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Marine Momentum – Cruise ships are
still the hottest thing in the industry

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THE BIG BANG THEORY

Finnish Marine Cluster is back with a bang. In 2017, the industry reached a turnover of EUR 13.6 billion, showing an increase of 3.6 % to the previous year. The figures are robust in comparison to the "Death Valley" of 2007 and 2009–2010, when the turnover was EUR 10.5 billion. During this decade, however, 2,000+ companies of the marine cluster have really stepped up their game.

There's no big secret behind the comeback. As the Turku shipyard was acquired by the German Meyer family, a new age of development began at the shipyard. Meyer Turku has made a name for itself as an innovation leader in the high-end shipbuilding, with all the top cruise brands flocking to place their orders. Serving in the role of the "master coordinator", the shipyard relies in its trusted network to deliver the goods.

Another comeback has been witnessed at the Rauma shipyard where Rauma Marine Constructions (RMC) secured its biggest order to date in March 2019.

Rauma Marine Constructions is building a new shuttle ferry for AS Tallink Grupp to service the Helsinki–Tallinn route. The design of the vessel will begin this spring, with the expected delivery of the vessel in early 2022. The price tag for the ferry is around EUR 250 million and the project will provide over 1,500 man-years of employment for the shipyard.

According to RMC, the vessel will utilise the newest technology and innovative solutions, with the aim of building the most environmentally-friendly and energy-efficient vessel possible. This includes machines that will run on a dual fuel and option for a battery solution, with the main source of fuel being low-emission liquefied natural gas (LNG).

The transition towards LNG is one example of the "green wave" sweeping the industry. In fact, major Finnish maritime players – such as Meyer Turku, ABB and Wärtsilä – have joined the Finnish Marine Industries' ResponSea initiative in order to create a more sustainable maritime sector.

The ResponSea initiative focuses on reducing the environmental impact of shipping and shipbuilding, boosting continuous development of the industry's companies as fair employers, monitoring the sustainability of the delivery chain and enhancing circular economy and lifecycle efficiency in all actions.

Finnish marine industry already has a pretty good track record with regards to these issues – but this doesn't mean that there's no room left for improvement. "Sustainability of the seas" needs her champions.

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Consulting group Elomatic has developed a concept design for the NYK Super Eco Ship 2050. The aim was to create a concept for an emission-free car and truck carrier concept, in cooperation with NYK of Japan. The concept ship incorporates various futuristic but feasible modern technologies.

40 Seaside Industry Park Rauma suits the needs of the maritime cluster

The Port of Rauma is one of the largest and busiest in Finland. Since 2014, Seaside Industry Park Rauma has provided a good operational environment for many types of maritime companies having extensive know-how of shipbuilding and related fields of work. Cooperation has also helped Rauma's new shipyard.

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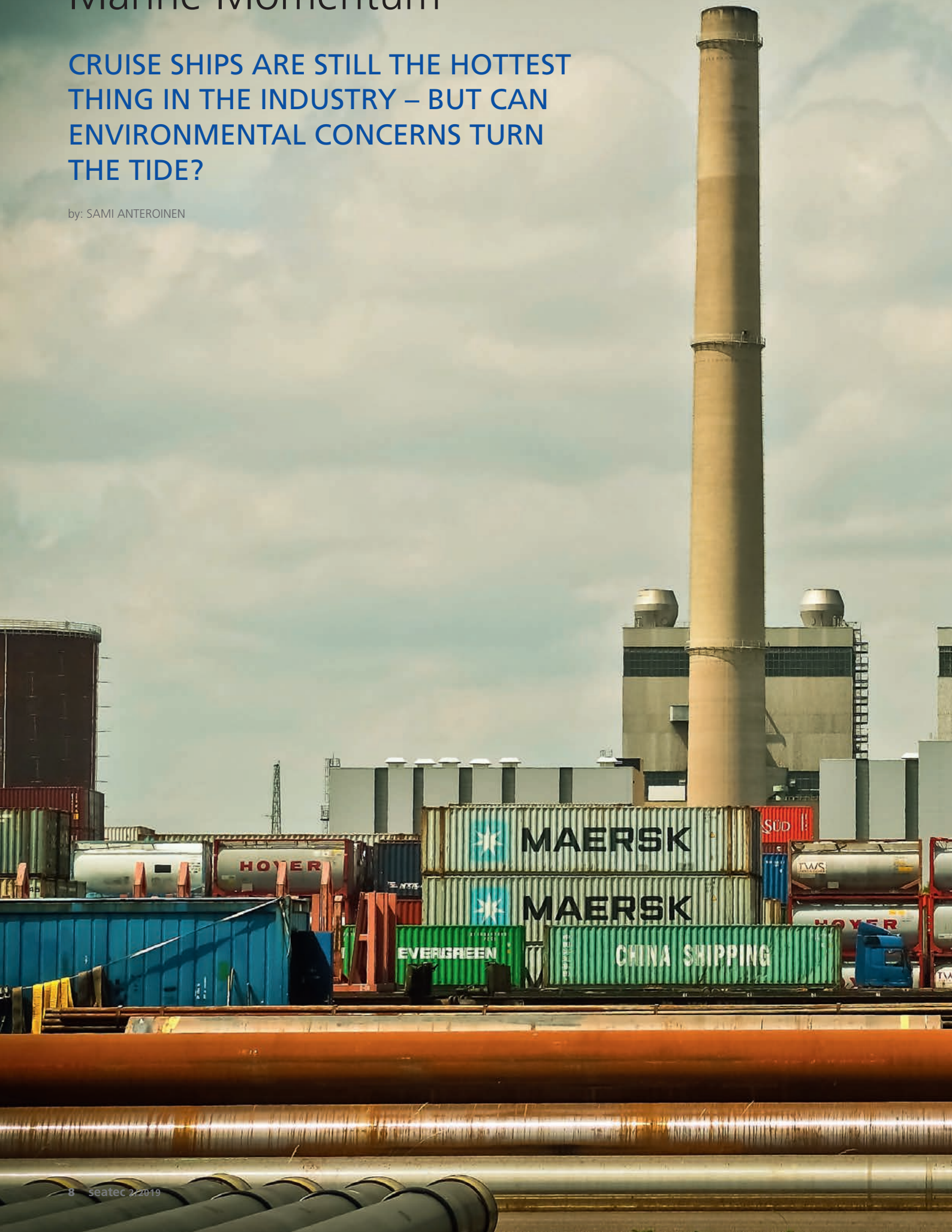
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Marine Momentum

CRUISE SHIPS ARE STILL THE HOTTEST
THING IN THE INDUSTRY – BUT CAN
ENVIRONMENTAL CONCERNS TURN
THE TIDE?

by: SAMI ANTEROINEN





As order books keep filling up with cruise ships, there seems to be mostly smooth sailing ahead for both shipyards and cruise lines. However, as the cruise business is subject to the whims of the consumer, winds can also change quite quickly. One dark cloud on the horizon is Climate Change: if cruise-going would become unfavorably viewed in the eyes of certain opinion-leaders in the USA, for example, this could impact the entire industry considerably.

Obviously, the global cruise lines industry is moving to counter this. For instance, Cruise Lines International Association (CLIA) has been very vocal in highlighting the new green attitudes of the sector. CLIA Chair Adam Goldstein has

commented that the cruise lines need to play a "leadership role" in sustainable tourism.

For example, CLIA cruise lines are already leading the shipping sector in making a first-ever industry-wide emis-

sions commitment at the end of 2018, to advance sustainability on the seas and to reduce the rate of carbon emissions across the industry fleet by 40 % by 2030.

CLIA cruise lines are also taking a role in stewardship for the cruise sec-

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tor's sustainability work, such as onboard wastewater and sulphur treatment plants, as well as pioneering hull coatings, hull design and air lubrication systems. Plus, due to advanced waste management and recycling systems, there is zero waste-to-landfill from some of the biggest cruise ships in the world.

25 LNG CRUISERS BY 2030?

Furthermore, up to 25 liquid natural gas (LNG) powered ships are scheduled to be in operation by 2030. Over 70 % of the cruise fleet – 152 ships – are already "dual fuel" ships, meaning that they are able to use alternative fuels such as methanol and biodiesel as well as traditional fossil fuels.

// Cruise lines want environmentally-minded ships where energy consumption is brought down.

In addition, ships representing over 92 % of the total berth capacity use low-friction hull coatings to reduce emissions

by increasing efficiency and reducing fuel consumption. According to CLIA stats, 13 ships have air lubrication systems installed



// The cruise market is an interesting one, because we don't know how much more it can grow.

that reduce friction between a ship's hull and seawater.

AS CLIA listed Cruise Trends for 2019, it acknowledged that travelers want to see the world in a conscious, mindful way. According to the trend report, the cruise industry "is more conscientious than ever," working diligently to minimise environmental footprints.

GREEN WAVE EMERGING

Tapio Karvonen, Senior Researcher, University of Turku, Centre for Maritime Studies, believes that the future of the cruise industry is largely tied to the question of perception: will cruises be viewed as "green enough" to convince the eco-conscious consumer planning his/her holiday? – After all, taking a big, big boat on a spin at sea is certainly not an emissions-free activity, but then again, neither is flying to an exotic destination.

"Cruise lines want environmentally-minded ships where energy consumption is brought down. It's up to the shipyards to deliver," Karvonen notes.

So far, the business shows no signs of waning down. According to CLIA's

data, cruising continues at a paced growth around the world with an almost 7 % increase from 2017 to 2018, totaling 28.5 million passengers. Research also shows North American travelers continue to embrace cruising with an annual passenger increase of 9 % (14.2 million passengers) in 2018. Europe and Asia Pacific are following suite, with 7.17 and 5.7 million passengers, respectively.

While the cruise sector represents 2 % of the overall global travel industry, this segment is on pace with international tourism worldwide. According to the latest UNWTO World Tourism Barometer, international tourist arrivals grew 6 % in 2018 (totaling 1.4 billion) while cruise travel grew at almost 7 % during the same timing. In addition, more than eight out of ten CLIA-certified travel agents stated that they are expecting an increase in sales in 2019 over last year.

LOOK BEYOND THE HORIZON

Tapio Karvonen points out that shipyards have filled out their order books during the present positive stretch. "Meyer Turku has ship orders until 2024 and the Italian

Fincantieri, another maker of luxury cruise ships, until 2027," Karvonen says, adding that around 100 cruise ships have been ordered from shipyards, globally speaking.

"The cruise market is an interesting one, because we don't know how much more it can grow. We do know that there is more variety now with cruises taking place in Caribbean, Europe and Asia," he says.

According to Karvonen, innovation-driven shipmakers such as Meyer Turku will continue to thrive, because the cruise-goer is always looking for the next big thing – and the Turku shipyard can deliver with the best of them.

"Every cruise ship needs that 'wow' element. More and more, the most important destination on the whole cruise is the ship itself."

