallurgical materials,
- Prefabrication of all large-scale steel structures, sections and blocks of ships,
- Cleaning and corrosion protection of steel structures,
- Launching of ships - we have slipway centres (three slipways and yards with cranes at the slipways).

We have got wheeled platforms with a lifting capacity of up to 414 tonnes and some appropriate gear for vertical transport, prefabrication and equipment shops and quays with a total length of 610 m.

We use state-of-the-art, fully automated machinery and we have been constantly developing the technologies applied. Our welding technologies have been approved by classification societies associated with the I.A.C.S.

We make up a modern, innovative, responsible and partner-oriented company. These values are the foundation of our continuous development.



www.stoczniawulkan.pl

Stocznia Szczecińska „Wulkan” sp. z o.o.

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e-mail: sekretariat@stoczniawulkan.pl



Super B – Proud Dutch manufacturer of high-quality **lithium batteries** since 2007

Conquering the marine market with safe, reliable, and robust energy solutions.

Netherlands-based Super B has been manufacturing high-quality lithium batteries since 2007 and it has extensive experience in the Marine, RV, and Powersports market. It was one of the first companies to bring lithium batteries to markets that include tough environments.

Super B's portfolio also extends to battery packs for the marine sector – high-energy solutions for house load applications or electric propulsion systems. Part of the company's global success can be attributed to the Netherlands' government which is very supportive of the 'go electrical' movement. In 2016 Super B converted the tourist boats in Amsterdam from diesel to electric propulsion – by 2025 all boats in Amsterdam must be electric if they want to enter the city's central channels.

This enforcement has supported technological innovation. The boat operators save on maintenance costs and diesel expenses. Compared to lead-acid alternatives, lithium batteries require far less space – and space and weight saving translates into better passenger capacity. While most lithium batteries are manufactured in low-cost countries, quality is often compromised. The internal construction and cell quality of a Super B battery make for a robust product – the company states a lifetime of 3,500 cycles at 100% depth of discharge. So even if you completely discharge the battery every day, it will last for at least 10 years. Many competitive products would have difficulty replicating this performance.

There are also reports about lithium batteries being dangerous and catching fire. This might be true for Lithium Nickel Magnesium Cobalt (NMC) batteries which have been known to ignite at temperatures of around 150 degrees Celsius – and once ignited the process is unstoppable. Cobalt isn't used in Super B's Lithium Iron Phosphate batteries (LFP). Because of the different cell chemistry, these batteries cannot catch fire. They are even safer than lead-acid batteries which give off an explosive hydrogen gas if not maintained properly.

But in themselves, Lithium Iron Phosphate cells don't necessarily guarantee good batteries. Super B has a patented technique to weld the cells together to create minimal resistance. The advantages include efficiency, a high discharge rate, and very little heat generation. Each Super B battery has an integrated Battery Management System (BMS). Any battery is only as good as its weakest cell – the BMS keeps all cells the same.

In addition to balancing, the BMS controls the temperature, voltage, current, and state of charge. If it detects a fault it shuts down the battery to avoid damaging it. The Amsterdam boats have a 158kWh capacity at 144 volts. They can motor for three days on one charge. But the modular design of lithium batteries also makes them suitable for smaller systems, starting at 12V.

For house load applications in boats, the company's extensive track record includes well-known production yacht builders such as Beneteau. Using lithium for house load allows boats to use electric appliances such as kettles, hairdryers, or air-conditioning units even when the engine isn't running.



+31 (0)88 007 6000



www.SUPER-B.com

Manufacturer of Steel Structures for Offshore, Maritime, Heavy Lifting and Port Industry.

TELEYARD is a subsidiary of **TELEMOND HOLDING** and manufactures welded steel structures and components for the offshore sector and container handling systems, as well as special projects with over-sized dimensions and weight.

TELEYARD specializes in the processing of high-strength fine-grained structural steels. **TELEYARD** operates in a newly built production facility in Szczecin (Skolwin).