GOING DIGITAL

But what kind of new innovations could be in the cards for the cruise ships? According to CLIA, the industry needs to recognise that travelers use tech in daily lives and are expecting smart tech when vacationing as well. As a response, cruise lines have adopted technology for cruise travelers – including keychains, necklaces, bracelets, apps and more – in order to provide a highly personalised travel experience while on and off the ship.

CLIA Trends 2019 report also points out to a "changing of the guard", of sorts: the up-coming Generation Z is set to become the largest consumer generation by the year 2020 – outpacing even Millennials. This generation (much like the one before) prefers experiences over material items and is keen to travel. The appeal of multiple destinations and unique experiences, such as music festivals at sea, is likely to attract this new category of cruisers.

"The fascination with extraordinary experiences onboard is not going anywhere – in fact, it's getting stronger," says Karvonen. ■

Averfin Delivers Hi-Tech Hydraulics for Maritime

by: SAMI ANTEROINEN

photos: VICTORIA MÄKIPÄÄ

Finnish marine is really firing on all cylinders right now. Averfin is one of the high-expertise companies in the national maritime cluster, making e.g. demanding hydraulics systems for the heavy-hitters of the industry.

Presently, the maritime sector brings in 70 % of the company's turnover, says Managing Director Jaana Hyttinen – adding that marine operations are still looking to improve on that figure, too.

“Maritime as a sector is very appealing to us, and we have been fortunate enough to be involved in many memorable projects together with our customers. This way, we’ve also learned a lot,” she says.

Hyttinen also believes that the outlook of the industry is quite positive, even though the sector is still subject to various economic fluctuations. “The quality of the Finnish craftsmanship and the ability to deliver under pressure is what has

kept the maritime above the surface during the leaner years,” she says. Nowadays, also other factors have emerged:

“Customers are keen on issues such as responsibility, environmental consciousness and energy efficiency.”

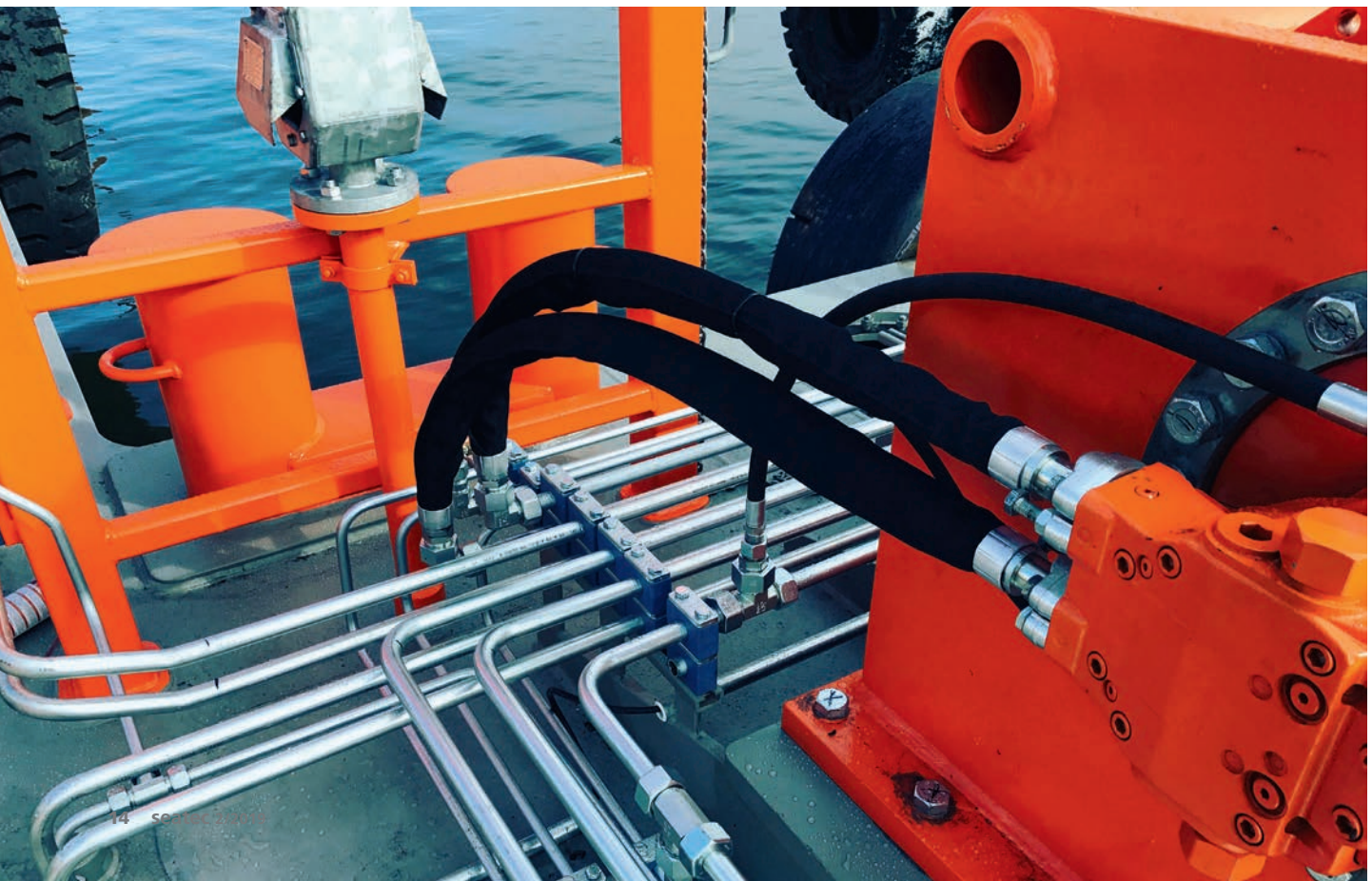
FACING THE SEA

Founded in 1998, Averfin Oy began its operations as primarily a machinery maintenance provider. The transition towards maritime eventually started through cooperation with Wasa Dredging. Averfin offered a helping hand in the maintenance of Hitachi dredgers on one of the company's ferries.

After that “marine kick-off”, the services became more focused on designing and building new systems for the industry. According to Hyttinen, Averfin has been really focusing on maritime for the past five years.

Designing and installing hydraulics and machine electrification are the core activities at Averfin. Over the years, Averfin has delivered more than a thousand hydraulic applications. The Pori-based company also builds control systems and measuring instruments for existing equipment as well as completely novel inventions.

“In addition, we design special devices as small production batches as





well as tailored products,” says Hyttinen.

MASTERING HYDRAULICS – ALSO GLOBALLY

Presently, the company is engaged in developing guidance systems for marine winches and hydraulics pipe systems and their remote automation systems, says Hyttinen.

“Our projects right now are all located in Finland, but we do work globally with projects in various countries.” Most recently, Averfin has been busy in the Netherlands installing hydraulics pipe systems on barges.

The company's forte lies in designing and building large hydraulics systems where there is a lot of oil being consumed and high pressure involved. “In addition, we are a highly flexible organisation with low hierarchy – meaning, in essence, that we can respond to customer's changing plans quite rapidly, with little or no extra cost,” explains Hyttinen.

EYE ON COMPONENTS

The making of hi-tech hydraulics and guidance systems for maritime still has its share of challenges. Hyttinen says that the selection and availability of high quality components is always an issue:

“There are classifications and other demands that add to the component challenge. When there are special components involved, this can mean longer delivery times which calls for planning in advance and being mindful of the timeline of the project,” she says.

From the point of view of the client, of course, the quality of the work and expedient delivery are the most important factors. “Making deliveries within the

agreed upon timeframe is obviously a key concern and we have good track record on that side, too.”

SMALL TEAM, BIG EXPERTISE

Sometimes the Averfin crew really has to go “the extra mile,” since the core team is a relatively small one. “We have five people in our hydraulics and machine electrification design team,” says Hyttinen. The size of the installation team, on the other hand, varies from project to project.

Hyttinen credits her design team for being a tight-knit group that is constantly coming up with innovative ways to serve the customers. One emerging area of business is safety:

“We are making adjustments to our hydraulics systems so that they are able to spot people who have entered, for one reason or another, onto the safety zone and are therefore in danger.”

NEVER STOP RUNNING

According to Hyttinen, technology in the maritime is now advancing so quickly – and on various fronts – that suppliers need to educate and re-educate themselves over and over again.

“Our team is constantly participating in various training to make sure that they have the appropriate skills and knowledge at their disposal,” she says. ■



ARTIFICIAL INTELLIGENCE can improve maritime safety

by: ARI MONONEN







In an ongoing two-year programme, researchers have teamed up to look into new techniques for autonomous navigation. The aim is to improve safety and accurate positioning at sea. Tallink's ship Megastar will take part in the research project as the platform for onboard field tests.

Research Manager at Finnish Geospatial Research Institute, Dr. Sarang Thombre, is currently leading the research project titled 'Artificial Intelligence / Machine Learning Sensor Fusion for Autonomous Vessel Navigation' (Maritime AI-NAV). The project is being funded by European Space Agency (ESA).

"Our aim is to investigate how European satellites and space programs – such as the Galileo and EGNOS systems – can be utilised for autonomous vessel navigation. Aalto University and Fleetrange Ltd. are also taking part in the project," Dr. Thombre outlines.

For onboard testing, new sensor equipment will be installed on the Tallink's cruise ship Megastar. The technology will

combine data from visual images, environmental sound recordings, radar and LiDAR ranging, satellite navigation, and vessel transponders.

The goal is to automatically identify and recognise objects – such as navigation-aids and other vessels or boats around the ship – and to provide improved situational awareness information by way of sensor fusion.

SYSTEM REQUIREMENTS HAVE BEEN DETERMINED

With the equipment installed, the ship can perform its own positioning and have situational awareness of its surroundings.

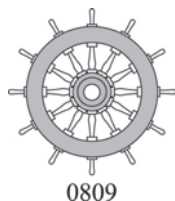
"Fully autonomous ships can utilise such information to make decisions

about navigation, but that will be a subject for future research programs," Thombre mentions.

The current research project will last two years, from January 2019 until the end of 2020. At present, the research team consists of eight professionals.

"This is a nice project, with a good combination of academics and enterprises. Apart from us, some private companies are carrying out research in the field of autonomous vessels, but their research data will not necessarily become public information," notes Thombre.

"The first phase in the research – the system requirements review – has now been reached. We have compiled a list of satellite navigation receivers, audio sen-



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sors, cameras, LiDARs and manufacturers. Meanwhile, Aalto University has carried out algorithm research."

FIELD TESTING EXPECTED IN 2020

When selecting the sensors, the researchers had to consider how they could ultimately be operated if installed aboard autonomous vessels. Also, the choice was made between sensors that were commercially available. Not many were specifically designed for this project.

"Next, the sensors and other hardware will be procured and software for data extraction will be prepared. The sensors will be integrated and tested for seeing how data can be extracted and pro-

**// The ship can
perform its own
positioning and have
situational awareness of
its surroundings.**



// Data will be collected from satellite positioning, radar images, visual stereo and video cameras, and AIS transponders.

cessed. This will be done by December 2019," Thombre explains.

"Then, in the spring of 2020, the equipment will be actually installed aboard the ship. A short field campaign will be carried out for data analysis with algorithms."

If the sensors are working properly, they will be utilised for onboard data collection for a period of three months. In the final phase, the collected data will be thoroughly analysed.

DATA EXTRACTED FROM NUMEROUS SOURCES

Managing Director of Fleetrange Ltd., captain Henrik Ramm-Schmidt recounts that Fleetrange was chosen for the ESA research project after a bidding competition.

"The emphasis will be largely on the maritime safety issues of autonomous vessels. We have know-how of maritime navigation and system operability, while Aalto University will bring in additional knowledge of artificial intelligence and automation," he points out.

Recently, Aalto University has applied artificial intelligence for the analysis of medical data. The same principles could

be utilised for analysing navigational and radar data.

"Basically, incoming data from different sensors as well as from M/S Megastar's existing radars will be combined and analysed. It resembles the collection of 'big data' except that we are concentrating on the data fusion of navigational data from different sources," Mr. Ramm-Schmidt explains.

He mentions that development of new software will also be needed.

"The Megastar that sails between Helsinki and Tallinn is an ideal test ship since we will be collecting navigation data both from open sea and from approaching port. As the ship's route is relatively short, there will be numerous testing opportunities daily."

RELIABILITY OF DATA MUST BE EVALUATED

Various types of ships will be encountered at the Gulf of Finland, in varying weather and visibility conditions.

"This will yield plenty of data from different types of situations within a short period of time," Ramm-Schmidt notes.

According to him, data will be collected from satellite positioning, radar images, visual stereo and video cameras, and AIS transponders.

"With the help of artificial intelligence, the ship's accurate position will be determined, with real-time situational awareness of surrounding traffic. The system software will be continuously monitoring the quality of the data, recognising possible errors of radar imaging."

"Positioning can go astray if navigation satellites suffer from interference by foreign nations, for instance. In such cases, it must be determined whether or not positioning data can be relied on. Accuracy of positioning can be improved by utilising augmentation systems and transmitting correction data to the ship's navigation system from land-based stations by radio waves or by satellite," says Ramm-Schmidt.

If visibility at sea is impaired due to fog or other kinds of bad weather, radars and laser-based LiDAR systems – as well as audio and thermal imaging systems – can be utilised. ■



Green Edge Catapults Meyer Turku to New Heights

by: SAMI ANTEROINEN



As sustainability climbs higher and higher on the agenda of international cruise lines, Meyer Turku is well positioned to take on the challenges of a greener future.

Typically, the ships emerging from the Turku shipyard have been about 10 % more energy-efficient than the vessels built by the competition, but Meyer Turku is determined to raise the bar even higher. The New Mein Schiff 2 – delivered in January 2019 to the German client TUI Cruises – consumes 30–40 % less energy than comparable ships.

Sustainability Manager Jaana Hänninen from Meyer Turku says that there are numerous factors that are coming together to usher in the age of more sustainable, responsible marine.

“First of all, regulations keep on getting more strict and cruise lines have to be mindful of the changes that are required,” she says, pointing out that most big players are eager to go “above and beyond” of what’s required, because that shows extra commitment to the environmental cause.

“The cruise lines’ customers are the cruise patrons and their rising awareness of environmental issues is very much driving the change. Sustainability is becoming a key method of creating competitive edge”, she says.

COSTA GOES GREEN

Another good example of sustainable maritime excellence is Costa Smeralda which was floated out at Meyer Turku shipyard in March 2019. This 180 000 GT cruise ship will be ready for delivery for Costa Cruises in October.

For the Costa fleet, Costa Smeralda represents a step in a new, greener direction: Costa Smeralda is the first LNG powered cruise ship in the Costa fleet and, in fact, one of the first ones to sail the seas. LNG usage will cut all small-particle and sulfur oxide emissions and significantly reduce nitrogen oxide and CO₂ emissions of the ship.





**// Sustainability
is becoming
a key method of creating
competitive edge.**

In connection to the float-out, Neil Palomba, President of Costa Cruises, commented that as LNG brings a “break-through in fuel technology,” Costa Smeralda represents a major innovation for the international market and an important step toward setting new standards for the entire sector. Palomba added that Costa Group will continue to make “sustainable tourism” a key part of its industry leadership.

SUSTAINABILITY 360

Meyer Turku, on the other hand, has been spearheading the LNG revolution in ship

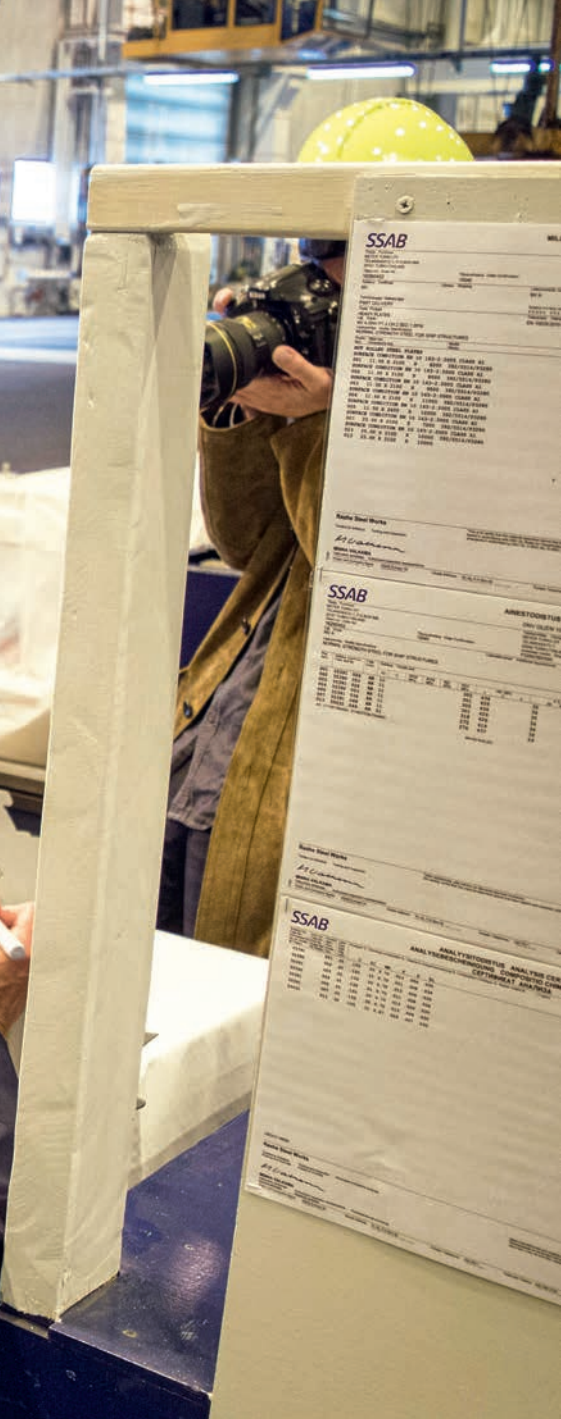
building for several years now, with already two delivered LNG ships under its belt. Still, LNG is only one area where big improvements are presently made, adds Hänninen.

“With regards to energy efficiency in general, there’s a lot we can still achieve as the recent advances in technology are considerable,” she points out.

Sustainability clearly extends to the economic considerations as well: Meyer Turku Group achieved a solid financial result in 2018, with turnover growing from 808,2 million euros to 969,7 million. The shipyard also managed to show a profit

of 3,0 % for the year, and that money is already earmarked to fueling the current production ramp up of the shipyard. Meyer Turku is aiming to double its production in the next four years to meet the demands of its bulging order book (seven large cruise ships).

In addition, Meyer Turku wants to recruit 500 new employees by 2023. The company is also looking to ensure that the personnel’s unique know-how passes on to new employees and is educating 20 new mentors every year to make sure that the transfer of relevant knowledge is a successful one.



FOLLOW THE CODE

Meyer Turku's way of operating relies heavily on its subcontractor network which is really the secret "backbone" of the Finnish maritime. With over 1,000 companies in the network, the challenge here is to keep everybody on the same page with regards to a large range of issues.

To further facilitate this, Meyer Turku introduced Supplier Code of Conduct – as part of its Supplier Network Management Programme – in 2018.

"We're taking certain expertise and knowledge into our network to make sure that the rules are the same for everyone," Hänninen explains. ■

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RESPONSEA SPEARHEADS SUSTAINABLE MARITIME

Meyer Turku is only one of the Finnish maritime companies keen on sustainable solutions. In spring 2018, a new initiative by the name of ResponSea was launched by Finnish Marine Industries. The core group of ten companies has added another ten to the roster within a year – with such industry “heavy hitters” as ABB and Wärtsilä in attendance, in addition to Meyer Turku.

“Each company makes a pledge to improve some area of its sustainability aspect and also reports its progress to the network,” explains Jaana Hänninen.

Meyer Turku has pledged, for example, to reduce its energy consumption by 4 % by 2021 (from the level in 2017) and to develop actions to prevent litter in seas.

GOING THE DISTANCE

Under ResponSea, the Finnish marine industry develops the sustainability of its products and its network together throughout the industry. Already known for its ecological solutions reducing the emissions of marine transportation, Finnish maritime cluster can take the sus-

tainable approach even further, believes Hänninen.

“We have a network of different kind of companies from the industry and we are committed to working together to get things done,” she says, adding that the ResponSea companies are ready to take on big challenges in this regard.

Those challenges include issues such as reducing the environmental impact of shipping and shipbuilding, monitoring the sustainability of the delivery chain and enhancing circular economy and lifecycle efficiency in all actions.



BIG PICTURE

Furthermore, the initiative is in line with the United Nations' sustainable development goals which have been implemented in the Finnish society's Commitment to Sustainable Development. The Commitment 2050 comprises eight goals (among them e.g. Carbon-neutral society, Resource-wise economy and Sustainable communities).

"The Commitment 2050 gives us the international framework in moving forward," says Hänninen. ■

**// We're taking
certain
expertise and
knowledge into our
network to make
sure that the rules
are the same for
everyone.**



Turku Region drives the future of maritime

by: SAMI ANTEROINEN

Networking edge and innovation spirit have sustained the local companies for ages – and they're just getting started







One is not hard pressed to find the number one maritime hub in Finland. Turku – located in southwestern Finland – is the most important production cluster of Finnish maritime industry: nearly one-third of the country's maritime industry companies are located in the Turku economic region.

There's a strong co-operation network – known as MaritimeTurku – that has been built around the maritime know-how and innovation activities, providing also a wide range of services to the R&D needs of the industry.

The network approach is the key here, since the global market challenges of the future require continuous renewal and new exploration in research and busi-

ness. With the shipbuilding industry as its calling card, the Turku Region has a long history of know-how in also offshore and Arctic technologies.