The modern facilities offer the following possibilities for the manufacturing of welded steel structures and components:

- Capability to lift parts more than 100t unit weight
- Direct access to waterways (own docks in planning)
- High quality standards and quality control
- Quality monitoring by 3rd party classification societies
- Experienced in purchasing and manufacturing of steel with offshore requirements and standards
- Project orientated capacities for welding and assembly of steel components
- Qualified and experienced staff working under modern and safe conditions (HSE)
- Temperature-controlled production facilities for processing extra and ultra high-strength steels

PRODUCTION AND KNOW-HOW

BLASTING - Steel plates and pipes as well as components can be blasted before welding and as preparation for painting.

CUTTING - All common cutting techniques for plates, pipes, and profiles can be performed in-house.

BENDING - Bending options for steel sheets and heavy plates. Combination of in-house production and outsourcing.

WELDING - Specialized in processing of high-strength fine-grain structural steels. More than 200 modern welding stations from Merkle, Fronius, Cloos and Lincoln. The stations will be connected in the future via a network to carry out and control the welding processes even more closely.

MACHINING - From small to large mechanics all components up to 40 tons total weight can be machined stationary. In addition, mobile machining is possible.

PAINTING - All painting of small parts as well as large welded assemblies up to 20 m length are performed in professional, enclosed spray cabins (dry, wet paint).

ASSEMBLING - Entire value chain through to final assembly can be offered. Parts are commissioned fit for transport or final assembly on site if necessary. Hydraulical and electrical assembly is also possible.

QUALITY CONTROL

- Certified for Non-Destructive Testing (VT, UT, MT, X), 100% Traceability,
- ISO 9001:2008, ISO 18.800-7,
- EN 1090-1&-2, DIN EN ISO 3834-2,
- DNVGL-CP-0352,
- Achilles JQS,
- HSE: ISO 14001:2004, PN-N-18001:2004, ISO 18001:2004

TELEYARD Sp. z o.o.

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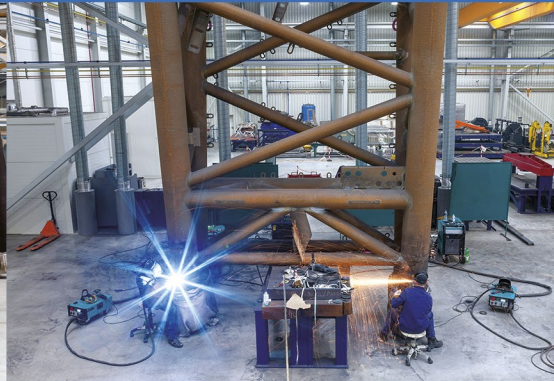
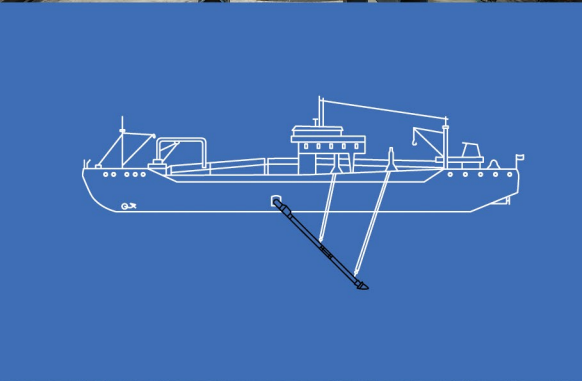
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www.telemond-holding.com



TELEYARD
we produce the future
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VASCO is an international ship repair company, built on the power, knowledge and the experience of group of companies joining the forces to work on small, medium-size and large projects.

Our workshop is located in Gdynia, Poland, which is a primary location where we provide our services. However following needs of our customers we are always ready to attend the projects worldwide.

VASCO is committed to providing high quality services that meet or exceed customer expectations. The focus on quality and safety begins at the earliest stage of the project preparation and carries through to the completion. Individual ownership is the basis of the VASCO quality system.

Our customers keep returning to us because we listen and act to their needs. For us providing the complete service is of utmost importance and our professional technical personnel provides customers with the complex technical support.

Our staff is experienced in various fields linked to marine industry, starting from ships design through shipbuilding and repairs ending in shipmanagement. Such range of experience gives us ability to better understand needs of Customers and provide the tailor-made, complete services.

Following the needs of the market VASCO provides Engine Maintenance Agreement (EMA). Signing such agreement we take responsibility for keeping the maintenance program for engines in line with Makers recommendations and Classification Society requirements. Above-mentioned can be extended to maintenance of auxiliary equipment and spare parts delivery.

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