SHIPYARD REIGNS SUPREME

In fact, the shipbuilding tradition in Turku dates back to the 18th century. Today, the industry employs 8,000 people in about 400 companies. The engine of the MaritimeTurku network is the shipyard, Meyer Turku, whose orderbook extends to 2024. Other important companies include e.g. Kongsberg Maritime Finland, Mobimar, Admares and Wärtsilä.

Academic edge is provided by University of Turku, Turku University of Applied Sciences, and Åbo Akademi University.

Recently, Turku has also evolved into a centre for the global development of intelligent, autonomous ships.

In addition, the future will be very much realised in the Blue Industry Park which aims to become the leading production and innovation cluster of maritime expertise in Europe. Located just off the Turku shipyard, the Blue Industry Park wants to serve companies of all sizes and to strengthen the industrial clusters in the Turku Region.

As of yet, however, the Park exists mostly on the drawing board. While zoning is presently being finetuned, the outlook is to start the construction of the Park in spring 2020. Currently, there is already excavation in the area.



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Turku is the most
important
production cluster of
Finnish maritime industry.



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WANTED: BLUE SYNERGY

According to Janne Alho, Project Manager for Blue Industry Park, the competitive advantage of the Park is the synergy created by the co-operation of enterprises and other actors in the area.

"Blue Industry Park will combine a critical mass of resources and expertise along with a competitive setting with production, product development, and research," he says.

While the actual launch of the Park is still in the future, Alho and his team has been making headway on the digital side. A new Blue Industry virtual platform is being created, with the aim of uniting all the 1,200 companies of the Finnish maritime cluster.

"We are expecting to launch the first version of the platform in August 2019," says Alho. He explains that the idea here is to put together the "platform of all maritime platforms," allowing the industry players – big and small – full range of communication.

"There is clearly a need for improved collaboration and communication, since the Turku shipyard is expanding its scope

of operations so tremendously. The material flows of the shipyard are set to double in the next three years," he points out. The Blue Industry Park could be the perfect "sidekick" for the shipyard, with as many as 100 companies (and 10,000 employees) in attendance – at least according to the plans.

BIG FISH, LITTLE FISH

New startups are also rallying under the maritime flag. To accommodate the birth of new innovations, the Maritime Accelerator programme was launched in 2018 (by Turku Science Park together with Avanto Ventures). Both Royal Caribbean and Meyer Turku are participating in the programme.

Last year, the programme compiled a list of 500 internationally attractive growth

// Blue Industry Park aims to become the leading production and innovation cluster of maritime expertise in Europe.

companies, and through initial screening, interviews and workshops, Royal Caribbean and Meyer each found two startups with which they started co-operation.

Juhani Pitkänen, Technology Director of Royal Caribbean, stresses the importance of the accelerator programme as a tool for development and renewal in the industry. According to Pitkänen, up to now, the cruise business has largely leaned on traditions, and the industry practices have been conservative.

"With rapid growth and fierce competition, the old ways of working are no longer enough to maintain our competitiveness," he says. Through Maritime Accelerator, Royal Caribbean wants to find a new innovative approach to develop its business, challenge its own thinking and boost its competitiveness. ■

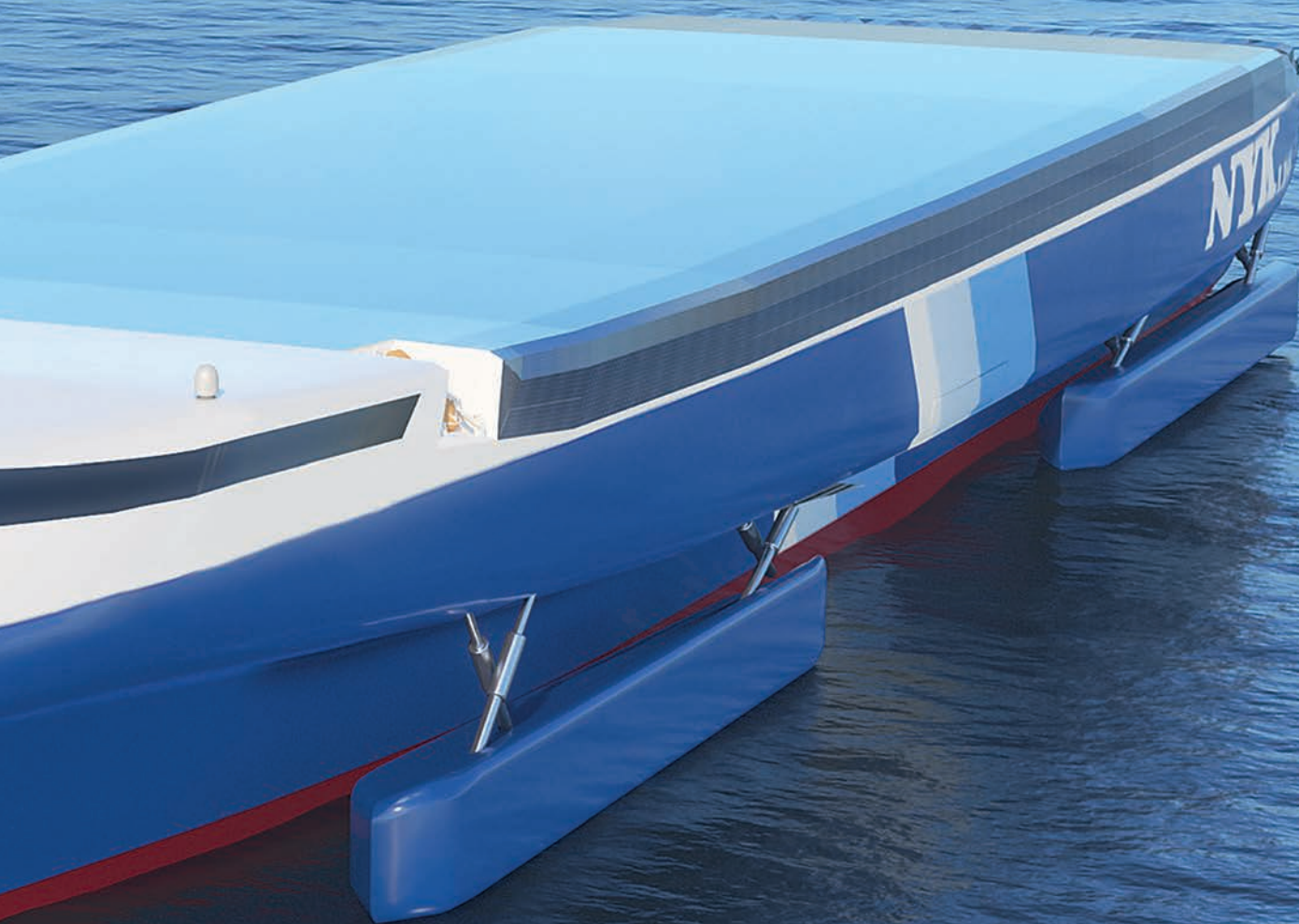
MARITIMETURKU – FASTFACTS

- Turnover of the maritime cluster in Southwest Finland 3.3 billion euros
- Employs around 8,000 people in Southwest Finland
- 400 network companies, 20 design agencies, 15 shipping companies and 5 shipyards in Southwest Finland
- Around 27 % of Finland's maritime industry jobs
- Four universities and universities of applied sciences
- Several maritime training and/or research institutes



NYK SUPER ECO SHIP 2050 project partners:





An emission-free cargo ship has already been designed

by: ARI MONONEN



photo: ELOMATIC



Consulting group Elomatic has developed a concept design for the NYK Super Eco Ship 2050. The aim was to create a concept for an emission-free car and truck carrier concept, in cooperation with NYK of Japan. The concept ship incorporates various futuristic but feasible modern technologies.

Mr. Tomas Aminoff – Senior Consultant for Marine Technology for Elomatic Group in Espoo, Finland – recounts that the Japanese NYK Group contacted Elomatic for cooperation in a design concept for an emission-free cargo carrier, ready to comply with next-generation environmental regulations.

“The project was started before IMO published their latest emission regulations for ships. NYK Group wanted to be prepared for even stricter rules and regulations,” Mr. Aminoff says.

“Consequently, Elomatic reviewed the new marine technologies that are in

the process of being developed, with a view to determining how they might be utilised for minimising environmental emissions of ships.”

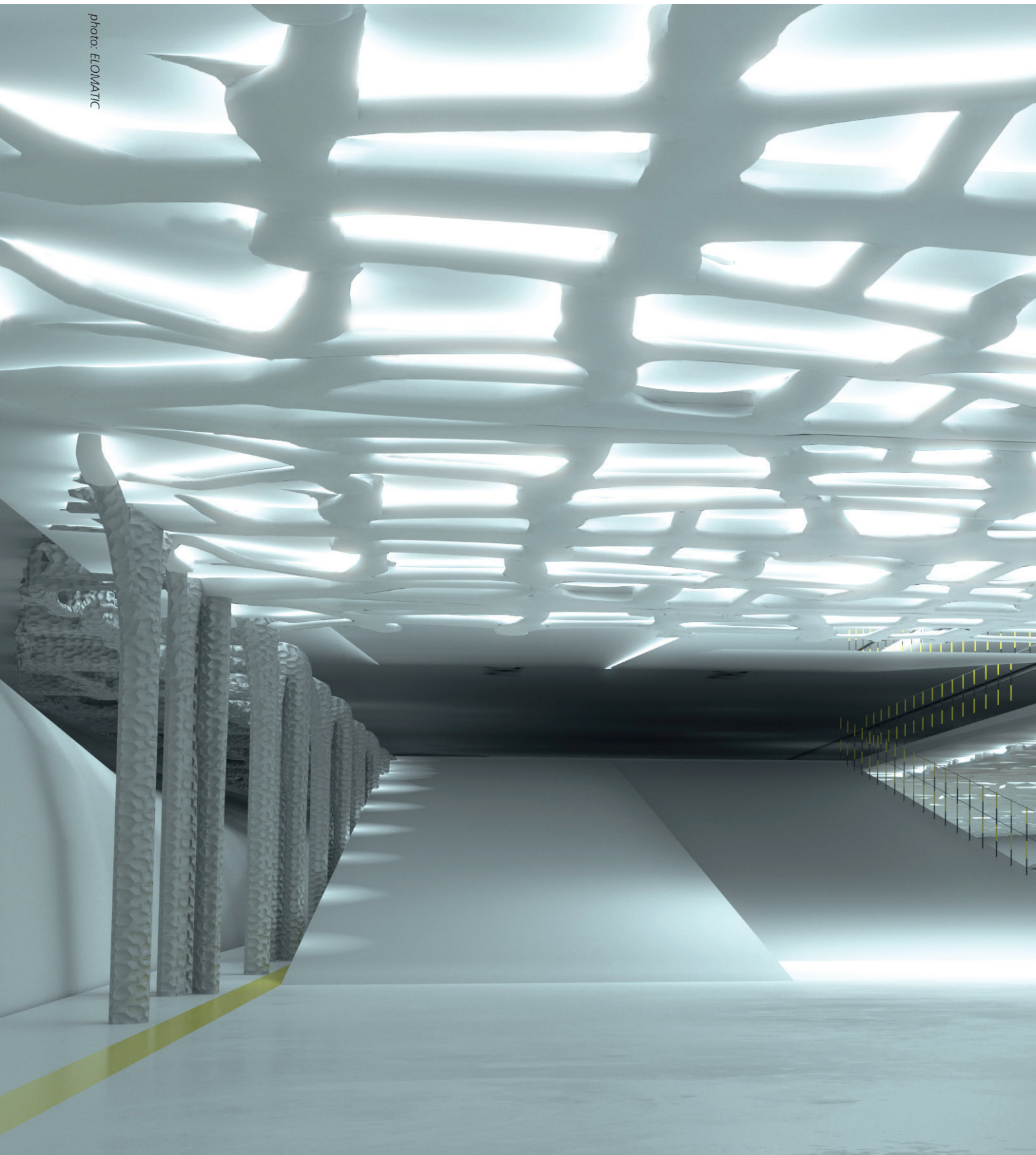
Ships that resemble this concept for a futuristic car and truck carrier – at least remotely – may be in commercial use in or around 2050.

// The upper side of the ship will be covered by 9000 square metres of solar panels.

ENERGY DEMAND MINIMISED

According to Mr. Aminoff, the essential thing was to utilise fuels that would reduce CO₂ emissions by 100 percent. Instead of fossil fuels, the ship might be powered by hydrogen produced from renewable energy sources.

photo: ELOMATIC



The main idea in increased automation is not to cut down the workforce.

"New types of fuels will probably be inconvenient to store – and are liable to take up a lot of storage space onboard – so the new ship needs to be highly energy-efficient," he points out.

The energy demand of the vessel was cut by approximately 70 percent by eliminating energy and operational waste. Small amounts of waste may be stored on board for later in-port disposal. The minimised energy demand enables emission-free operation. Surplus cooling energy can be utilised in air-conditioning.

What's more, the upper side of the ship will be covered by 9,000 square metres of solar panels, providing 15 percent of the ship's energy demand.

"In modern hull design, ensuring ship stability is usually an issue. For our design concept, we assume that stability can be maintained by utilising active pontoons on each side and gyro stabilisers, rather than resorting to using ballast."

"Additionally, the new ship is to be equipped with floaters on the sides of the hull. They will normally remain above sea level but can be used for ensuring ship safety in the case of a power blackout," Aminoff explains.

FUTURISTIC HULL DESIGN

The hull design is to be optimised for reducing the ship's own weight. For this purpose, durable lightweight materials will be chosen for hull construction. Further-

more, 3D printing could be used for producing some of the materials.

Another special feature in the concept ship is the hull's bionic design that makes traditional beam structures redundant.

"Structural designs of this kind are a challenge. They are already in use aboard a number of Airbus aircraft but they have not yet been used in shipbuilding."

Flapping foils, inspired by dolphins, are being considered to replace less efficient traditional propellers.

"Once the mechanical parts are designed properly to avoid loss of energy, this type of solution has potential for obtaining better efficiency than with traditional propellers. The solution is also flexible since propulsion can be angled freely in any direction."

NEW CONCEPT FOR CARGO HANDLING

The overall length of the new ship is estimated to be slightly under 200 metres. The ship is to have a carrier capacity of 8,000 car-equivalent units.

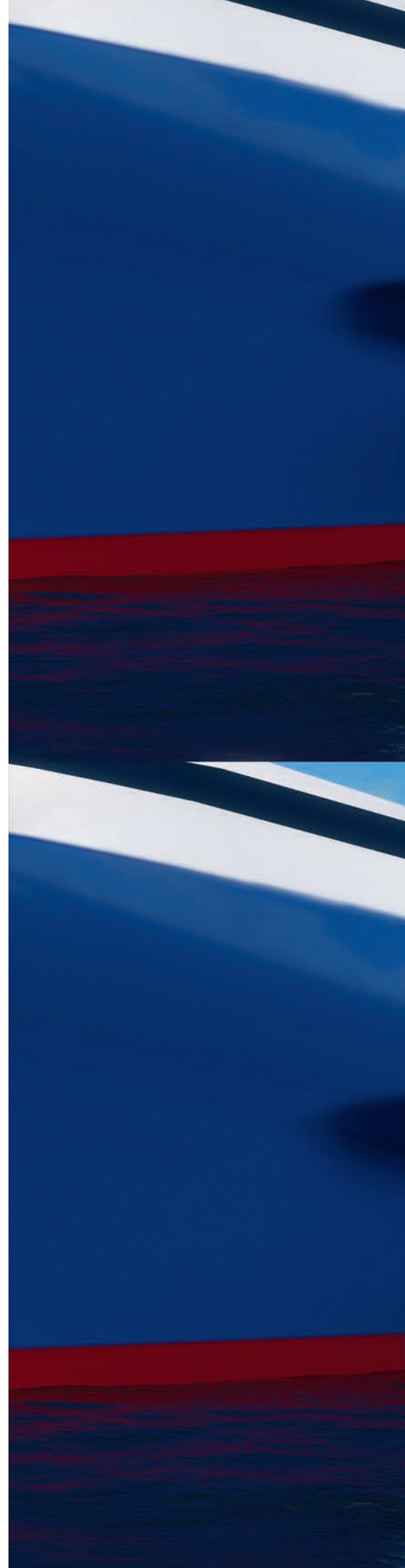
"The ship will be wider and she will have a lower profile than current vessels. However, the ship's speed will be approximately the same," Aminoff expects.

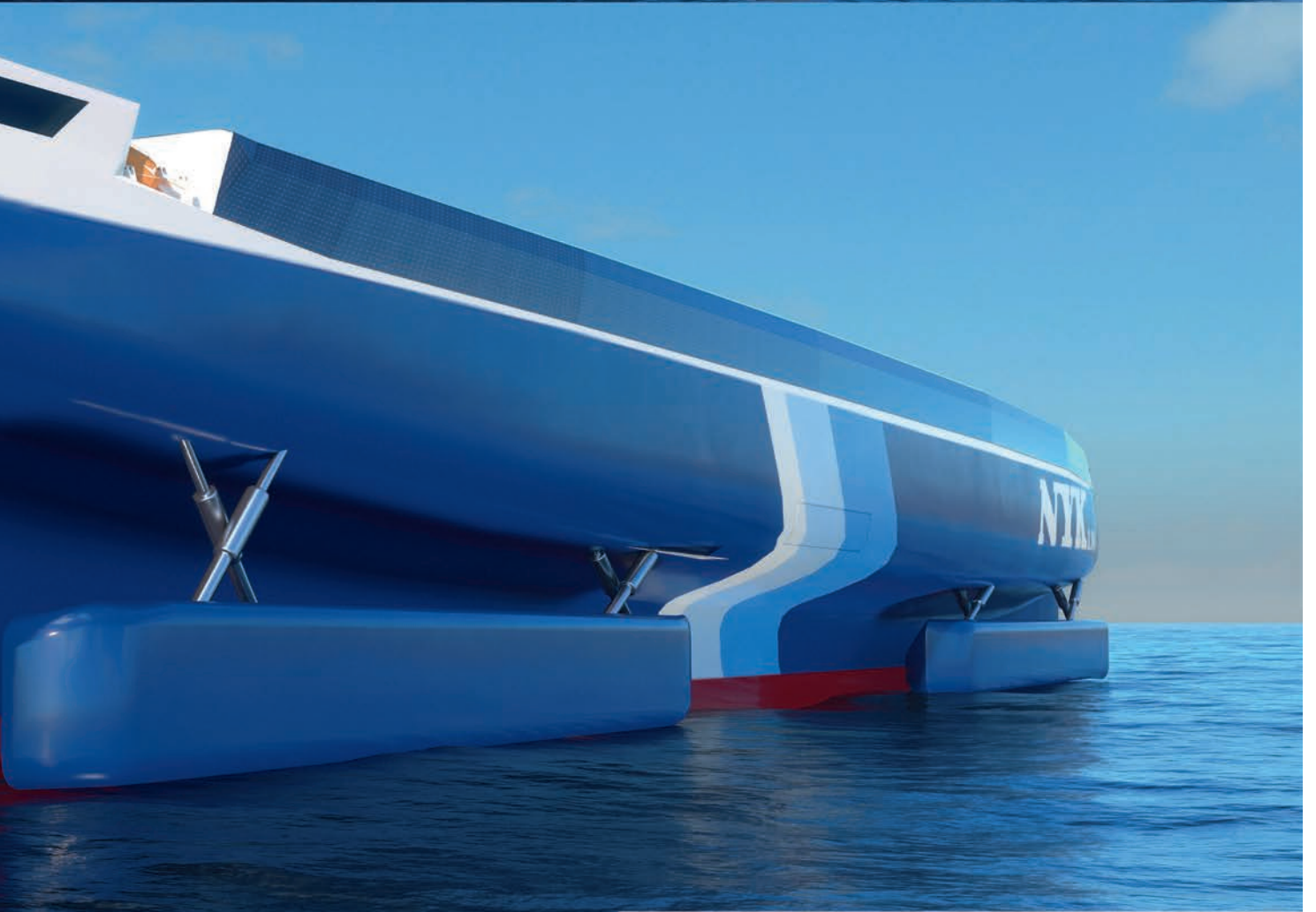
"While the new ship will have a crew onboard, the number of personnel will be reduced. Some operations will be remotely controlled. The ship's autonomous features will improve safety. The main idea in increased automation is not to cut down the workforce."

New techniques for cargo handling are also being considered.

"The idea is that part of the cargo could be transferred directly aboard other ships – i.e. without utilising feeder vessels – once the cargo ship has reached its destination. This procedure would reduce the need for additional traffic within the port," Aminoff suggests.

"If the entire logistics chain can be synchronised, it will be possible to optimise energy consumption at the port. Obviously, this would also require further development of port infrastructure." ■





SEASIDE INDUSTRY PARK RAUMA

SUITS THE NEEDS OF THE MARITIME CLUSTER

by: ARI MONONEN





Rauma is a city of nearly 40,000 residents on Finland's west coast. The Port of Rauma is one of the largest and busiest in Finland. Since 2014, Seaside Industry Park Rauma has provided a good operational environment for many types of maritime companies having extensive know-how of shipbuilding and related fields of work. Cooperation has also helped Rauma's new shipyard.

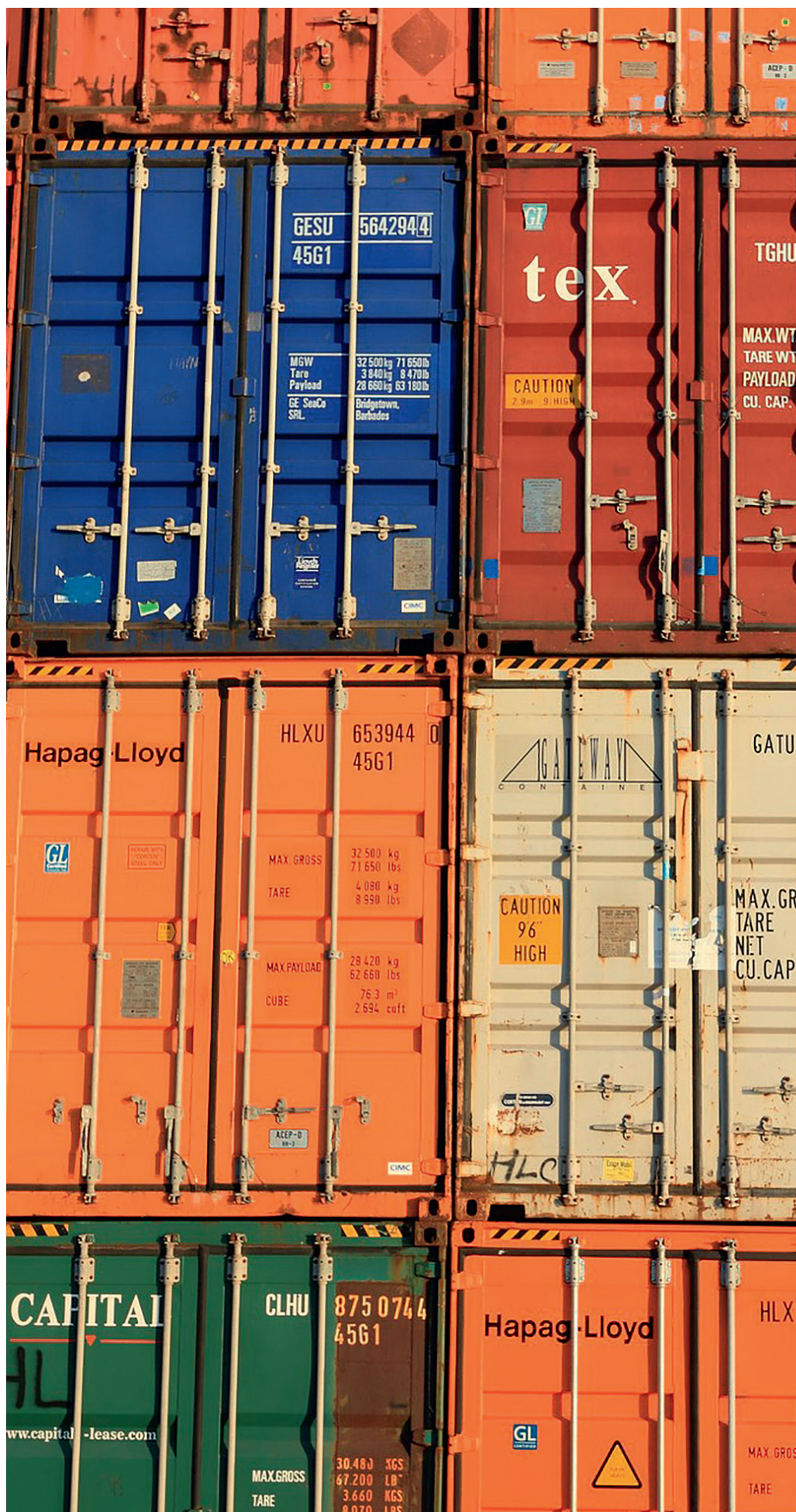
photo: PIXABAY.COM

The Seaside Industry Park in Rauma is an industrial park complex for heavy maritime industry. The park consists of facilities for independent companies and is situated within the former shipyard area.

The idea of the industry park is to offer an efficient and strategically placed environment to companies in the Finnish maritime cluster, complete with shared infrastructure and services.

The park is conveniently situated in a logistics hub. Two shipping routes lead to Rauma. The port has regular liner traffic to different parts of Europe, the U.S., and Asia.

Rauma's location on the western coast of Finland is also a benefit, with good connections to Finland and abroad. Additionally, the freight transportation railway enables transports around Finland. For other types of transport, highways and airports are situated close by.





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EFFICIENT OPERATION

The companies selected to Seaside Industry Park form a mutually supportive service entity that is managed and coordinated by RMTK (Rauma Maritime Industry Estates). RMTK leases the park's facilities and equipment, plus organises the maintenance and shared services required.

"Seaside Industry Park Rauma is operating very smoothly. In the spring of 2019, the park celebrated its fifth birthday," says Managing Director Timo Luukkonen from Rauma Maritime Industry Estates (RMTK).

"Practically throughout this period, the park has had an average of more than

30 different companies as tenants. The production and storage space has been in efficient use. There has also been constant growth, with further development of operations as well as additional space and infrastructure being built."

The Seaside Industry Park features 35,000 square metres of production facilities, as well as some 20,000 square metres for office space and storage facilities.

Seaside Industry Park Rauma offers a complete infrastructure to its companies. The buildings are particularly suited for heavy industries that require a lot of space, cranes, a basin, and other industrial equipment.

The companies within the area have an extensive and efficient network of suppliers. Small and medium-sized companies have opportunities to take part in large-scale projects.

NEW INVESTMENTS

Mr. Luukkonen points out that amongst others, Kongsberg Marine – formerly Rolls-Royce Marine – has recently carried out new investments for facilities at the industry park, in cooperation with RMTK. Of these investments, RMTK's share exceeds eight million euros.

"Another one million euros is being used annually for maintaining the infra-



photo: SEASIDEINDUSTRY.COM

// Seaside Industry Park Rauma offers a complete infrastructure to its companies.

Furthermore, the industrial park has a shared environmental licence that covers all the companies operating in the park, so that applying for separate licences is not necessary.

FLEXIBLE SHARED SERVICES

The industry park is a good operational platform for many types of companies of varying sizes.

"There are shipbuilding companies, propulsion unit manufacturers, industrial painting and surface-treatment companies, steel structure suppliers, engineering companies, measurement service providers, and so on."

"In addition, the industry park offers various and flexible shared services, such as security, catering, electricity, heating, gas, waterworks, and information technology networks. This makes it easier for the companies to concentrate on their core business activities. Since last autumn, the park has been powered by a 500 kW solar power plant," notes Luukkonen.

He expects that the new orders for ships that are soon being built at Rauma's RMC shipyard – including both passenger ferries and Finnish Navy ships – will bring a lot of additional work also for the marine cluster companies at the industry park.

"Probably all of the industry park's facilities will be leased for full-scale work at least until the year 2027. The future seems bright," Luukkonen rejoices.

KONGSBERG EXPANDED AND REFURBISHED FACILITIES

Managing Director Olli Rantanen from Kongsberg Maritime Finland – formerly Rolls-Royce Marine – says that his com-

pany was one of the founding members of Rauma Seaside Industry Park.

"After STX shipyard in Rauma was closed down, the City of Rauma bought the land area to set up an industry park for maritime-cluster companies. At the time we were already working on the premises. Since the new RMC shipyard started operations, new tenants have moved in."

Last year, Kongsberg concentrated the company's all production and office & storage facilities in Rauma to the industry park. New investments were made to renovate and expand even more buildings within the park for Kongsberg's use. In particular, the production and storage facilities were given an extensive facelift, with modernisation of interior and exterior structures as well as installation of brand new electrical and ventilation systems.

"This move made our operations in Rauma considerably more efficient. The industry park has an ideal situation close to the port. Our own facilities now suit our purposes very well," Mr. Rantanen points out.

"However, some of the park's infrastructure is a bit dated, so some further refurbishing may still be required in the longer term."

Mr. Rantanen is happy about the synergy benefits offered by the industry park, including security and maintenance services.

"Cooperation with the City of Rauma has been very smooth and prompt," he says.

FAST GROWTH FOR ERMAIL

Mr. Jussi Seikkula, Managing Director of Ermail Ltd. that offers industrial painting

structure within the industry park. We also acquired an adjoining estate of 3,000 square metres, so that the industry park now has a total of 55,000 square metres being leased to maritime companies. In the near future, a new hall for hull-block assembly will also be built."

This new hall will have a height of 30 metres and it is expected to be in operation in 2020, with an investment budget of 15 million euros.

"The point is that the companies within the park area are connected to the maritime cluster. This yields many kinds of synergy benefits, such as shared business projects and subcontractor networks."

**// Things
are easier
when several
cooperative
partners work
within the same
area.**

and finishing services, says that Ermail was also one the early tenants of the Rauma Seaside Industry Park.

"We originally had our headquarters in Eurajoki. However, as soon as I heard of the new industry park, Ermail moved in. This was in the summer of 2014," Seikkula reminisces.

"Soon after that, the new RMC shipyard started out next door. Since 2015, Ermail has won all of RMC's paintwork contracts. We have also had extensive cooperation with Kongsberg."

In addition to ships, painting has been needed for specialised structures such as floating hotels and terraces.

"The Seaside Industry Park is an excellent working environment – I have never seen anything like it in my 30-year career in this business. In the past five years, our company has been able to grow by 500 percent. We now employ ten times more personnel than when we started here. An even greater number of skilled workers would be welcome," Mr. Seikkula says.

Ermail has recently invested in a new cleaning facility for the industry park, built in cooperation with other tenant companies.

"Things are easier when several cooperative partners work within the same area." ■



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photo: STX Europe

Fold-up doors designed to withstand extreme conditions

A practical door solution is important for the efficient operation of shipyards and ports. Reliability and flexible operation make the Champion Door fabric fold-up door a very competitive choice. Shipyard and harbor doors require reliability and suitability especially in and around marine climates and heavy wind loads.

Champion Door is an internationally renowned door manufacturer whose customers demand reliability from their doors under extreme conditions. The Champion Door fabric fold-up door is resistant to hard usage and has low maintenance costs. The door is designed to withstand moisture and heat fluctuations, dirt and dust. The door does not take up space on the sides like traditional sliding doors.

The double layered NK4 Warm door is popular among shipyards and harbors, thanks to its excellent thermal insulation. The tight construction of the door saves energy and improves work comfort by preventing drafts. High quality fold-up doors are made from standardized components according to customer needs – Champion Door's special doors do not have any size or wind limits. ■

More information:
www.championdoor.com



The NK4 Warm door installed for an ice laboratory in which solutions for the bow of the icebreaker are developed. The temperature on one side of the door is -20 C and +10 C on the other side.



Protacon hybridizes maritime industries to meet EU goals

Maritime industries are slowly following the example set by the car industry. Petrol and diesel cars came before hybrid vehicles. Now the EU is aiming to significantly decrease emissions by, among other things, employing more battery technology. Thanks to decreased prices, even bigger ships can now utilise batteries.

These decisions push manufacturers to design and build more environmentally friendly ships in the EU, but also put pressure to update existing vessels. More efficient methods of energy must be invented.

Using battery technology to hybridise existing vessels saves petrol and increases operational flexibility with varying loads. Battery technology makes it possible to obtain an easily adjustable source of energy. It can be used to momentarily produce more power without starting the vessel's generators for i.e. electric propulsion or deck systems. Large enough battery equipment could operate entire vessels.

EXPERTS HELPING TO CUT EMISSIONS

Protacon's areas of expertise include electric propulsions, automatic and power management systems, control unit deliveries and maintenance services. Hybrid solutions as well as battery data analysis have now been added to our services.

The research vessel Aranda is already using battery technology delivered by Protacon. The International Maritime Organisation (IMO) has decided to cut emissions from maritime industries by 50% by 2050, which is in line with EU goals. One way to build greener vessels is battery technology – and Protacon is here to help. ■

More information: www.protacon.com



Celebrating the 10th anniversary of connecting the European cruise community

From 11 – 13 September 2019, Seatrade Europe will return to bring together key stakeholders of the cruise and river cruise communities to meet, discuss and innovate for the future of the industry in Hamburg, Germany.

Set to welcome more than 5,000 participants from all over the world including more than 260 exhibitors from 40 countries, Seatrade Europe is truly a must-attend event for anyone wanting to meet with the European cruise lines, key decision makers and notable figures for the cruise industry.

Co-located with the NEW Marine Interiors Cruise & Ferry Global Expo the event will be complemented by the attendance of senior buyers, planners and key decision makers from the world's leading cruise and ferry lines, shipyards and interior design studios.

Seatrade Europe is a must-attend event offering innovation and inspiration within our conference programme and exhibition show floor. ■

More information: www.seatrade-europe.com

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PR & Marketing enquiries

Victoria Stokes, Marketing Manager

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company directory

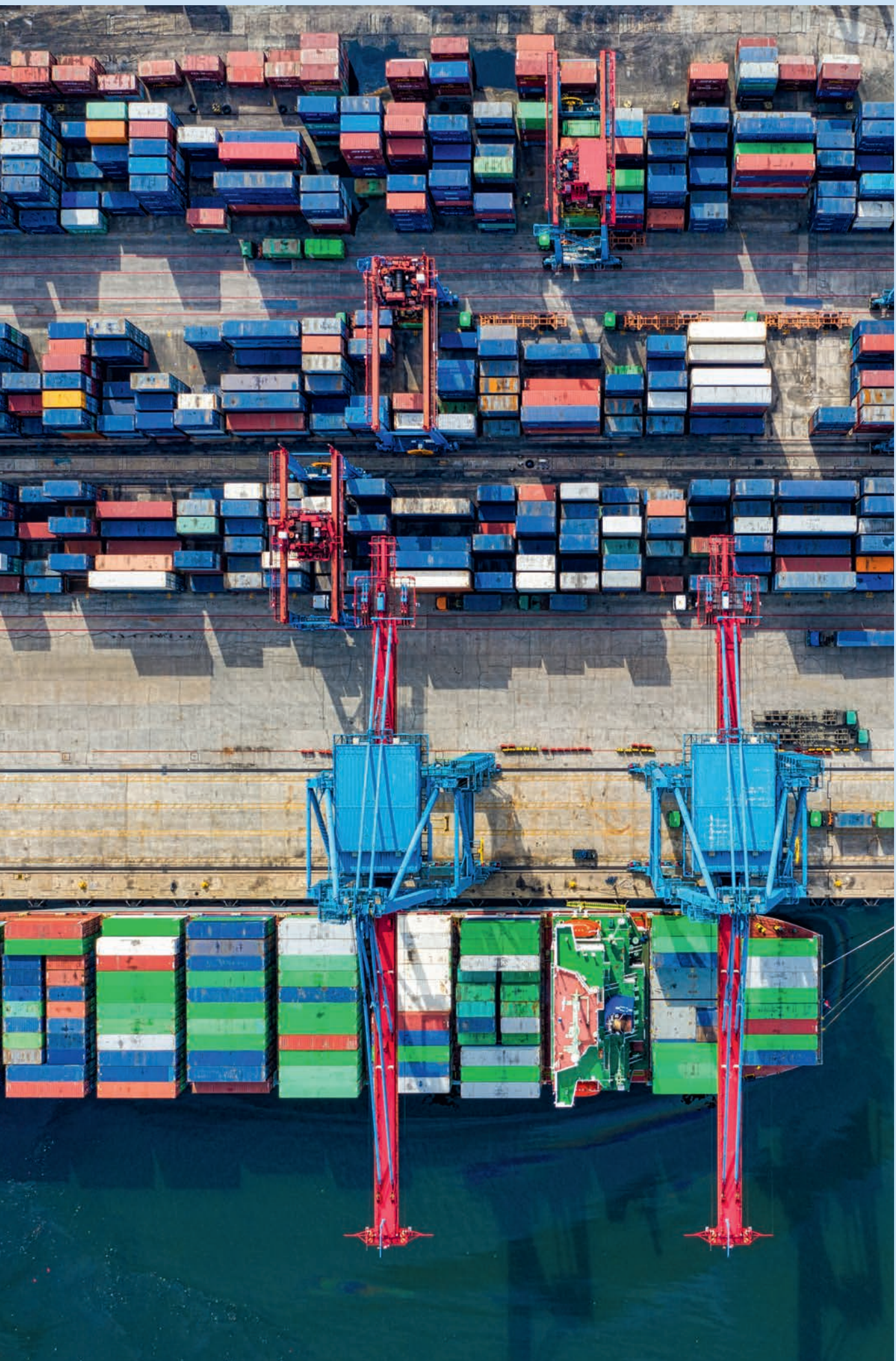


Photo: PEXELS.COM

ABLEMANS OY

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Phone +358 2 439 6500
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www.ablemans.fi

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Managing Director
marko.ruostekivi@ablemans.fi

Facts & Figures

Turnover: EUR 4,2 million
Personnel: 12
Established: 1987

Specialty Areas

Steel and Aluminium structures
Shipbuilding – Shiprepairing – Conversions – Outfitting

ACM-TRADING LTD

Ketunleivänkuja 4
FI-21110 Naantali, Finland
Phone +358 20 799 1400
Fax +358 20 799 1409
firstname.lastname@acm-trading.fi
www.acm-trading.fi

**Contact Person**

Kari U. Laiho, +358 40 900 4060

Specialty Areas

Complete PUSHPIN®-ATB-Coupler System for Pusher Tug and Barge combinations. Available models 2 or 3 pin executions, with electro-pneumatic or electro-hydraulic controls with modern PLC controls. New Model! PUSHPIN®-SliderRig – Coupler enabling to be engaged during loading and discharging. Pin forces from 150 Tons up to 3 000 Tons, from River ATBs to Large Offshore ATBs, 15 systems in service. Concept design, Feasibility Studies and total installation engineering and supervision including class approvals with FEM-analysis. Electro-Hydraulic EHS Actuators for valve control and remote sounding systems with total BUSLoop systems for all kind of vessels. Cooling control systems for HT-, LT-, LO-, SW- etc. cooling circuits. Marine Pumps, Marine Butterfly valves in house already over 40 years experience.

See page 43

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FI-25340 Kanunki
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Phone +358 2 774 4700
Fax +358 2 774 4777
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Commercial Director
markko.takkinen@antti-teollisuus.fi

Specialty Areas

Antti Marine accommodation & interior doors for ships & offshore. B ja C-class fire doors. Sound reduction doors up to Rw=48dB. Designed features e.g. patterns and digital printing

ASLEMETALS OY

P.O. Box 17
FI-26101 Rauma
Finland
Phone +358 2 838 011
Fax +358 2 838 0290
firstname.lastname@aslemetals.fi
www.aslemetals.fi

**Contact Person**

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+358 44 730 1027
saku.tuominen@aslemetals.fi

Specialty Areas

Core competence. Production of pipe modules and different type of steel structures. We have built pipe modules for LNG, oil and gas more than 6 000 units since 1981. We can offer reliable co-operation partnership for international companies.

CAVERION, INDUSTRIAL SOLUTIONS

P.O. Box 27 (Lemminkäisenkatu 59)
FI-20521 Turku, Finland
Phone +358 10 4071
firstname.lastname@caverion.com
www.caverion.fi

**Contact Person**

Marine business unit
Markku Salonen
markku.salonen@caverion.com

Facts & Figures

Turnover: EUR 290 million approx.
Personnel: approx. 2 200
Established: 2013
Parent Company: Caverion Oyj

Specialty Areas

Marine Industry unit:
Electrical and mechanical outfitting projects
Turnkey deliveries for technical areas

ENSTO ITALIA

Via F. De Filippi 3
IT-20129 Milano
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Fax +39 02 2952 4554
enstoitalia@ensto.com
www.ensto.com



Saves Your Energy

Contact Person

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Sales Director
guglielmo.rutigliano@ensto.com

Facts & Figures

Turnover: EUR 260 million
Personnel: 1600
Established: 1958
Parent Company: Ensto Group

Specialty Areas

Ensto's marine lighting products are designed for ship installations and can be customised to Customer's needs.

1 3 8

JTK POWER OY

Teollisuustie 6
FI-66600 Vöyri
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Phone +358 20 781 2300
Fax +358 6 361 0383
info@jtk-power.fi
www.jtk-power.fi, www.jtk-power.cn

Contact Person

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timo.viitala@jtk-power.fi

Facts & Figures

Turnover: EUR 26 million
Personnel: 93 in Finland, 22 in China
Established: 1998

Specialty Areas

Large Diesel and Gas engines exhaust and intake silencers
Offshore-, paper- & pulp and other process industries large silencers
Also Valve seat inserts are manufactured for exhaust and intake valves, of both large and small diesel engines.

3 4

KESKIPAKOVALU OY

Lastikankatu 21, FI-33730 Tampere, Finland
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www.keskipakovalu.fi

**Contact Persons**

Keijo Koivisto
Asmo Rantanen
Risto Rönkkä
Marko Haapala

Facts & Figures

Turnover: EUR 4,9 million
Personnel: 33
Established: 1956

Specialty Areas

Bronze foundry and machine workshop. We supply fully mechanised sliding bearings, plates and bushings, as well as pre-mechanised preforms and component tubes & rods, for the use of maritime and offshore industries. Our service range includes customer-specific storage of products, plus express shippings of mechanised parts to the repair locations, in accordance with the customer's blueprints.

2 6 7

KOJA MARINE

P.O. Box 351 (Lentokentäntätkatu 7)
FI-33101 Tampere
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Phone +358 3 282 5111
marine@koja.fi
www.koja.fi

Contact Person

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esko.nousiainen@koja.fi

Facts & Figures

Turnover: EUR 60 million
Personnel: 232
Established: 1935
Parent Company: Kojia Group

Specialty Areas

Air conditioning systems, air conditioning units
System design and material delivers
Cargo ventilation systems
Air Conditioning turn-key deliveries,
HVAC electrical / automation systems.

3 9

LAIVAKONE OY

Uranuksenkuja 1 C
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Phone +358 20 763 1570
Fax +358 20 763 1571
laivakone@laivakone.fi

Contact Person

Harri Elonen

Facts & Figures

Personnel: 20
Established: 1969

Specialty Areas

Ship engine repairs and services
In-Situ machining

4

OY LAUTEX AB

Ojakkalantie 13
FI-03100 Nummela, Finland
Phone +358 9 224 8810
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www.lautex.com

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Antti Holappa, Sales Manager
antti.holappa@lautex.com, Phone +358 50 386 1213

Facts & Figures

Turnover: EUR 8 million
Personnel: 60
Established: 1951
Parent Company: Teknoma Oy

Specialty Areas

Ceilings for ship accommodation and public spaces, such as metal panels, profiles, tiles and gratings in aluminium or steel. The product range includes also B-0 and B-15 fire classified ceilings, domes, beams and special ceilings. All ceiling materials are possible to coat on different materials.

1

LLOYD'S REGISTER EMEA

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FI-00100 Helsinki, Finland
Phone +358 20 791 8300
helsinki@lr.org
www.lr.org

Contact Persons

Päivi Björkestam, Field Operation Manager
Niklas Rönnerberg, Business Development Manager

Facts & Figures

Personnel: 15
Established: 1957 (Finland)
Parent Company: Lloyd's Register Group Limited

Specialty Areas

Ship and offshore:
Newbuilding & periodical surveys
Industrial inspections and certification
Consultancy

1. Consulting
2. Equipment
3. Machinery

4. Materials
5. Safety
6. Systems

7. Turnkey Deliveries
8. Yards
9. Other

2 3 6 7

MARINE DIESEL FINLAND OY

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**Contact Persons**

Markus Hjerppe
Mika Aaltonen

Facts & Figures

Turnover: EUR 6 million
Personnel: 40
Established: 1992

Specialty Areas

Main- and auxiliary engine repair and service
Total overhaul of all type of engines
Turbocharger service and repair
On-site machining
Fuel injector testing also for solenoid operated devices
Well-equipped workshop in Lieto
CAT authorized service and repair, Kemel seals and bearings

3

OILON OY

P.O. Box 5
FI-15801 Lahti
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Phone +358 3 857 61
Fax +358 3 857 6239
www.oilon.com

**Contact Person**

Jani Kurikka
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Facts & Figures

Turnover: EUR 70 million
Personnel: 360
Established: 1961

Specialty Areas

Oil & gas burners for marine applications

4

ONNINEN OY

P.O. Box 109
FI-01301 Vantaa
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Phone +358 20 485 5111
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www.onninen.com

**Contact Person**

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Facts & Figures

Personnel: 3000
Established: 1913

Specialty Areas

Onninen provides comprehensive materials services to contractors, industry, public organisations and technical product retailers. Onninen is member of Kesko Group. We have 3 000 employees in our Finnish, Swedish, Norwegian, Polish, Russian and Baltic operations.

3

PARKER HANNIFIN MANUFACTURING FINLAND OY

Salmentie 260
FI-31700 Urjala As.
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Phone +358 20 753 2500
Mobile +358 40 740 2394
filtration.finland@parker.com
www.parker.com

**Contact Person**

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Facts & Figures

Personnel: 65
Established: 1964
Parent Company: Parker Hannifin

Specialty Areas

Filtration: Lubrication oil filtration, fuel oil filtration, hydraulic filtration, gas filtration
Condition Monitoring

4

PAROC OY AB

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FI-00181 Helsinki
Finland
Phone +358 46 876 8000
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www.paroc.com

**Contact Person**

Tommi Siitonen
tommi.siitonen@owenscorning.com

Subsidiaries & Representatives

In 2018, Paroc joined Owens Corning.

Specialty Areas

Stone wool insulation products for fire, heat and sound insulation to shipbuilding and offshore industries

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PEDRO OY

Tehdastie 4-6
FI-15560 Nastola
Finland
Phone +358 3 873 900
info@pedro.fi
www.pedro.fi

**Contact Person**

Juha Lehtonen
Managing Director
juha.lehtonen@pedro.fi

Facts & Figures

Established: 1988

Specialty Areas

PEDRO has 30 years expertise of furniture to luxury cruisers, hotels and homes. Theatre seats and sofas to cruisers AIDA, Carnival, Color Line, Costa, Hapac Lloyd, RCCL & TUI Cruises

1. Consulting
2. Equipment
3. Machinery

4. Materials
5. Safety
6. Systems

7. Turnkey Deliveries
8. Yards
9. Other

POCADEL OY

Korpelantie 229
FI-21570 Sauvo
Finland
Phone +358 50 435 2638
pocadel@pocadel.fi
www.pocadel.fi

**Contact Person**

Maria Perrakoski
maria.perrakoski@pocadel.fi

Facts & Figures

Established: 1997

Specialty Areas

Light weight B15 – A60 fire rated glass doors and partitions for marine and offshore use.
Product range includes hinged doors, sliding doors, extra wide tandem doors, glass walls and partitions.

PORKKA FINLAND OY

PORKKA

P.O. Box 127
FI-33101 Tampere, Finland
Phone +358 20 555 512
Fax +358 20 5555 360
contact@porkka.com
www.porkka.com

Contact Person

Petri Hiilloste
petri.hiilloste@huurre.com

Facts & Figures

Turnover: EUR 30 million
Personnel: 170
Established: 1962
Parent Company: Huurre Group Oy

Specialty Areas

Provision stores
Walk-in rooms in galleys/pantries
Insulated doors
Insulated fire doors A60, for cold stores
Marine cold cabinets and counters

S.A. SVENDSEN OY

Särkiniementie 3 B
FI-00210 Helsinki
Finland
Phone +358 9 681 1170
Fax +358 9 6811 1768
www.sasvensen.com

**Contact Person**

Kimmo Räisänen
Managing Director
kimmo.raisanen@sasvensen.com

Facts & Figures

Turnover: EUR 5,7 million
Personnel: 5
Established: 1981

Specialty Areas

Complete turnkey deliveries for cruise ships and ferries
Interior materials and custom made interior modules
Refurbishments and refits for cruise ships and ferries

SAINT-GOBAIN FINLAND OY

ISOVER
SAINT-GOBAIN

P.O. Box 70 (Strömberginkuja 2)
FI-00381 Helsinki, Finland
Phone +35810442200
firstname.lastname@saint-gobain.com
www.isover-tekniset-eristeet.fi

weber
SAINT-GOBAIN

Contact Person

Herkko Miettinen
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Ville Huovinen
ville.huovinen@saint-gobain.com

Gyproc
SAINT-GOBAIN

Facts & Figures

Turnover: EUR 221,5 million
Personnel: 652

Specialty Areas

Effective and unique lightness Fire Protection
Easy and quick to install and provide subsequent space savings for storing
Optimal acoustic performance and excellent thermal insulation

SBA INTERIOR LTD

Hällsnäsintie 99
FI-10360 Mustio, Finland
Phone +358 19 327 71
sales@sba.fi
www.sba.fi

**Contact Persons**

Thomas Pökelmann, Sales Manager
thomas.pokelmann@sba.fi
Johan Fagerlund, Technical Director
johan.fagerlund@sba.fi

Facts & Figures

Turnover: EUR 16,5 million
Personnel: 120
Established: 1985

Specialty Areas

SBA Interior is specialised in accommodation panelling and different types of beds for marine applications.
Latest development is an only 16mm B-0 class panel and a 50 mm A-60 class light weight box; wall and ceiling as well as a B-15 class Extension Screen.
Another branch of SBA is subcontracting for metal industry.

SEAKING LTD

Valimotie 13b B, FI-00380 Helsinki, Finland
Phone +358 9 350 8840
Fax +358 9 3508 8422
sales@seaking.net

**Contact Person**

Pasi Suvanto, VP Sales, pasi.suvanto@seaking.net

Facts & Figures

Personnel: 400
Established: 1985
Parent Company: SeaKing International AG

Subsidiaries & Representatives

SeaKing France, SeaKing GmbH, SeaKing Italy, SeaKing Poland, SeaKing Inc.

Specialty Areas

Established in 1985, SeaKing is the Industry's leading provider of functional catering systems to cruise liners and other high-class passenger vessels. SeaKing supports its customers throughout the ship's life cycle with basic design, consulting, equipment deliveries, training, maintenance and upgrading of the catering systems. SeaKing has a large production facility in Poland specialised in stainless steel (including refrigerators, service counters, ventilation hoods and pre-fabricated pantries) and a second production facility in Ft. Lauderdale, aimed at responding to the Industry's growing renovation and repair activities.

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SEASIDE INDUSTRY PARK RAUMA

Suojantie 5
FI-26100 Rauma
Finland
www.seasideindustry.com

**Contact Person**

Timo Luukkonen
+358 40 550 1942
timo.luukkonen@seasideindustry.com

Specialty Areas

Seaside Industry Park is the hub of the maritime cluster in Rauma. Successful principal companies in shipbuilding and marine production with wide and efficient supplier network operate in the park. The region is utilizing versatile infrastructure and comprehensive common services. Seaside offers an efficient manufacturing environment and cooperation network that also enables smaller companies to participate in major projects and achieve competitive advantages and added value. Additional information: www.seasideindustry.com

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STEERPROP LTD

P.O. Box 217
FI-26101 Rauma
Finland
Phone +358 2 8387 7900
Fax +358 2 8387 7910
steerprop@steerprop.com
www.steerprop.com

Specialty Areas

Azimuth Propulsors for demanding applications. Steerprop Ltd. combines the reliability of proven technologies with the efficiency of modern design to produce azimuth propulsors of exceptional quality and excellent reliability. Steerprop Azimuth Propulsors can be made up to 20 MW in power or even in the most stringent ice-classes.

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TEBUL OY

Luumäentie 2
FI-21420 Lieto
Finland
Phone +358 50 540 6031
sales@tebul.fi
www.tebul.fi

**Contact Person**

Jussi Uusitalo
Managing Director
sales@tebul.fi

Specialty Areas

TEBUL OY has been designing and manufacturing watertight bulkhead sliding doors since 1961. Our self-tightening 24VDC fully electric watertight bulkhead sliding door is a fourth-generation product. The primary self-tightening is based on metal to metal contact with rubber seals for initial tightening. The higher the pressure, the larger the force exerted on the door. Tebul doors are approved to be installed into A-60 bulkheads. Tebul doors are available also in the Eex-version, for Explosion Hazardous areas.

NOTES**NOTES**

1. Consulting
2. Equipment
3. Machinery

4. Materials
5. Safety
6. Systems

7. Turnkey Deliveries
8. Yards
9. Other

NOTES



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